GUIDELINES

For

GENERAL PRACTITIONERS

2024

Press record

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FOREWORD

It is a great honor for me to write a foreword to Guidelines for General Practitioners by General Practitioners' society, Myanmar Medical Association (Central).

General practitioners are the primary health providers in the community looking after the majority of the people of our country. They are being trusted and depend upon by every families in the surrounding area where they practice. The first and foremost care by the General Practitioners are the most important for all the people.

Guidelines based on a critical appraisal of scientific evidence (evidence-based guidelines) clarify which interventions are of proved benefit and document the quality of the supporting data. They alert clinicians to interventions unsupported by good science, reinforce the importance and methods of critical appraisal, and call attention to ineffective, dangerous, and wasteful practices.

Clinical guidelines can improve the quality of clinical decisions. They offer explicit recommendations for clinicians who are uncertain about how to proceed, overturn the beliefs of doctors accustomed to outdated practices, improve the consistency of care, and provide authoritative recommendations that reassure practitioners about the appropriateness of their treatment policies.

The Myanmar Medical Association together with the GP society has been helping out with the CME and CPD program for the Member doctors both inhouse sessions and online courses. This guideline is one of the essential parts of this CPD for the GPs.

I would like to congratulate the GP society for their effort for producing this guideline and also, I would like to encourage them to review and updated regularly.

Professor Aye Aung
President
Myanmar Medical Association

April, 2024

PREFACE

We are writing this letter to express our sincerest gratitude and appreciation for the successful completion of the **second edition** of the **General Practitioners' Guidelines**. This accomplishment is the result of an exceptional collaborative effort, and we would like to extend our thanks to all those involved.

The General Practitioners' Guidelines has been an invaluable resource since its inception with the launch of the first edition in November 2017. As per the initial plan, the guidelines were intended to be updated every three years to ensure the most up-to-date information reaches Myanmar General Practitioners, enhancing their knowledge in primary healthcare and family health.

However, the unforeseen outbreak of the Covid-19 pandemic disrupted our plans and posed numerous challenges for the team. In-person meetings became impossible due to safety concerns, making it necessary for us to find alternative means of communication and collaboration. Despite the adversity faced, the team members demonstrated remarkable resilience and adaptability by utilizing online platforms and technology to continue the update process.

We would like to extend our deepest gratitude to the dedicated team members who persevered and worked tirelessly during these trying times. Their commitment, professionalism, and unwavering dedication to the project enabled us to overcome the obstacles posed by the pandemic and successfully complete the second edition of the guideline.

Furthermore, we would like to express our sincere appreciation to the specialist societies that actively contributed to the development of the guidelines. Their expertise and invaluable insights have ensured that the content remains current, accurate, and relevant, enabling our General Practitioners to provide the highest quality of care to their patients.

We would also like to extend our heartfelt thanks to the esteemed President of the Myanmar Medical Association, for their continuous support and guidance throughout this endeavor. Their leadership and unwavering commitment to advancing medical knowledge in Myanmar have been instrumental in the success of this Guidelines.

Moreover, the decision to distribute the guideline as electronic copies reflects our commitment to ensuring easy access for all Myanmar General Practitioners. By making it available in this format, we aim to facilitate the dissemination of updated knowledge, thus empowering our healthcare professionals to deliver the best possible care to the community.

In conclusion, we would like to express our deepest gratitude to all those who contributed to the development and distribution of the General Practitioners' Guidelines Second Edition. The unwavering supports and collective efforts have made a significant impact on enhancing primary healthcare and family health care in Myanmar.

Once again, thank you for your outstanding dedication, resilience, and invaluable contributions. We look forward to our continued collaboration in advancing medical knowledge and improving healthcare outcomes for all.

Dr Khine Soe Win and Dr Win Zaw April, 2024
General Practitioners' Society (Central)
Myanmar Medical Association

EDITORIAL

It is my privilege to inform you that our updated and revised edition of "**Guidelines for General Practitioners**" will be published very soon and it is my great pleasure to be the editor-in-chief of this guideline book. There are various reasons for revising and updating the previous edition.

This is the fact that some important topics, for example, malaria and family violence are missing in the first edition and some clinical practice guidelines like Diabetes Management have been changed during the interim period. Of course, this opportunity arises due to the emergence of COVID-19 in the world. As all you know, Medicine is an ever-changing science; we need to consider updating our guidelines at least five- yearly. Hence the time is up now!

Education is achieved by assimilating information from many resources and readers of this book can enhance their learning experience in terms of reflecting in their daily Family/General Practice. We all take immerse pride in contributing good educational resource dedicated to Myanmar General Practitioners. The editors and authors anticipate that the readers will both enjoy and profit from their work in preparing this volume.

Happy studying and learning,

Dr Win Lwin Thein
Editor-in chief
Vice President (GP Society)
April, 2024

ACKNOWLEDGEMENT

We would like to thank all our talented and hard-working colleagues who have contributed to the ongoing development of the **Guidelines for General Practitioners**.

Especially, we would like to highlight the significance of the second edition which appears when the family medicine development process in Myanmar is being idle. Many factors are impeding the developing process lately, which has been accelerated previously by the commitment of the MOHS, the medical universities, and the General Practitioners' Society before the COVID-19 pandemic started.

No one can deny that the Myanmar health care system is lacking a strong and effective primary care task force. The best solution to mend this defect is retraining the thousands of general practitioners who are working individually across the country. Here comes the role of family medicine to train these GPs and primary care doctors to be able to use its principles effectively and, in turn, strengthen primary care.

Many GPs are using some family medicine principles consciously or unconsciously in varying degree of competency. Person-centered care, continuity of care, and family-oriented care became the culture of most practices for a long time. But only a few GPs can enjoy the most effective coordinated care and seamless continuity of care with secondary and tertiary care providers. The reasons behind this would be the absence of standardization in general practitioners' service quality and unawareness of the value of family medicine practitioners by other specialties and the public.

To resolve this ambiguity, primary care doctors should be involved in the retraining programs and thereafter CME/CPD and other life-long-learning programs which prescribe family medicine curricula.

We also acknowledge the effort of the contributors to make this new edition more family medicine-oriented, in addition to the Family Medicine chapter at the beginning of the book. We genuinely believe that the new edition will be a better reference for the GP/FP who wants to practice quality primary care and for future family medicine programs in Myanmar.

Finally, we would like to thank all academic writers who contributed to the General Practice Guidelines-first edition. Without their kind support, this second edition could never have happened.

Regards,

Dr. Tin Aye and Dr. Kyaw Thu

General Practitioners' Society (Central), MMA **April, 2024**

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SYMBOLS AND ABBREVIATIONS

AAA abdominal aortic aneurysm
ABC airway, breathing, circulation
ABCD airway, breathing, circulation, dextrose
ABO A, B and O blood groups
ACE angiotensin-converting enzyme
ACEI angiotensin-converting enzyme inhibitor
ACTH adrenocorticotrophic hormone
ADHD attention deficit hyperactivity disorder
ADT adult diphtheria vaccine
AFP alpha-fetoprotein
AI aortic incompetence
AIDS acquired immunodeficiency syndrome
AIIRA angiotensin II (2) reuptake antagonist
AKF acute kidney failure
ALE average life expectancy
ALL acute lymphocytic leukaemia
ALP alkaline phosphatase
ALT alanine aminotransferase
AMI acute myocardial infarction
AML acute myeloid leukaemia
ANA antinuclear antibody
ANF antinuclear factor
AP anterior–posterior
APH ante-partum haemorrhage
ASD atrial septal defect
ASIS anterior superior iliac spine
ASOT antistreptolysin O titre
AST aspartate aminotransferase
AV atrioventricular
AZT azidothymidine
BCC basal cell carcinoma
BCG bacille Calmette-Guérin
BMD bone mass density
BMI body mass index
BP blood pressure
BPH benign prostatic hyperplasia
Ca carcinoma
CABG coronary artery bypass grafting
CAD coronary artery disease
CAP community acquired pneumonia
CBT cognitive behaviour therapy
CCF congestive cardiac failure
CCU coronary care unit
CD4 T helper cell
CD8 T suppressor cell
CDT combined diphtheria/tetanus vaccine
CEA carcinoembryonic antigen
CFS chronic fatigue syndrome
CHD coronary heart disease
CHF chronic heart failure
CIN cervical intraepithelial neoplasia
CK creatinine kinase
CKD chronic kidney disease
CKF chronic kidney failure
CML chronic myeloid leukaemia
CMV cytomegalovirus
CNS central nervous system
COAD chronic obstructive airways disease
COC combined oral contraceptive
COCP combined oral contraceptive pill
COPD chronic obstructive pulmonary disease
COX cyclooxygenase
CPA cardiopulmonary arrest
CPAP continuous positive airways pressure
CPK creatine phosphokinase
CPR cardiopulmonary resuscitation
CR controlled release
CREST calcinosis cutis; Raynaud's phenomenon; oesophageal involvement; sclerodactyly; telangiectasia
CRF chronic renal failure
CR(K)F chronic renal (kidney) failure
CRP C-reactive protein
CSF cerebrospinal fluid
CT computerised tomography
CTS carpal tunnel syndrome
CVA cerebrovascular accident
CVS cardiovascular system
CXR chest X-ray
DBP diastolic blood pressure
DC direct current
DHA docosahexaenoic acid
DI diabetes insipidus
DIC disseminated intravascular coagulation
dL decilitre
DMARDs disease modifying antirheumatic drugs
DNA deoxyribose-nucleic acid
DRABC defibrillation, resuscitation, airway, breathing, circulation
drug dosage bd—twice daily, tid/tds -three times daily, qid/qds -four times daily
ds double strand
DS double strength
DSM diagnostic and statistical manual (of mental disorders)
DU duodenal ulcer
DUB dysfunctional uterine bleeding
DVT deep venous thrombosis
EBM Epstein-Barr mononucleosis (glandular fever)
EBV Epstein-Barr virus
ECG electrocardiogram
ECT electroconvulsive therapy
EDD expected due date
EEG electroencephalogram
ELISA enzyme linked immunosorbent assay
ESRF end-stage renal failure
ESR(K)F end stage renal (kidney) failure
ERCP endoscopic retrograde cholangiopancreatography
esp. especially
ESR erythrocyte sedimentation rate
FB foreign body
FBE full blood count

FEV1 forced expiratory volume in 1 second
fL femtolitre = (1e–15) litre
FSH follicle stimulating hormone
FUO fever of undetermined origin
FVC forced vital capacity
g gram
GA general anaesthetic
GABHS group A beta-haemolytic streptococcus
GBS Guillain-Barré syndrome
GFR glomerular filtration rate
GI glycaemic index
GIT gastrointestinal tract
GLP glucagon-like peptide
GnRH gonadotrophin-releasing hormone
GO gastro-oesophageal
GORD gastro-oesophageal refl ux
GP general practitioner
G-6-PD glucose-6-phosphate
GU gastric ulcer
HAV hepatitis A virus
anti-HAV hepatitis A antibody
Hb haemoglobin
HbA haemoglobin A
anti-HBc hepatitis B core antibody
HBeAg hepatitis B e antigen
anti-HBs hepatitis B surface antibody
HBsAg hepatitis B surface antigen
HBV hepatitis B virus
HCG human chorionic gonadotropin
HCV hepatitis C virus
anti-HCV hepatitis C virus antibody
HDL high-density lipoprotein
HEV hepatitis E virus
HFM hand, foot and mouth
HFV hepatitis F virus
HGV hepatitis G virus
HIV human immunodeficiency virus
HNPCC hereditary nonpolyposis colorectal cancer
HPV human papilloma virus
HRT hormone replacement therapy
HSV herpes simplex viral infection
IBS irritable bowel syndrome
ICE ice, compression, elevation
ICS inhaled corticosteroid
ICS intercondylar separation
ICT immunochromatographic test
IDDM insulin dependent diabetes mellitus
IDU injecting drug user
IgE immunoglobulin E
IgG immunoglobulin G
IgM immunoglobulin M
IHD ischaemic heart disease
IM, IMI intramuscular injection
inc. including
IPPV intermittent positive pressure variation
IR internal rotation
ITP idiopathic (or immune) thrombocytopenia purpura
IUCD intrauterine contraceptive device
IUGR intrauterine growth retardation
IV intravenous
IVI intravenous injection
IVP intravenous pyelogram
IVU intravenous urogram
JCA juvenile chronic arthritis
JVP jugular venous pulse
KA keratoacanthoma
kg kilogram
KOH potassium hydroxide
LA local anaesthetic
LABA long acting beta agonist
LBBB left branch bundle block
LBO large bowel obstruction
LBP low back pain
LDH/LH lactic dehydrogenase
LDL low-density lipoprotein
LFTs liver function tests
LH luteinising hormone
LHRH luteinising hormone releasing hormone
LIF left iliac fossa
LMN lower motor neurone
LNG levonorgestrel
LRTI lower respiratory tract infection
LSD lysergic acid
LUQ left upper quadrant
LUTS lower urinary tract symptoms
LV left ventricular
LVH left ventricular hypertrophy
mane in morning
MAOI monoamine oxidase inhibitor
mcg microgram (also µg)
MCV mean corpuscular volume
MDI metered dose inhaler
MDR multi-drug resistant TB
MI myocardial infarction
MRCP magnetic resonance cholangiography
MRI magnetic resonance imaging
MS multiple sclerosis
MSM men who have sex with men
MSU midstream urine
N normal
NAD no abnormality detected
NGU non-gonococcal urethritis
NHL non-Hodgkin's lymphoma
NIDDM non-insulin dependent diabetes mellitus
nocte at night
NSAIDs non-steroidal anti-inflammatory drugs
NSU non-specific urethritis
(o) taken orally
OA osteoarthritis
OCP oral contraceptive pill
OGTT oral glucose tolerance test
OSA obstructive sleep apnoea
OTC over the counter
PA posterior–anterior
PAN polyarteritis nodosa
Pap Papanicolaou
pc after meals
PCA percutaneous continuous analgesia
PCB post coital bleeding

PCL posterior cruciate ligament
PCOS polycystic ovarian syndrome
PCP pneumocystis carinii pneumonia
PCR polymerase chain reaction
PCV packed cell volume
PDA patent ductus arteriosus
PEF peak expiratory flow
PEFR peak expiratory flow rate
PET pre-eclamptic toxaemia
PFT pulmonary function test
PH past history
PID pelvic inflammatory disease
PLISSIT permission: limited information: specific suggestion: intensive therapy
PMS premenstrual syndrome
PMT premenstrual tension
POP plaster of Paris
POP progestogen-only pill
PPI proton-pump inhibitor
PPROM preterm premature rupture of membranes
PR per rectum
prn as and when needed
PROM premature rupture of membranes
PSA prostate specific antigen
PSIS posterior superior iliac spine
PSVT paroxysmal supraventricular tachycardia
PT prothrombin time
PTC percutaneous transhepatic cholangiography
PU peptic ulcer
PUO pyrexia of undetermined origin
pv per vagina
qds, qid four times daily
RA rheumatoid arthritis
RBBB right branch bundle block
RBC red blood cell
RCT randomised controlled trial
RF rheumatic fever
Rh rhesus
RIB rest in bed
RICE rest, ice, compression, elevation
RIF right iliac fossa
RPR rapid plasma reagin
RR relative risk
RSV respiratory syncytial virus
RT reverse transcriptase
rtPA recombinant tissue plasminogen activator
SAH subarachnoid haemorrhage
SARS severe acute respiratory distress syndrome
SBE subacute bacterial endocarditis
SBO small bowel obstruction
SBP systolic blood pressure
SC/SCI subcutaneous/subcutaneous injection
SCC squamous cell carcinoma
SCG sodium cromoglycate
SIADH syndrome of secretion of inappropriate antidiuretic hormone
SIDS sudden infant death syndrome
SIJ sacroiliac joint
SL sublingual
SLE systemic lupus erythematosus
SLR straight leg raising
SND sensorineural deafness
SNHL sensorineural hearing loss
SNRI serotonin noradrenaline reuptake inhibitor
SOB shortness of breath
sp species
SR sustained release
SSRI selective serotonin reuptake inhibitor
SSS sick sinus syndrome
stat at once
STI sexually transmitted infection
SVC superior vena cava
SVT supraventricular tachycardia
T3 tri-iodothyronine
T4 thyroxine
TB tuberculosis
tds, tid three times daily
TENS transcutaneous electrical nerve stimulation
TFTs thyroid function tests
TG triglyceride
TIA transient ischaemic attack
TIBC total iron binding capacity
TM tympanic membrane
TMJ temporomandibular joint
TNF tissue necrosis factor
TOF tracheo-oesophageal fistula
TORCH toxoplasmosis, rubella, cytomegalovirus, herpes virus
TPHA Treponema pallidum haemoglutination test
TSE testicular self-examination
TSH thyroid-stimulating hormone
TT thrombin time
TV tidal volume
U units
UC ulcerative colitis
U & E urea and electrolytes
µg microgram
UMN upper motor neurone
URTI upper respiratory tract infection
US ultrasound
UTI urinary tract infection
U ultraviolet
VC vital capacity
VDRL Venereal Disease Reference Laboratory
VF ventricular fibrillation
VMA vanillyl mandelic acid
VSD ventricular septal defect
VT ventricular tachycardia
VUR vesico-ureteric reflux
VWD von Willebrand's disease
WBC white blood cells
WCC white cell count
WHO World Health Organization
WPW Wolff-Parkinson-White
XL sex linked

Chapter 2

Common Symptoms in General Practice

1. Fatigue
2. Weight Loss
3. Fever
4. Dyspepsia
5. Breathlessness
6. Cough
7. Sore Throat
8. Chest Pain
9. Diarrhoea
10. Constipation
11. Vomiting
12. Abdominal Pain
13. Skin Rash
14. Backpain
15. Joint Pain
16. Dizziness
17. Headache
18. Insomnia
19. Multiple Unexplained Physical Symptoms (MUPS)
20. Red Eye

COMMON SYMPTOMS IN GENERAL PRACTICE

1. FATIGUE

A Common and Practical Definition

- Defined as a sensation of exhaustion during or after usual activities, or a feeling of inadequate energy to begin these activities.
- Fatigue may be defined as excessive tiredness of body or mind. Patients may use different words to express it: weariness, loss of energy, listlessness and exhaustion.

Relevance to General Practice

- Primary-care-based surveys have shown that between 11% and 33% of patients report significant fatigue, resulting in approximately 7 million office visits per year in the US. Fatigue is also a common complaint in the general population, with prevalence between 4.3% and 13.4%.
- Everyone is occasionally tired. For some, the tiredness may be severe enough to prompt a visit to the primary care physician.
- Most patients bothered by being tired all the time come to the doctor looking for an organic cause. Although most studies of chronic fatigue syndrome (CFS) find the vast majority to have a psychological cause, few patients initially report psychological symptoms as secondary to a medical illness. Attempts by the doctor to address psychological issues may be misinterpreted by the patient as not being taken seriously.
- The task of the primary care physician is to pick up the patient which an organic cause for definitive treatment and to provide advice and reassurance to the rest.
- **Anaemia** is the commonest physical cause of fatigue. Other physical causes include hypothyroidism, cardiovascular disease, diabetes, carcinoma and post infectious mononucleosis infection. A full blood count is therefore the single most useful test if investigation is considered necessary.

- Remember to review the patient's medication as a possible contributing factor.

Classification

Fatigue can be classified as;

- **Physiological** (i.e., fatigue which can normally be expected in a mentally and physically healthy individual when an imbalance in exercises, rest or diet exists.
- **Acute** (not explainable by physiological fatigue, present for fewer than six months and not resolving with bed rest), and
- **Chronic** (present for six or more months).

Common Case Scenario In Myanmar:

- A 25-year-old MTZ comes to your GP Clinic with a 9-month history of "unbearable fatigue". Before the fatigue began 9 months ago, she worked as a high school chemistry teacher. Since the fatigue began, she has been unable to work at all. She tells you that "I'm feeling tired all the time, so could you give me an IV?"

Filtering:

- In this case, first question you should ask is "How long have you been suffering from this sort of feeling –tiredness all the time?"
- Duration >2 weeks-depression ¼, physical disease 1/4, no cause ¼, CFS and other possibilities ¼
- Duration > 6 months-depression ½, somatisation disorder and other psychiatric ¼, CFS 10%, prolonged fatigue NOS (not other specified) and chronic physical in the remainder

Causes

- It is helpful to start by drawing up a shortlist of possible causes so that realistic diagnostic probabilities can be considered. In those patients in whom a positive diagnosis can be made, being tired all the time (TATT) is much more likely to arise from psychological or social causes than physical ones.
- About 75% of cases may have psychological or social causes. 10% have physical causes and the remaining 15% have unexplained fatigue. (See Table 1)

Table 1. Causes of feeling tired all the time

PSYCHOLOGICAL AND SOCIAL

- Anxiety, depression or mixed

PHYSICAL

- Uncommon (less than 10%)
- anaemia
- diabetes
- hypothyroidism
- side-effects of medication
- cardiovascular disease
- malignancy (rare-less than 1%)
- postviral fatigue syndrome

UNEXPLAINED

- Relatively uncommon (15%)

Source Ridsdale I, Evans A, Jerrei Wet al. Patients with fatigue in general practice: a prospective study BMJ 1993:307:103-

Table 2: Prevalence of the disease in GP:

- Depression-17-40% (it is the commonest cause of chronic fatigue>6 months)
- Others psychiatric(anxiety)-25%
- Boredom, overwork, other types of unhappiness-
- Alcohol misuse-16%
- Insomnia
- Obstructive sleep apnoea (OSA)-2.4%
- Chronic fatigue syndrome (CFS)-0.2-2.6%
- Fibromyalgia 2.4%
- Others physical-anaemia-4%hypothyroid-1.5%, diabetes-0.5%,
- Drugs-1 in 57 patients treated a year

Psychological

- Anxiety or depression, or a combination of the two, are overwhelmingly responsible for most cases of feeling tired all the time. Such anxiety or depression is often linked to psychological stress and usually has a clear underlying cause.

Anaemia

- For anaemia to be a cause, it has to be seven, that is, 7G /100ml. Lassitude prevails, at times in association with exertional dyspnoea or with postural hypotension when blood loss is acute.

Endocrine

- Diabetes mellitus is the most common endocrine cause for fatigue. Less common, but should be looked out for, are hypothyroidism and apathetic hyperthyroidism in the elderly.

Pharmacologic

- Drugs commonly causing tiredness include antihistamines, antihypertensives and psychotropics.

Cardiopulmonary and other vital organ dysfunction

- Failure of any of the vital organs can present as fatigue, e.g. congestive cardiac failure, chronic renal failure, hepatocellular failure and chronic obstructive lung disease. In the diabetic patient and in the elderly, acute myocardial infarction may present as tiredness.
- Chronic fatigue from disturbed step due to sleep apnoca is an often-overlooked aetiology. Daytime sleepiness, excessive snoring, irregular breeding, disturbed sleep, and haemoglobin desaturation are characteristics of this condition.

Malignancy

- Occult malignancy is a much-feared etiology. Fatigue and lassitude accompany most cancers, but pancreatic carcinoma is the typical example of a tumour that may present initially as marked fatigue with few localizing symptoms.
- Also, severe weight loss, depression and apathy may also dominate clinical picture before other manifestations of the malignancy become evident. Malignancies causing hypercalcemia (e.g. breast cancer, mycloma) may present with fatigue, although the hypercalcemia is usually a late development.

Infections

- Occult infections like tuberculosis or endocarditis, prodromal phase of hepatitis, and acute infections can all cause fatigue.
- Post viral fatigue syndromes are relatively uncommon. Fatigue due to infectious mononucleosis is well documented.

Physiological tiredness

- Tiredness following any form of exertion, be it mental of physical, is normal. It is unusual for patients to complain of this form of tiredness to the doctor, unless it is used as a “ticket of entry” for another problem.

Workup

History

- It is important to ensure that the patient and the doctor are talking about the same thing. Patients should be questioned about what they mean by “tiredness”. Local muscle aches or shortness of breath may be described as “tiredness”.
- A brief perusal of the patient’s records should disclose past and present medical history, including current drug therapy, and may give a clue to the present complaint.
- The initial part of the consultation should concentrate on open questions, allowing the patient to elaborate on his on her complaints, before focusing on specific questions designed to confirm or refute the diagnostic hypotheses forming in the doctor’s mind.
- If a psychological disorder seems unlikely, then systematic questioning is needed to elucidate the problems.

General questions

Duration of complaint is important.

- days – prodromal phase of infections, recent infarct
- weeks – underlying malignancy, chronic infections
- months, or life-long duration – psychological cause.

Periodicity

- constant – organic problem
- fluctuating – functional aetiology

Worst time of the day

- In the morning, especially after a good night's sleep – functional cause more likely
- worsens as the day progresses – physical cause more likely

Significant preceding event

- acute – e.g. bereavement
- sometime past – e.g. dental extraction resulting in sub-acute bacterial endocarditis (infective endocarditis).

System review

- If a psychological disorder seems unlikely then systematic questioning, for example about change in weight, cough, dyspnoea, polydipsia, polyuria, or a recent history of viral illness, should help to confirm or refute possible physical causes.

Exploration of possible psychological factors

- A psychological cause, as for example, over-burdened life situations, may cause fatigue. A grandparent who suddenly has to look after a grandchild may well be tired out by the responsibility.

History

- **Depression**-two screening questions: in the last month have you often been bothered by feeling down, depressed or hopeless? -----by little interest or pleasure in doing things? If yes, test is positive.
  Sensitivity 96%, specificity-57%.PPV 33%, NPV 98%
- **Anxiety-** Do you find yourself worrying a lot or on edge? HADS score>8 is positive LR =4
- **Dissatisfaction-** Do you usually get out of bed in the morning looking forward to the day ahead?
- **Sleep-** snoring, diurnal somnolence, morning dry mouth and headache, Epworth sleepiness scale: total score>11 supports the diagnosis of OSA
- Limb discomfort at rest, involuntary limb movement, restlessness of legs, disturbed sleep, depressed mood could indicate Restless Leg syndrome (RLS)
- **Alcohol** how often do you have an alcohol drink?
- **Prolonged fatigue syndromes-SOFA scale**
- **Infectious mononucleosis** sore throat, fever, swollen glands
- **Drugs**
- **Concomitant illnesses**

Red flags

- Suicidal ideation and marked social withdrawal (MDD and high suicide risk)
- History of substance abuse (withdrawal syndrome and HIV)
- Fever, chills, hypotension (life threatening infection)
- Recent onset of severe or worsening fatigue (severe anemia)
- Gradual onset of fatigue with HIV risk (AIDS)
- Orthopnoea, edema, cardiomegaly, basal crackles (CCF)
- Polyuria and polydipsia (Diabetes)

Physical Examination

- The **general condition** of the patient is important. If the patient looks obviously well, then a functional cause is more likely, though this does not preclude a thorough physical examination.
- If the patient looks unwell, then one should look very hard for physical signs that may be pointers to the underlying problem.
- Pallor-conjunctiva (LR+2.2) multiple sites (LR+ 4.5)
- Hypotension

- Hypothyroid-hand, pulse, voice, coarse skin (LR+5.6), speech (LR+5.4), bradycardia <70 (LR+4.1), wrist puffiness (LR+2.9), periorbital puffiness (LR+2.8), goiter (LR+2.8) In the absence (LR-0.01)
- Hyperthyroid-lid retraction (LR+31.5) lid lag (LR+17.6), fine tremor (LR+11.4) moist warm skin (LR+6.7) tachycardia >90 (LR+4.4) absence of any signs LR-0.01
- Lympadenopathy and hepatosplenomegaly of chronic infection and malignancy

Investigation:

- FBC-if anaemia (+)
- ESR
- RBS
- TSH to exclude Hypothyroid
- Endomysial antibody for coeliac disease
- RCGP recommend LFT, U&E, CK if fatigue more than 6 months

Management

Specific Problems

If there is a specific problem, management is directed forwards the underlying cause.

Functional Problems

- It is important to separate clearly patients who suffer from depression or anxiety from patients who are basically normal but are not coping with excessive stress.
- Patient education and explanation as to why the patient is feeling fatigued helps in the latter group. Showing him or her normal investigation results also help to reinforce the message of normality.
- Anxiolytics can be used in conjunction with advice and counseling. Improvement can be expected in 6 weeks.
- Work situation and social considerations may need modification.
- Family support is important. Explanation and call for supportive attitude on the part of the family members helps.

CHRONIC FATIGUE SYNDROME

- A proportion of individuals with fatigue remain unexplained. Over the past 20 years, there has been considerable worldwide consensus on the criteria for diagnosing this condition.
- The Centres for Disease Control (CDC) in the US has defined the 2 criteria for its diagnosis.
  1. Type of fatigue-chronic fatigue lasting more than 6 months which is:
- Clinically evaluated and unexplained
- Persistent or relapsing
- With a definite onset
- Not the result of ongoing exertion
- Not substantially alleviated by rest
- Results in a substantial reduction in previous levels of occupational, educational, social or personal activities.
  2. Symptoms-Four or more of the following should be present:
- Substantial impairment in short-term memory or concentration
- Sore throat
- Tender lymph nodes
- Muscle pain and tenderness
- Headaches of a new type, pattern or severity
- Unrefreshing sleep and
- Post-exertional malaise lasting more than 24 hours

Symptoms must have persisted or recurred during six or more consecutive months of illness and must not have predated the fatigue.

Minimal Clinical and laboratory evaluation of CFS

- Full clinical examination
- Urinalysis
- FBC, ESR/CRP, autoantibodies
- Thyroid function rests
- Fasting morning cortisol
- Epstein-Barr virology including nuclear antibody

Management

Once organic causes are excluded, management is symptomatic and supportive.

Treatment of Chronic Fatigue syndrome:

1. Multidisplinary rehabilitation treatment is more effective at reducing long-term fatigue severity than CBT in patients with chronic fatigue.
2. Cognitive behavioral therapy (CBT) is a psychotherapeutic intervention aimed at modifying thoughts, feelings, and behaviors. CBT and graduated exercise therapy are cost effective treatment especially associated with co morbid depression.
3. Because the prevalence of clinical depression and/or anxiety in patients with CFS is about 40%, the treatment of depression/anxiety is indicated for CFS.
4. As studies of migraine associated with CFS suggested that around2/3 of patients with CFS have migraine, treatment of migraine is beneficial in case of CFS.
5. Symptom specific treatments are useful e.g., anticholinergic drugs for rhinorrhea.

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2. WEIGHT LOSS

Definition

- As involuntary weight loss of greater than 5% within 6 months or greater or equal to 10% within a year should trigger concern. The significance of weight loss should not be underestimated: in about one third of patients, there is no specific cause, but in the rest, serious underlying pathology is found.
- The minorities of these are psychiatric; 90% have organic illness. Thorough assessment from the start is the rule.

Relevance to general practice

- An organic cause need to looked for, although a substantial fraction of patients eventually turns out to be free of any organic disease.
- The task of the primary care physician is to determine at the time of initial presentation who requires extensive medical evaluation and who can be followed up expectantly.

Causes

- The differential diagnosis of involuntary weight loss is extensive, but case studies indicate cancer, depression, and disorders of the gastrointestinal tract to be the most common causes.
- In approximately 25% of cases, no cause of weight loss is found despite extensive evaluation and prolonged follow-up. The main causes are shown in Table 1.

Medical causes

Cancer

- Malignancy is probably the most common cause of weight loss, especially when major signs and symptoms are absent. Although any cancer may present with weight loss, the gastrointestinal tract, including the pancreas and liver, is the most frequent site for occult tumours to be found.
- Lymphoma and leukemia as well as cancer of the lung, ovaries or prostate should be searched for in such patients.

Endocrine and metabolic causes

- Hyperthyroidism, hypothyroidism and diabetes mellitus need to be considered. Weight loss has been described as the most common presenting symptom of hyperthyroidism in the elderly.
- Although hypothyroidism is often thought to cause weight gain, it may also result in anorexia and apathy resulting in weight loss, especially in the elderly.

Infection

- Hidden infection should be searched for in many patients with unexplained weight loss. Tuberculosis, fungal disease, amoebic abscess and subacute bacterial endocarditis should be considered.

Table 1, Some Important Causes of Involuntary Weight Loss

Medical causes
• Cancer
• Endocrine and metabolic causes
• Infection
• Gastrointestinal disease
• Cardiac disorders
• Respiratory disorders
• Renal disease
• Connective tissue diseases

- Oral disorders
- Age-related factors

Neurologic causes

- Dementia
- Parkinson’s disease
- Stroke

Social causes

- isolation
- Economic hardship

Psychiatric and behavioural causes

- Depression
- Anxiety
- Bereavement
- Alcoholism
- Sociopathy

Source: Relfe. Med. Clin N Am 1995 March, 78:2:299-312

Gastrointestinal disease

- Patients with prior abdominal surgery may have partial intestinal obstruction with discomfort, vomiting, and weight loss. Patients who have had a partial gastronomy for ulcer discuss may have malabsorption and loss of weight.

Cardiac, respiratory and renal discuss

- End-stage cardiac, respiratory and renal diseases have varying degrees of loss of appetite which result in weight loss.

Oral disorders, age-related factors

- Absence of teeth, ill-fitting dentures and pain with eating may be a cause of involuntary weight loss in the older patient. A number of functional disabilities may make it increasingly difficult for elderly patients to shop or prepare food; these factors include arthritis, stroke, visual impairment, cardiac disease and dementia. **Neurologic causes**

Dementia

- Such patients may lose the ability to eat independently. The time required to feed these patients may overwhelm family resources or institutional staffing, and patients may not be adequately fed.

Parkinson’s disease

- Such patients with late-stage disease may develop swallowing difficulties.

Stroke

- A stroke may result in dysphagia, weakness and depression, all of which may cause patients to decrease food intake.

Social causes

Isolation

- People tend to eat more in social situation, and social isolation from any reason may result in decreased food intake.

Economic hardship

- Economic hardship as the result of the events may result in difficult financial choices and healthy food may not always be affordable.

Psychiatric and behavioural causes

Depression

- Depression is an important disorder in later life. It may lead to apathy, anorexia and weight loss.

Anxiety

- Patients may be preoccupied and forget to eat. They may not have appetite.

Bereavement

- Loss of a loved one may cause bereavement over an extended period of time with loss of interest in eating entirely.

Alcoholism

- The diagnosis of alcoholism can be difficult to make, and vague complaints such as anorexia or weight loss may be the only signs of an underlying problem.

Sociopathy

- As a patients age, they may lose a sense of control Food refusal may be used as a way to gain back some degree of control and increase interaction with others.

Ready reckoner

	Normal stress	depression	Eating disorders	hyperthyroidism	Malignancy
Mild anxiety	Yes	Possible	No	No	No
Loss of appetite	Possible	Yes	No	No	Yes
Distorted body image	No	No	Yes	No	No
Recurrent problem	Yes	Possible	Possible	Possible	No
Severe malaise	No	Yes	No	Possible	Yes

WORKUP

A thorough history and physical examination, in most cases, reveal possible causes of weight loss and yield a plan to begin an evaluation.

History

Documentation of weight loss

- Assess the extent of weight loss from previous weight records and change in clothing size
- Check that the patient is not dieting
- Determine the time course of weight loss

Identification of mechanisms for weight loss

- Ascertain whether the appetite is good, normal or decreased.
- Weight loss in the presence of increased appetite is seen in thyrotoxicosis, diabetes mellitus and malabsorption.
- Weight loss in the presence of normal or decreased appetite is seen in malignancy, infection, inflammatory disease, malabsorption and depression.

Ask for symptoms accompanying the weight loss

Examples are symptoms of diabetes mellitus; bulky stools in malabsorption; symptoms of thyrotoxicosis, cough in tuberculosis.

Past history of relevance

Examples are: gastrointestinal surgery, cancer surgery.

Family history of chronic discuss

Ask for diabetes mellitus, thyroid disease and malignancy.

Psychiatric history

Ask for symptoms suggestive of depression or anxiety.

Social history

Changes in socio-economic status or life events may be the underlying cause.

Physical Examination

Assessment of degree of weight loss

- Clinical signs to confirm weight loss e.g. loose clothing, loose skin folds.
- Accurate weight determination.

Systems check for signs of diseases

- fever, tachycardia, pallor, ecchymoses, jaundice, signs of hyperthyroidism, hepatocellular failure
- head and neck for glossitis, stomatitis, poor dentition, goiter, lymphadenopathy
- lungs and heart for crepitations, consolidation, effusion, cardiomegaly and murmurs
- abdomen for distention, tenderness, masses and ascites
- return for masses, tenderness and appearance of the stool
- neurological examination

Examination of mental state

- for depression and dementia

Laboratory Investigations

Laboratory investigations should be selective, based on clues obtained from history and physical examination.

Basic investigation

- complete blood count and PBF
- ESR
- selected blood chemistry (calcium, albumin, protein, transaminases and blood urea)
- urinalysis and culture if indicated
- chest X-ray
- This may show a pertinent abnormally like a mass, infiltrate, heart failure or lymphadenopathy in up to 41% in one study.

Further investigations were indicated

- Stools for inspection and test for malabsorption.
- blood sugar
- thyroid function tests.

Search for occult carcinoma

- One of the most difficult diagnostic issues encountered in the workup of weight loss concern the possibility of result malignancy.

- Investigations for occult malignancy may need to be very extensive, and should be considered in the light of the likelihood of finding a cause and the chance that it will be treatable.
- Unfortunately, by the time that weight loss has occurred, most gastro-intestinal malignancies are rather advanced. When weight loss is the only symptom, pancreatic carcinoma may still be resectable it no other symptoms have appeared.
- If an initial assessment does not identify a course; careful follow-up rather than undirected diagnostic tests is the optimum management of the patient.

Management

- A patient with weight loss should be accessed clinically.
- Patients with no significant history and found to be normal on physical examination can be watched and followed up. The risk of serious disease is small.

Indications for referral

- Severe unexplained weight loss where an organic cause is suspected, such as malignancy.
- Referral to a gastroenterologist for those with symptoms of malabsorption such as bulky and foul stools.
- Referral to a psychiatrist for those suspected to have anorexia nervosa.
- Continued unexplained weight loss.

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3. FEVER

Definition

- The average normal oral body temperature is 36.7ºC (range 36-37.4C), or 98ºF (range 96.8º-99.3ºF). The normal rectal or vaginal temperature is 0.5ºC (1ºF) higher than the oral temperature, and the normal auxiliary temperature is correspondingly lower.
- Rectal temperature is more reliable then and temperature in patients who are mouth breathers or who are tachypnoeic.

Relevance to general practice

- Fever is a symptom that is most readily recognized as a sign of illness and brings the patient quickly to the doctor.
- In the febrile patient with a short history and who is otherwise well, symptomatic treatment based on a presumed viral etiology is usual. The doctor uses time as a diagnostic tool. It the fever persists, or if the condition of the patient deteriorates, the anxiety of both patient and doctor is then quickly aroused to further action.

Causes

- Many infectious, inflammatory, neoplastic and hypersensitivity reactions may produce fever.
- Fever can be broadly divided into short lived fever and prolonged fever.

Short lived fever (<1week)

- Most acute fevers encountered in the ambulatory care setting are of obvious cause and due to upper respiratory or urinary traction infection.
- Viral illness, drug allergy (especially to antibiotics), and connective tissue disease are other important causes, Symposiums accompanying the fever, if present, help in the diagnosis.
- In such cases, the fever would have settled within a few days. Especially in the rainy season, Dengue fever/DHF should bear in mind.

Prolonged fever (>1week)

- For most patients with a fever lasting one or two weeks, the underlying cause is soon discovered or the patient recovers spontaneously. In the latter case, a protracted viral illness is usually presumed to be the source of fever.
- In a small group of patients, physical examination and the basic tests do not reveal the cause of the protracted fever.
- Such a patient is considered to have a fever of unknown origin (PUO) if there has been a daily elevation in oral temperature to 38ºC or higher for three weeks without an identified cause.
- From studies utilizing this definition, the various causes and incidence of longstanding fevers can be assessed. These are shown in Table 1.

Table 1. Causes of Fever of Unknown Origin

Infection (40%)

- Tuberculosis
- Enteric fever
- UTI
- Endocarditis
- Abscess
- Zoonoses (Q fever, brucellosis, leptospirosis)
- Epstein-Barr virus, cytomegalovirus

Neoplasia (20%)

- Hodgkin's disease
- Other lymphomas
- Hypernephroma
- Leukemia
- Hepatoma

Immune-mediated (20%)

- Systemic lupus erythromatosus
- Polymyalgia nodosa
- Stills disease
- Idiopathic vasculitis

Miscellaneous (20%)

- No diagnosis
- Drug fever (gold, phenytoin, penicillin)
- Granulomatous disease (sarcoid, Crohn's)

Source: Whithy M. The febrile patient Aust Fam Physician 1993 Oct, 22:10:1753-1761) modified into local causes

- The following conditions are particularly important causes of fever in general practice, either because they are relatively common, or because they are easily treated or because they have particularly unfortunate consequences if the diagnosis is missed or delayed. In all those conditions the essential step in the diagnosis is to have thought of the possibility.

Infections

Meningitis

- This has to be considered in acute fevers if there is neck stiffness photophobic or vomiting. Lumbar puncture is necessary for confirmation. The prognosis is made worse if bacterial meningitis is not promptly diagnosed.

Urinary tract infection

- At any age this is a common and easily missed cause of fever. Perhaps it is particularly in young children that this condition commonly presents as a PLO, often with vomiting and irritability, but without any obvious urinary symptoms. The microscopic examination of the urine is an essential diagnostic procedure in the investigation of a PUO and the earlier it is done the better. The presence of pus cells in a fresh spun specimen establishes the diagnosis which can be confirmed by culture. Its diagnosis is often made more difficult by antibiotic therapy given in the absence of a diagnosis.

Hidden pus

- This is often a cause of PUO. The three most likely sites are under the diaphragm, in the pelvis, or round the kidney.

Subacute bacterial endocarditis

- This is another cause of PUO. It may not be a common disease but must be thought of. Increasingly it tends to occur in an older age group, to attack valves damaged by arteriosclerotic degeneration as well as rheumatic fever, and to be a complication of abdominal or pelvic surgery or instrumentation of the urinary tract, as well as dental work.

Septicaemia

- This is a possibility that should always be in the doctor's mind. If it is suspected, a blood culture is obligatory.

Pneumonia

- Segmental pneumonia can cause fever with few symptoms or clear diagnosis signs. In the elderly, particularly when they are all and are lying in bed, pneumonia may be hard to diagnosed and physical signs in the chest difficult to interpret.

Enteric fever (typhoid and paratyphoid)

- In the easily stages of the disease, there is a fever without localizing signs or symptoms. The diagnosis is best made on a blood culture.

Gall-bladder Infection

- Cholecystitis, empyema of the gall-bladder and ascending cholangitis can present as fever without any convincing local symptoms or signs. The patient may be very ill. Blood culture may be positive.

Diverticulitis

- This is common in the elderly and may cause fever without any clear localizing signs. Abscesses, either paracolic or pelvic, may occur.

Infectious diseases associated with travel

- The case of modern travel has made certain diseases a real diagnosis possibility in any case of PUO. Specific enquiry must be made about recent travel and to name the countries travelled to. One has to be aware of conditions endemic to specific countries.

Malaria

- The most dangerous condition to leave untreated in a traveler is malaria and every doctor should be prepared to take a thick blood film for examination by the laboratory in patients presenting with high fever in which malaria is a possibility. Enteric fevers and hepatitis have also to be considered.

Tuberculosis

- Pulmonary and extra-pulmonary TB should be considered in case of PUO. It is more likely in persons with Diabetes and HIV.

Viral diseases

- There is a group of viral diseases, or diseases of possible viral etiology which may present as obscure fever.

Infective hepatitis:

- This can present with a fever which may last for four or five days before jaundice becomes clinically evident. Anorexia and nausea are likely to the prominent symptoms. Enlargement of the liver may be noticed before the jaundice appears. Urobilinogen in the urine precedes the appearance of jaundice and of bile in the urine.

Infectious mononucleosis (glandular fever):

- This can present with prolonged fever.

Non-infectious diseases

- Fever does not, of course, always mean infection and there are some relatively common causes of fever from non-infectious diseases that should be in the doctor's mind. As a general principle, the longer the fever persists, the less likely a diagnosis of infection becomes. The more common causes of such fever are:

Malignant disease, including leukemia and Hodgkin's disease

- These can present as fever of unknown origin for several weeks.

Auto-Immune disorders

- Auto-immune disorders such as systemic lupus erythematosus are rare but possible causes of prolonged fever. Rheumatoid arthritis causes fever but the local joint signs are likely to make the diagnosis clear.

Miscellaneous causes

Dehydration

- Dehydration can cause fever. It is particularly important to think of this possibility in the elderly and in the infant.

Drugs

- Drugs must always be suspected as a possible cause of fever. Even drugs taken for long periods without any ill-effect can still cause fever unexpectedly. Self-prescribed drugs as well as those given by doctors may be the causes of fever. Careful enquiry must be made should all forms of medication.

Venous thrombosis

- Venous thrombosis may cause fever without any dramatic local symptoms. Examination of the calves should be a routine in the physical examination of patients with fever, but it should be remembered that thrombosis may affect veins not accessible to external physical examination.

WORKUP

- The **acutely febrile patient** presents common but demanding problems in differential diagnosis. In most cases, a careful history and physical examination will reveal the diagnosis clues, so that laboratory studies can be used selectively.
- The evaluation of **persistent fever** can be more demanding. The initial office evaluation should help determine the proper pace of diagnostic testing and the need for therapeutic intervention.
- If the patient is a compromised host, or if he is acutely ill and toxic, several immediate diagnosis studies are needed such as blood counts and blood cultures to confirm an infective cause and treatment may even be required such as antibiotics given empirically before all the results are available. Hospitalization is usually necessary in such cases.
- If the patient is **not toxic and clinically stable**, the workup can be less rushed. The diagnostic use of time is an essential problem-solving method for the general practitioner. Certain safeguards, however, are required.
- The patient must understand that the doctor needs to above if the illness changes in a significant way or if his general condition deteriorates unexpectedly. Patients do sometimes conclude that because no treatment has been given the doctor considers the illness insignificant.
- Developments of importance **either for diagnosis or management** may then not be communicated to the doctor. The patient should understand what is happening, when the doctor is going to see him again, and under what circumstances he should seek advice before that time.
- The doctors must be available so that it is possible for his patient to find him in case of unexpected or worrying developments, or, if this is impossible, the patient must have clear instructions about whom to contact.
- In the modern organization of general practice it often happens that the patient who calls unexpectedly has to be seen by another doctor. This make it important that the clinical record should make clear the diagnostic and management plans of the original doctor so that any other person who has to take over responsibility for the patient can understand them, and integrate his own sections in line with them.
- For instance, if the **presence of fever and a heart murmur in an elderly** patient makes the original doctors think that he should exclude the possibility of bacterial endocarditis, the should be clearly stated in the notes. If not, a second doctor called in unexpectedly is quite likely to prescribe an antibiotic without perhaps considering that a blood culture might be required.

History

- Duration and progression of fever, accompanying symptoms, chills and rigors if any, recent travel, similar cases at home, drugs taken so far, and the number of other doctors consulted should be asked.

Physical examination

- Where the site of infection is obvious e.g. a URTI or UTI, a selective examination may suffice.
- In suspected Dengue case, Hess Test (tourniquet test) should be done.
- For the rest, a more extensive examination of the chest, abdomen, CNS and neck stiffness will be needed noting in particular, if any skin rash is present.

Investigations

If the history and physical examination provide among indications of an infectious process, laboratory studies can be used selectively to condition or refute the clinical diagnosis.

- Initial investigations may not be necessary if the cause is obvious e.g., a URTI. However, if pneumonia is a possibility, then a chest X-ray and complete blood count would be necessary.
- In suspected Dengue, NS1 antigen (positive on first 2 days) and IgG/IgM antibody (positive on day5 onwards), CP auto (leucopenia, thrombocytopenia, rising haematocrit) should be investigated.
- Urine FEME, blood film for malaria parasite may be indicated based on the history.
- Sputum for AFB for suspected pulmonary TB or patchy opacities in CXR
- In other patients, more extensive tests are needed to establish the diagnosis when the cause of fever remains unknown. Although such studies must be individualized, the approach to diagnostic would include the following.
- complete blood count, differential total white and sedimentation rate.
- urinalysis, Isolated hematuria may be a clue to underlying glomerular disease or urinary tract malignancy.
- chest X-ray may detect infiltrates, effusions or masses even in the absence of abnormalities on physical examination; a KUB and upright abdominal films can disclose air-fluid levels in the bowel, ultrasound or CAT study may be needed if there is a suspicion of a mass lesion, such as an abscess or a turmour.
- blood cultures: if the patient has a heart murmur or a prosthetic heart valve or appears seriously ill.
- serological tests: Widal and Well Felix tests may help to confirm typhoid fever.

Management

Initial routine management

- symptomatic relief of fever
- antibiotics of bacterial infection is thought likely
- advice on fluid intake
- advice further action to report back if fever does not settle in a day or two or there are new development e.g., rash, patient becomes more ill.
- ill patients are referred for admission.

Prevention of complications

- The complications of fever likely to be seen in general practice are dehydration and seen in general practice are dehydration and febrile convulsions in childhood, and confusional states in the elderly. Old people also become easily dehydrated when febrile and ill.
- Dehydration in children occurs more quickly than in adults and children may fall to drink when ill. Their parents need clear instructions about maintaining an adequate fluid intake.
- In the elderly, fever, dehydration and confusion are interrelated problems. Confusion results in failure to drink and dehydration increases the confusion. It is just not enough to leave a jug of water beside the bed. At least 1½ litres of urine should be passed daily and this requires a fluid intake of 2 to 3 litres.
- If doubt exists a regular routine fluid intake should be organized and the intake recorded.
- Febrile convulsions deserved a special world. They occur chiefly between the age of 1 and 3 years.
- There is often a family history. The most important principle in the management of febrile convulsions is control of the temperature. The parents must be taught to do this with confidence.

- For the patient having the first febrile fit, admission for observation and investigation will be needed. In a patient with a patient with a known history of febrile fits, a single febrile convulsion is not a reason for admission to hospital but, if the fits continue or recur, or if there is any clinical suspicion of meningitis, the child must be in hospital, since a lumbar puncture is the only certain way to exclude meningitis.

Subsequent management

- The initial wait-and-see diagnostic period where the presumptive diagnostic is a viral infection commonly lasts from two to five days. During that time, it is useful to have in mind the expected times for the appearance of the rashes of specific fevers.
- **Chickenpox** appears on the first day, rubella on the second or third, and measles on the fourth.
- If by the end of the fifth day no rash has appeared, measles can usually be excluded. Most viral illnesses will have run their course by that time.
- Beyond this period, both doctors and patients begin to feel that something more must be done.
- It is often not until then that the doctor feels obliged to treat the situation more seriously and the diagnostic label tends to change from a presumed viral illness to provide of uncertain origin. This is not in fact a common situation in general practice but it is a worrying one for the general practitioner, and an important one for the patient.

Indications for referral

- The ill patient
- Dengue fever/DHF with clinical and lab warning signs (see DHF module)
- Clinically diagnosed serious conditions: meningitis, pneumonia, cholecystitis, to name a few.
- The patient whose fever persists beyond a week and the cause is still uncertain.

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4. DYSPEPSIA

Definition

Dyspepsia is defined as upper abdominal discomfort which could have various combinations of nausea, vomiting, heartburn, epigastric fullness, belching, nausea and bloating.

Relevance to general practice

- Dyspepsia is a common presenting complaint in general practice
- The majority of patients who complain of dyspepsia do not have serious disease and will respond to symptomatic treatment
- Vigilance is needed to pick out the alarm features of serious disease in the minority of patients
- Dyspepsia presenting for the first time in those 45 years and older is an alarm feature and the cause need to be investigated

Causes

The causes of Dyspepsia are shown in Table 1.

Table 1. Causes of Dyspepsia

Common causes	
	Simple dietary indiscretion
	Non-ulcer dyspepsia (NUD)
	Gastric erosion due to drugs
Less common causes	
	chronic peptic ulceration
	gastro-oesophageal reflux oesophagitis
Important not to miss	
	Carcinoma of stomach
	Ischaemic heart disease

Simple dietary indiscretion

- These are acute episodes of epigastric distress due to excessive dietary or alcohol intake. They respond to symptomatic treatment.

Non-ulcer Dyspepsia (NUD) or Functional Dyspepsia (FD)

- NUD is diagnosed by excluding a focal lesion on endoscopy. It is divided into four groups based on the predominant symptoms.
- Ulcer-like dyspepsia – well-localised epigastric pain, nocturnal in nature and relieved by antacids.
- Gastro-oesophageal reflux-like dyspepsia – heartburn, burning epigastric pain or regurgitation.
- Dysmotility-like dyspepsia – this overlap with irritable bowel syndrome (IBS) and is associated with flatulence, bloatedness, distension, nausea, early satiety.
- Nonspecific dyspepsia – no specific features. Anxiety neurosis with increase or decrease acid secretions resulting in anorexia and fullness of abdomen or sensation of “bloated feeling”.
- There is overlap between the four different groups of NUD and with irritable bowel syndrome (IBS).

Gastric erosions due to drugs

- NSAIDs cause acute gastric and duodenal damage in 30% users. It should be remembered as a possible.

Chronic peptic ulceration

- Approximately 20% of patients with dyspepsia presenting in general practice have a chronic peptic ulcer. The three major causes are Helicobacter pylori gastritis, NSAIDs and the rare Zollinger-Ellison syndrome.

Gastro-oesophageal reflux

- Reflux of gastric contents into the oesophagus is very common in the general population. A diagnosis can be made on the basis of typical symptoms of heartburn.

Gastric cancer

- Advanced cancer, which is not curable by resection, caused dyspepsia as well as anorexia and weight loss. Early gastric cancer may cause vague abdominal symptoms. Gastric cancer should be considered in any patient over the age of 45 years who presents with a history of dyspepsia for the first time.

Ischaemic heart disease

- Ischaemic heart disease can masquerade as a dyspepsia. A high index of suspicion in an elderly patient is required.

WORKUP

History

Ask for:

- dietary cause
- standard alarm features: VBAD: vomiting, bleeding or anaemia, abdominal mass or unintended weight loss, dysphagia
- number of recurrences and the past treatment given – may support diagnosis of peptic ulcer disease
- drug history especially NSAIDs for arthritic complaints

Physical examination

This should be done systematically looking for signs of physical disease

- General: anaemia or recent weight loss
- Abdominal examination: mass, supraclavicular node
- other systems: cardiovascular disease, lung disease

Investigations

Most cases of dyspeptic symptoms without red flags are relieved by symptomatic treatment. A specific history helps to determine if immediate testing is warranted.

- Baseline investigations – This depends on the diagnosis, e.g. an ECG is needed if one suspects the dyspepsia to be of cardiac origin. A chest X-ray is also useful to provide baseline information.
- Barium studies (including swallow and meal) or endoscopy – either can be used to exclude a gastric cancer. The advantage of the latter is the ability for a biopsy to be taken.

Should all dyspeptic patients be investigated?

Definitely necessary (“high risk”)

- >45 yrs with recent onset of dyspeptic complaints, history of gastro-intestinal bleed
- anorexia
- weight loss
- non-responders to treatment in younger patients:
- no resolution of symptoms after 4-6 weeks of H_2 blocker therapy
- frequent relapses i.e. more than 3 attacks in a year
- obviously unwell
- anaemia

Unnecessary to investigate at first consultation ("low risk")

- young <45 yrs
- supporting history of overeating, alcoholic intake
- presence of family/social problems
- previous negative investigation
- long history with preservation of good health

Helicobacter pylori infection can be confirmed by noninvasive testing or by endoscopic gastric biopsy

- Either serology antibody test or fecal antigen test is recommended as the most cost-effective initial test but because a positive test is indicative of active infection, the fecal antigen assay may be the preferred non-invasive screening test for Helicobacter pylori.
- Urea breath test also has excellent sensitivity and specificity (90%), and a positive test is indicative of active infection; the higher cost may make it less attractive compared to either the serology antibody test or fecal antigen test in most clinical settings.
- Endoscopy is not indicated to diagnose Helicobacter pylori infection in most circumstances. However, when it is performed for another reason, gastric biopsy specimens can be obtained for detection of Helicobacter pylori and tested for active infection by urease production. This simple inexpensive test has excellent sensitivity and specificity (90%)

Management

Low risk group/first presentation

The initial treatment is symptomatic if no serious disease is found or suspected:

- Antacids for pain, metoclopramide for dysmotility – like symptoms and mild tranquilisers if stress is a factor.
- Dietary advice – bland food, avoidance of alcohol and cigarettes
- Counselling and advice on life's stresses and family problems where indicated
- Stop/reduce dose of ulcerogenic drugs e.g., NSAIDs

High-risk group/recurrent episodes (>3 times a year)

- If patient has never investigated before:
- refer for investigations (endoscopy or barium meal)
- meanwhile give antacid only, do not give H_2 blockers
- If a patient has been previously investigated fully and a diagnosis made (e.g. functional dyspepsia, oesophagitis), then the patient should be considered to have a relapse of the condition and treated appropriately.

Chronic peptic ulceration

- If Helicobacter pylori testing shows the presence of active infection, a two weeks' course of treatment is warranted. Only triple and quadruple therapies should be used. One such triple therapy regime is Omeprazole 20mg bd (or Lansoprazole 30 mg bd), Amoxicillin 1g bd (or Metronidazole 500 mg bd) plus Clarithromycin 500 mg bd.
- Follow-up of H pylori treated ulcers is not routine to confirm cure of the infection, unless the ulcer has previously bled or perforated.
- Follow-up of infection status requires either endoscopic biopsy or the non-invasive urea breath test rather than serology. The Urea Breath Test is probably the best way to assess eradication. It is important to wait at least 4 weeks after completion of eradication therapies as there may be transient decrease in bacteria numbers without full clearance.

NSAID ulcers

- Ulceration due to NSAIDs should be treated with an anti-ulcer drugs e.g. cimetidine or ranitidine and if at all possible, the NSAIFs should be stopped and the therapy given for 8-12 weeks.
- Ulcers that are associated with both NSAIDs and H pylori should be treated as for H pylori ulcers, and the NSAIDs should be stopped.

Non-ulcer dyspepsia

- Non-ulcer dyspepsia is diagnosed by excluding other causes of dyspepsia.
- The "gold standard" is endoscopy. However, testing for Helicobacter pylori and treating the patient if found decrease the number of endoscopic performed for dyspepsia by one third3.
- Note that treating a patient with endoscopically confirmed NUD without evidence of active Helicobacter pylori infection; on the other hand, with eradication therapy does not improve the symptoms of NUD.
- Management of NUD is multifactorial and includes making a diagnosis early and explaining the situation to the patient.
- It is important for the physician neither to investigate excessively nor to investigate the presenting symptoms alone.
- New investigation in a patient who has been previously diagnosed with NUD should be done whenever alarm symptoms present (weight loss, vomiting, or blood in the stool) or if there is a new objective symptom. It is important for the physician to determine why the patient with chronic symptoms presented at this particular time.
- Psychological factors can exacerbate symptoms, so it is important for physicians to address these issues and offer counseling.
- A mainstay of management is post-evaluation reassurance of the patient concerning the diagnosis and the absence of alarm symptoms.
- Patients should avoid any food or substance that tends to exacerbate symptoms (NSAIDs, alcohol, or tobacco).
- If symptoms of bloating or postprandial fullness are present, the patient should ear six small meals a day, which may help ameliorate symptoms.
- Management of the predominant symptom with the appropriate medications may be considered. Not all patients however, may want or need to take medications routinely.

Drug therapy in dyspepsia

Antacids

- Useful in both ulcer and non0ulcer dyspepsia
- Give 10-30 ml, four or more times per day, between meals and at bedtime.
- Liquids more effective than solid preparations.
- Compound proprietary preparations have no clear advantage over simpler preparations.
- Antacids should not be taken at same time as other drugs because the absorption of the latter may be impaired.
- Avoid high sodium preparations e.g. sodium bicarbonate mixtures or mist. magnesium trisilicate in salt-restricted patients.

Prokinetic agents

- Examples of prokinetic agents are metoclopramide, domperidone and cisapride.
- The place of prokinetic agents for NUD has dwindled in importance because of drug safety reasons.
- Cisapride has been taken off the market because of cardiac arrhythmias and sudden deaths.
- Short term use of metoclopramide in non-ulcer dyspepsia has been helpful. Unfortunately, ling term use is associated with tardive dyskinesia.

H_2 blockers

- Has a place in ulcer therapy

- Impaired metabolism caused by cimetidine and ranitidine of warfarin, theophylline, phenytoin, carbamazepine, propranolol, nifedipine, imipramine, metronidazole will result in raised serum levels of these drugs.
- Cimetidine and ranitidine decrease the absorption of ketoconazole due to elevation of gastric pH.
- Magnesium, and aluminium, hydroxide antacids reduce by 30-4- percent the bioavailability of cimetidine and ranitidine. Thus, if an antacid is used concurrently with and H_2 blocker, the antacid should ideally be given at least two hours either before or after the H_2 blockers.

Indications for maintenance H2 blocker therapy

- This is indicated under the following circumstances
- peptic ulcer
- history of complication e.g. bleeding, perforation, outlet obstruction
- rapid relapse after previous treatment
- frequent relapses (3 or more times a year)
- difficult to heal
- elderly (>65 years)
- intercurrent illness (where risk of bleed can jeopardize life)
- continued NSAID use
- Zollinger-Ellison syndrome

Hydrogen-potassium-ATPase inhibitor

- Omeprazole is capable of almost completely eliminating gastric acid secretion. It would be useful for treatment of refractory peptic ulcer disease at a dose of 20mg/day

Indications for referral

- Initially, if organic disease is present or suspected:
    - carcinoma stomach (based on age, anaemia, weight loss and anorexia)
    - chronic peptic ulcer
- Patient requiring confirmation of non-ulcer dyspepsia by endoscopy
- Patient's request

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5. BREATHLESSNESS

Definition

- Breathlessness (dyspnoea) or shortness of breath may be defined as the sensation of being out of breath. It implies difficult or uncomfortable breathing.

Relevance to general practice

- Shortness of breath may be physiological or pathological. Accurate diagnosis depends on a carefully taken history and clinical examination.
- Acute shortness of breath requires prompt assessment and appropriate emergency treatment.
- Management of chronic breathlessness focuses on management of the underlying cause.

Causes

An approach to the causes of breathlessness is to classify them based on the mode of onset (Table 1)

Table 1 Causes of Breathlessness

Sudden onset: patient previously not short of breath

- Cardiovascular
  - Acute heart failure e.g. AMI
- Severe respiratory infection
  - Pneumonia
  - acute epiglottitis (children)
  - acute bronchiolitis (children)
- Respiratory disorders
  - inhaled foreign bodies
  - upper airways obstruction
  - pneumothorax
  - atelectasis
- hyperventilatory syndrome

Sudden onset; patient had similar attacks

- acute left ventricular failure
- bronchial asthma

Insidious onset; within few days or weeks

- cardiac cause
- respiratory cause
- severe chronic anaemia
- psychological

Sudden onset; patient previously not short of breath

- Acute and severe shortness of breath is a medical emergency and, although treatment directed to its relief must be given with the least possible delay.
- It is still all-important to attempt to reach a diagnosis of its cause.

Sudden onset; patient had similar attacks

- The only two conditions which commonly give rise to recurrent attacks of sudden shortness of breath are left ventricular failure and bronchial asthma.

Insidious onset; within few days or weeks

Cardiac causes

The causes under this group are congestive cardiac failure and other cardiac causes of pulmonary venous congestion (mitral stenosis and mitral regurgitation)

Respiratory causes

Respiratory causes of chronic dyspnoea are: chronic obstructive pulmonary disease, pulmonary parenchymal disease, pulmonary hypertension, severe kyphoscoliosis, large pleural effusion and chronic asthma.

Severe chronic anaemia

This causes breathlessness from tissue anoxia.

Psychological

The cue may be the way patients describe their shortness of breath. Often there is an admitted fear of lung disease which may have originated from knowledge of a close acquaintance in whom a serious lung disease has recently diagnosed or has caused death.

Ready reckoner

Important symptoms/signs	Asthma	Pneumonia	LVF	AE COPD	Hyperventilation
Purulent phlegm	Possible	Yes	No	Yes	No
Coarse crackles	No	Yes	No	Yes	No
Bilateral wheeze	Yes	No	Possible	Yes	No
Bilateral fine crackles	No	No	Yes	Possible	No
Focal reduced air entry	No	Yes	No	No	No

WORKUP

History

- The most difficult task in the evaluation of acute dyspnoea is differentiating dyspnoea due to cardiac disease from that resulting from pulmonary pathology. Both aetiologies share a number of clinical features. In general, a past history dominated by chronic cough, sputum production, recurrent respiratory functions, occupational exposure, or heaving smoking points more to the lung rather than to a cardiac disease.
- Dyspnoea that is a manifestation of a chronic anxiety state may superficially mimic cardiopulmonary disease and cause some confusion. Onsets at rest in conjunction with a sense of chest tightness, suffocation, or inability to take in air are characteristic feature of the history.
- It is helpful to define as precisely as possible the degree of activity that precipitates the sensation of dispense, in order to estimate the severity of disease, determine the extent of disability, and detect changes over time. One means of achieving these objectives is to relate symptoms to the patient's daily activities and interpret the degree of restriction in terms of the expected endurance of a patient of similar age.
- The occupational history is particularly important, as the relationships between exposure and lung disease are becoming evident.

Physical examination

- General examination – fever, anaemia, tachypnoea, tachycardia, respiratory efforts, pedal oedema and phlebitis.
- Respiratory system – air flow obstruction, percussion note, and breath sounds.

- Cardiac examination – raised JVP, third heart sound, cardiac murmurs, and carotid pulse abnormalities. It should be recognized that many of the signs of right sided failure may be a consequence of longstanding pulmonary disease and therefore are not specific for a cardiac pathology.
- Abdomen – Ascites and hepatojugular reflux.

Management

Acute Breathlessness

This should be managed as an emergency.

- **Foreign body** – acute onset with stridor should immediately suggest its site and cause. A history of having swallowed a foreign body is likely to be elicited. An attempt should be made to dislodge it by the finger or by tipping the patient upside down and vigorously thumping his back. If these measures fail, a tracheostomy must be undertaken as a life-saving emergency.
- **Acute left ventricular failure and/or acute severe asthma** - if the differential diagnosis is in doubt, nebulised salbutamol and a diuretic such as frusemide, are safe to give in either condition. The patient should be admitted after emergency treatment.
- **Croup** – in a young child, the presence of cyanosis, restlessness or exhaustion requires urgent hospitalization.
- **Acute asthma** – nebulizer treatment with salbutamol has replaced the need for subcutaneous adrenaline. Re-examination for improvement is done after such treatment. If relieved, bronchodilator therapy, and antibiotics with adequate explanation of the need for continuing treatment and follow-up follows.

Chromic breathlessness

- Treatment depends on the underlying cause which may be establish after a careful history, examination and appropriate investigations, including chest X-rays and lung function tests.

Anxiety induced breathlessness

- The neurotic patient with anxiety-induced dyspnoea often benefits from having a chest film and simple pulmonary function tests; the conformation of a well-functioning respiratory system may provide some reassurance and lessen concern over bodily symptoms.
- At times, a walk with the patient up and down a few flights of stairs is just as convincing for both the physician and patient.
- One must however, remember that the patient with Guillian Barre syndrome with respiratory muscle paralysis may be misdiagnosed as anxiety induced breathlessness.

Indication for referral

- Bronchial asthma – cyanosis, patient exhaustion, a quiet chest, marked tachycardia, pulsus paradoxus, obvious use of accessory muscles of respiration, failure to respond to full non-steroidal therapy, and subjective report of severe difficulty in breathing.
- Referral for further workup in the patient with insidious onset of breathlessness may be needed.

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6. COUGH

Relevance to general practice

- Cough is the commonest single symptoms presented to the general practitioner.
- Cough in general practice can mean a problem that is acute and serious, non-acute but serious, acute and self-limiting or a persistent or recurring disease. It could also be a ticket of entry for another problem.
- Cough can be grouped into acute or chronic. Just like the acute cough, the chronic cough can have aetiologies that range from trivial conditions to life-threatening illnesses.

Causes

- Cough is a reflex act occurring in response to irritation of the lining of the respiratory tract. There are several ways that causes of cough can be classified.
- The traditional approach to classification by pathological process used in the hospital setting is also useful in ambulatory setting.

Infection

- Infections underlie most of the cough and cold seen in general practice. The majority of these are viral. Most viruses are associated with short-lived illnesses but a number are associated with bacterial superinfection, especially in patients with asthma or chronic bronchitis, and this must not be overlooked in prolonged or recurrent episodes of cough.
- The respiratory syncytial virus (RSV) is a common cause of more severe respiratory illness in children as is influenza A virus in adults, and persisting cough during epidemics of these infections requires careful reassessment.
- Occasionally, the causal agent may be mycoplasma or fungal. Coliform and staphylococcal infections are normally found in debilitated patients or in patients with bronchiectasis or recent hospital infection.

Physical and chemical

- The effect of cold and of smoke (especially from tobacco) in aggravating, prolonging, or causing cough is well known.

Cardiac failure

- Particularly in the elderly, a persistent drug cough may be found in the early stages of heart failure. Although confirmatory physical signs may be absent, the response to diuretics. The prompt relief from a short course of diuretics confirms the diagnosis.

Allergic

- Cough, in particular night cough, may occur in patients with an allergic tendency with or without asthma.

Medications

- Several medications can cause an acute, disruptive cough. The angiotensin-converting enzyme (ACE) inhibitors cause a dry, hacking cough in more than 15% of patients taking these medications, possibly by stimulating C fibres in the airways and activating the cough reflex arc.
- After discontinuation of the causative drug, the cough usually resolves within 1 to 14 days. Beta blockers can cause cough as a result of drug induced bronchospasm. Inhaled medications, such as beta agonists, disodium cromoglycate and corticosteroids have also been found to sometimes cause a dry hacking cough, apparently by local irritation.

Psychological

- Psychological or social problems may present as a habit cough as a form of nervous tic.

Neoplastic

- Low in the order of frequency but high in the list of fatal causes of cough is bronchial carcinoma.

Other causes

- Inhaled foreign body should also be thought of.

WORKUP

History

- The first priority is to determine the seriousness and time scale of the illness. The possibility that the presentation of the symptom is an excuse to discuss a psychological issue exists (ticket of entry) but will not be developed in detail here.
- There is widespread agreement that a brief history and carrying out a chest examination is normally sufficient. The taking of an extensive history and the carrying out of a more complete respiratory or other general examination are usually restricted to patients who are very young, are looking ill, or are failing to make the normal progress to recovery which would be expected.
- Clearly patients with coexisting symptoms suggesting greater probability of serious disease (e.g., haemoptysis or weight loss) will also be handled in a manner different from the normal, including the use of specialized investigations.

Acute serious disease

- The history may indicate a specific diagnosis. In acute cough with associated symptoms such as fever, hoarseness of voice and nasal catarrh, the diagnosis is not difficult.
- Cough associated with generalized wheezing may be produced by bronchospasm. Illnesses in this group are usually associated with restlessness and distress – physical and emotional – and signs of fatigue.

Non-acute serious disease

- Non-acute serious illness is suggested by the continuation of cough beyond the normal natural history of acute treated bacterial or viral illness in the absence of a history suggesting obstructive or allergic respiratory disease.

Acute self-limiting disease

- Acute self-limiting illness is characterized by a history compatible with an acute infective process (coryza, influenza) and the absence of the general signs of serious illness. The patient may have the headache, myalgia and malaise of the acute underlying process or may have passed from that early stage to one in which cough is the only significant complaint.
- Here the history taking normally aims to identify any tendency to chest trouble (asthma and chronic bronchitis in particular) and the nature and colour of any sputum being produced.
- Chest examination will allow exclusion of signs of localized infection but the management decision is usually established on the basis of the history along. Mothers expect their children's chests to be examined and, if for no other reason, this is a wise policy. The elderly – often barricaded in by layers of clothing – may seem happier not to be examined but the frequency with which basal crepitations are recognized justifies overruling this wish.

Persisting or relapsing illness

- Among these, particular mention should be made of three common 'coughing syndrome', again usually a childhood complaint; the 'smoker's cough' with its inescapable and often unnoticed progress to chronic bronchitis.
- The child with persistent or recurrent episodes of cough, worse at night, is a common cause of anxiety, especially to young parents. The child is often at the sage of attending school or play-group for the first time and may have a past history of croup or eczema. A family history of allergic respiratory illness may coexist.

- The common pattern is one of recurrent bouts of acute wheezy respiratory infections interspersed by periods of comparative health often, however, including nights interrupted b y persisting dry cough. The tendency for the child to be well and free of abnormal signs when seen by the doctor may create the unfair impression of fussing parents. Careful history taking will identify the syndrome, and the possible additional precipitating causes of animal or plant allergy may be identified on specific questioning or a home visit.

Physical examination

- A selective examination of the upper respiratory tract, cervical lymph nodes and the lungs, (not forgetting to note down the temperature and the pulse), is usually sufficient in cases of upper respiratory tract infection causing cough.
- In cases where the history indicates that the cause may be more complex, a more thorough examination is warranted. Acute serious illness is normally suggested by breathlessness, complaint of chest pain or the general condition of the patient.
- The presence of cyanosis or ashen pallor is more worrying than the flushing caused by fever. The absence of rhonchi with decreased air entry in a breathless patient indicates a more severe form of airway obstruction than when rhonchi are heard.
- Carious teeth, infected gums, tonsillar disease or sinusitis are often associated with bronchiectasis and lung abscess. An inspiratory stridor may be due to upper airway obstruction from various causes. One should look out for scars of previous surgery e.g., tracheostomy, thoracotomy.
- Localised inspiratory and expiratory wheeze may indicate a major airway obstructive lesion. Localised areas of dullness on percussion of the chest may indicate consolidation, pleural effusion or atelectasis. Finally, non-acute serious disease may not have much definitive physical signs.

Investigations

- Investigations are not indicated in cases of self-limiting acute cough, unless one wants to determine the aetiology for management purposes, e.g. in streptococcal infections.
- Chronic cough should be thoroughly investigated. Some of the investigations can be initiated by the general practitioner.

Sputum examination

- Sputum examination in cases of productive cough may yield much information as to the aetiological cause. Culture may be necessary.

Radiology

- The chest X-ray is essential in the WORKUP of any patient with chronic cough. Two views may be necessary to give a better anatomical assessment. Oblique views, tomograms and bronchography may occasionally be needed.

Pulmonary function tests

- Pulmonary function tests may be useful in diagnosing early or mild bronchial asthma in patients, who present with chronic cough as the sole symptom.

Bronchoscopy

- Bronchoscopy should be considered in any patient in whom the cause of a chronic cough is not clear.

Management

- Symptomatic treatment with or without antibiotics as the case may be is usually sufficient in patients with acute cough.
- Patient education and explanation are necessary in patients with recurrent cough due to bronchial asthma.
- Management of chronic cough will depend on the cause.

Indication for referral

- In acute severe cough associated with symptoms such as dyspnoea and cyanosis, in-patient management may be necessary.
- Referral may be needed to investigate a prolonged cough.

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7. SORE THROAT

Relevance to general practice

- One of the most common presenting symptoms in general practice
- 70% of sore throat are viral in origin
- The task of the primary care physician is to exclude serious causes of sore throat, have a rational approach to the use of antibiotics and provide symptomatic expectant management for those not initially requiring antibiotics.

Causes

- Is has been estimated that about a third of the sore throats are caused by bacterial infections, a third by viral and other microorganisms and the remaining one third by non-infective causes.

Bacterial infection

Group A beta haemolytic streptococcus (GABHS)

- This is isolated in 10-15% of throat culture done in adults. It is important to recognize, treat early and adequately such infections with penicillin or erythromycin because this prevents the occurrence of acute rheumatic fever, a non-suppurative complication.
- Unfortunately, only some 15% present with the triad of fever, pharyngeal exudates and tender anterior cervical adenopathy, so diagnosis may not be so easy in the remaining 85% of cases.

Non-group A streptococcus

- Rarely produces non-suppurative complications.

Haemophilus influenza

- Haemophilus influenza causes a painful sore throat and it may be complicated by acute otitis media.

Corynaebacterium diphtheria

- Almost never seen today because of early immunization. It must however be thought of in a patient not immunized against diphtheria for some reason. The white adherent membrane over the tonsil is diagnostic.

Gonococci

- This is uncommon in the local setting.

Viral causes

- A viral aetiology is found in 17-25% of adults and children over 2 years of age. The most common viral causes are the:

"Respiratory" viruses

- Namely rhinovirus, influenza virus, parainfluenza virus, adenovirus, and others. Symptoms may include rhinitis, cough, fever, body aches and malaise.

Coxsackie and herpes simplex

- May cause painful ulcers in the oral mucosa and oropharynx.

Epstein-Barr virus

- Causes the infectious mononucleosis syndrome. The sore throat may be prolonged and constitutional upset prominent.

Other microorganisms

- Chlamydia trachomatis and Mycoplasma pneumoniae are found to be quite common, contrary to what is previously known.

Candida

- Especially in immunocompromised individuals, and may be an early sign of acquired immunodeficiency syndrome (AIDS).

Non-infectious causes

- There are a number of such causes: referred pain; drying of pharyngeal epithelium from mouth breathing; chemical irritation from smoking or other toxic inhalation; and cancer of pharynx or tongue which may present as persistent sore throat but this is uncommon.

WORKUP

History

- The presence of accompanying running nose suggests a viral cause. Knowledge of family members being similarly affected and presence of an epidermic helps in the diagnosis. Use of medicals should be asked e.g. carbimazole.

Physical examination

- A general examination, examination of the oro-pharyngitis, anterior cervical nodes and selectively other systems is required.

General examination

- This includes the temperature, presence of jaundice (jaundice is present in 5-10% of patients with infectious mononucleosis).

Examination of the oro-pharynx

- Posterior mouth ulcers are typically caused by Coxsackie virus whilst herpes simplex ulcers are found only in the anterior parts of the mouth and lips. Candidiasis is characterized by white, curdy exudates.
- Acute epiglottitis should be suspected in patient with high fever, hoarseness of voice and stridor in a child or adult. The enlarged and inflamed epiglottis may be visible on inspection.
- Do not attempt to examine in detail lest a spasm of the oro-pharynx is provoked. Though rare, it is important to pick up this condition as it is potentially life-threatening. The patient should be admitted as an emergency.
- Enlarged tonsils may be streptococcal or viral in origin. Drooling and pain on opening mouth should lead the doctor suspect the presence of peritonsillar or retropharyngeal abscess; unilateral erythema of the soft palate accompanied by deviation of the uvula confirms the diagnosis.
- Palatine petechiae are sometimes found in patient with infectious mononucleosis.
- Exudates are seen in streptococcal sore throat, infectious mononucleosis and diphtheria. The latter is suspected if the tonsils and pharyngeal wall are covered by a gray membranous exudate that bleeds easily on removal.

Systemic Examination

- Anterior cervical lymph nodes are usually found in patients with streptococcal sore throat.
- Posterior cervical lymph nodes are enlarged in 90% of patients with infectious mononucleosis in the first week.
- Generalised lymphadenopathy, hepatic tenderness and splenomegaly further indicate infectious mononucleosis. Most children (up to 80%) with glandular fever will have splenomegaly at some time during the illness, but this is found less commonly in adults.

Laboratory investigations

Throat culture

- This is not needed in every case. Patients with no clinical evidence of streptococcal infections, and with typical signs and symptoms of viral upper respiratory tract infection, do not warrant a throat culture.
- Culture is indicated in patients with special risk factor for streptococcal disease.

Sore Throat Score (CENTOR SCORE)

Approach to diagnosis and management of GABHS infection:

POINTS

- Cough absent? 1
- H/O fever >38? 1
- Tonsillar Exudate? 1
- Swollen tender anterior nodes? 1
- Age 3-4 year? 1
- Age 15-44 year? 0
- Age ≥ 45? -1

Score	0	1	2	3	4
Change that patient has strept throat	2-3%	3-7%	8-16%	19-34%	41-61%
Suggested action	No culture or antibiotic		Culture all treat only positive		Culture all treated with antibiotics on clinical ground

- Clinical ground includes high fever or other indicators that the patient is clinically unwell and is presenting early in the course of the illness.

Limitations:

- This score is not applicable to patients <3 year of age. If an outbreak of illness caused by GAS, the score is invalid and should not be used.

Useful investigations

- T&DC. Atypical lymphocytes, if consisting >20% of total white cells, indicate infectious mononucleosis.

Specific investigations

- Anti-streptolysin O titre. Lack of a four-fold rise of convalescing serum indicates carrier status, estimated to comprise 20-30% of positive throat culture.
- Rapid office diagnosis. Latex agglutination and ELISA techniques.
- Tests to confirm EBV Paul Bunnel or Monospot test.
- Investigations to identify specific causation agents are done only if the illness is prolonged.

Management

Symptomatic Treatment

- This is sufficient when a viral cause is suspected. Antipyretics, antihistamines, decongestants and lozenges are prescribed where indicated.
- Rest and sufficient fluid intake should be stressed. Symptomatic treatment is also indicated in infectious mononucleosis, as no definite antiviral therapy is as yet available.

Use of antibiotics:

antibiotic prescription can probably be avoided in most patients.

- Benefits: antibiotics give a modest benefit in symptom relief (8 hour less symptom) and may confer slight protection against some complications (e.g. quinsy, otitis media). There is no evidence antibiotics protect against rheumatic fever and AGN.
- Risks: possibility of side effect with antibiotic use. Increased in antibiotic resistance, increased faith in antibiotics.

Reasons to give antibiotics immediately

1. Acute sore throat where >3 Centor criteria are present.
2. Patient is systematically unwell.
3. Symptoms and signs of serious illness and/or complications.
4. High risk of serious complications because of pre-existing comorbidity

Streptococcal pharyngitis

Recommended treatment regimens are as follows:

- Penicillin G, benzathine penicillin 1.2 million units i/m in one single dose, or
- Penicillin V 250 mg qid for 10 days, or
- Erythromycin 250 mg qid for 10 days, in patients sensitive to penicillin.

Other infections

- A trial of 10-day course of erythromycin or tetracycline 250 mg qid is probably justified in prolonged sore throat, to eradicate any mycoplasma present. Treat other rater form of pharyngitis according to the specific treatment regimens for the particular organism.

Indications for referral

- suppurative e.g. peritonsillar or retropharyngeal abscess
- Life-threatening conditions e.g. acute epiglottitis.

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8. CHEST PAIN

Relevance to general practice

- Chest pain is taken seriously by the patient.
- In general practice, it is common to find that chest pain is of muscular origin or psychogenic origin.
- The important tasks of the primary care physician are first to distinguish between cardiac and non-cardiac pain, and then to decide whether this is serious or not serious, whether urgent or not urgent.

Causes

- Chest pain may be classified according to anatomical structures, e.g. chest wall pain, visceral pain and referred pain.
- It is more useful in practice to classify the causes into acute and chronic or intermittent chest pain and within each of these categories, serious and non-serious causes of chest pain.

Acute chest pain

- Serious causes of acute chest pain arise from (1) the heart, (2) the lungs and (3) the aorta. As these are potentially life-threatening, it is important that the diagnosis be made early.
- Once these causes are excluded, there is less urgency in diagnosis and management. Four important life-threatening causes of acute chest pain are:
  1. Acute coronary syndrome/AMI
  2. Tension pneumothorax
  3. Dissecting aortic aneurysm
  4. Pulmonary Embolism

Serious causes

Common

Ischaemic cardiac pain

There is increased likelihood of ischaemic cardiac pain in the presence of cardiovascular risk factors. This must be excluded if the patient:

- is male
- is aged ≥ 40 years
- is of Indian ethnic group
- has a history of ischaemic heart disease, diabetes mellitus

Severity of ischaemia ranges from angina to infarction.

Pain of infarction

- is more severe
- usually occurs at rest
- lasts longer than 20 minutes
- is typically associated with sweating and vomiting
- is not relieved by glyceryl trinitrate tablets.

Gall stones and peptic ulcer

- Gall stones and peptic ulcer may present with chest pain and be mistaken for myocardial infarction. Hypotension, tachycardia and extrasystoles may also occur if there is bleeding from the gastrointestinal tract. Melaena or haemetesis if present differentiates the diagnosis.

Less common

Pericardial pain

Common causes of pericardial pain

- Viral – young person, presence of systemic symptoms of viral illness

- Myocardial infarction – within a few hours, or after 1-2 weeks (Dressler's syndrome)
- This should be suspected when pain is worse on lying down, and patient prefers to sit up and lean forward. Pericardial rub is diagnostic.

Pneumothorax

- Most cases of pneumothorax are idiopathic. Known causes of pneumothorax are asthma, bullous emphysema and interstitial lung disease.

Pleural pain

- Pleural pain can be a feature of bacterial pneumonias, viral infections and connective tissue diseases. There may be associated with cough, haemoptysis and dyspnoea. If a pleural rub is present, this will be diagnostic.

Uncommon

- Rare causes include pulmonary embolism and dissecting aortic aneurysm. Patient is usually ill and needs immediate referral.

Non-serious causes

Common

Reflux oesophagitis

- This is commonly described as 'indigestion'. It is related to eating, exacerbated by bending down, relieved by antacids. Nocturnal pain may be experienced.
- As its prevalence is 30-40% of the population, it may coexist with other causes of chest pain. It may also be relieved by nitroglycerin, further confusing it with angina.

Musculoskeletal pain

- Musculoskeletal pain is common. It can be result of strain involving muscles of the neck, shoulder, thorax; rib and sterna pain of various causes. Such chest wall pain is usually superficial, localized and can be reproduced or aggravated by pressure applied to the affected area, or with movement.
- Viral illnesses can cause intercostals myalgia. Tietze's syndrome – an idiopathic costochondritis is diagnosed by tenderness at the particular costochondral junction.

Psychogenic chest pain

- Psychogenic causes may be due to anxiety, depression, or the means to 'secondary gain', e.g. malingering, financial compensation, sympathy. Nature of pain variable. Usually described as sharp, stabbing and intermittent.
- In hyperventilation syndrome, the patient is usually a young female presenting with diaphoresis and acute respiratory distress. Carpopedal spasm helps to confirm the diagnosis.

Less common

Oesophageal spasm

- A motility disorder that is sometimes seen in diabetes mellitus. Patient complains of severe chest pain on swallowing a large bolus of food or cold drinks.
- This may be relieved by nitroglycerin, and may hence be further confused with angina. Diagnosis by fluoroscopy during barium meal.

Neurovascular

- Herpes zoster infection can cause chest wall pain (a radiculitis) before the onset of the rash, which is diagnostic. Post-herpetic neuralgia may persist for weeks after the acute episode.
- Degenerative changes in the spine, metastatic tumours to the spine, can impinge on the dorsal nerve root and cause chest pain.

Chronic or intermittent chest pain

- Chronic or intermittent chest pain may be due to repeated attacks of acute pain, e.g. angina, reflux oesophagitis, musculoskeletal problems.
- The term 'nonspecific chest pain' is used to describe chest pain when ischaemic heart disease is unlikely and no other cause can be found.
- A middle-aged man may also have non-specific chest pain. Distinguishing features are listed in table 1.

Table 1. Diagnosis of chest pain

Anginal pain	Non-specific pain
Described as a 'discomfort' or 'ache'	Patient complains of pain, rather than discomfort, stabbing in nature, lasting a few seconds.
Occurs in the centre of chest. Radiation to jaw and neck diagnostic. Commonly also radiate to the arms. L>R, and to the back.	Pain radiates down left arm, but not to neck or jaw.
Pain induced by exercise, and after a meal. Pain induced by sexual intercourse.	Apparent relationship with exercise, but pain usually comes on at the end of a busy day and not after exercise.
Pain improves with rest.	Pain not relieved by rest.
Relieved by sublingual nitrates within seconds or within 2 minutes.	Patient often claims that nitrates are helpful, but only after 20-30 minutes.

Adapted from Hampton J, The patient with chest pain and breathlessness. Medicine International 1989, 3:2723

WORKUP

History

- History taking should be directed towards confirming or disproving the serious causes of chest pain.
- Cardiac pain is located in the front of the chest, mid or upper sternum radiating to the left arm or both arms, round the chest or into the jaw. The duration is rarely of more than 30 minutes, unless a coronary thrombosis has occurred. The words used to describe it are: "tight, heavy, constricting, crushing, numbing or burning".
- Pneumothorax is a condition seen off and on in general practice. Pulmonary embolism is uncommon. Pleurisy, mediastinitis and pneumomediastinum are rare but serious causes of chest pain. The pain of pneumothorax is described as stabbing, sudden in onset, localized; associated with dyspnoea, sometimes giddiness and fainting. Pulmonary embolism is also associated with sudden onset chest pain and dyspnoea.
- Dissecting aortic aneurysm usually causes excruciating pain radiating down the back. The patient may be in shock or hemiplegic.
- Past history, family history, a history of social habits, life style and current medications need to be asked for.

Physical Examination

- The physical examination further helps distinguish the serious from the not serious causes of chest pain. It should be approached systematically.

General

- Is the patient distressed, pale, sweating, dyspnoeic or tachypnoeic? Check the vital signs. Abnormalities in any suggest an unstable, urgent condition. Palpate the pulses. Unequal pulses may mean aortic dissection.

Examination of the heart and lungs

- Murmurs, abnormal heart sounds, rhythm abnormalities especially bradycardia, crepitations in the lungs and poor air entry all indicate a pathological cause of the chest pain.
- Raised jugular venous pressure, the presence of 3rd or 4th heart sounds, pericardial rub are other abnormal sings. Pneumothorax result in increased percussion resonance and diminished breath sounds on the affected side.

Examination of the other systems

- Examination of the musculoskeletal system may point to the anatomical site of musculoskeletal chest pain.
- One should remember to examine the breast and the abdomen. Examination of the patient's mental state is also important if serious causes of chest pain are not suspected.

Investigation

- The extent of initial investigations is guided by the urgency of the presenting problem. If the patient is very ill, minimal investigations necessary are done in the physician's office before urgent referral.
- If the patient's general condition is well and especially if the cause is still unclear after history and physical examination, then further investigations should be done.

Electrocardiogram

- In establishing a diagnosis of ischaemic cardiac pain, a resting ECG should be done to detect presence of ischaemic changes.
- If ECG shows evidence of ischaemic heart disease/old infarction, the patient requires referral for further evaluation of the ischaemic heart disease.
- If ECG is normal, then a treadmill test is required.
- The ECG is useful to diagnose the type of arrhythmia if one is suspected clinically.
- An exercise ECG may be considered. A normal stress ECG reduces considerably the chance that ischaemic heart disease is a cause of chest pain.
- In pericarditis, the ECG is not very helpful unless ST segments are present.

Radiology/Echocardiography

- A chest X-ray is a useful adjunct in the diagnosis of cardiac and pulmonary causes. It may show a widened cardiac silhouette in pericardial effusion but this may not be obvious. Chest X-ray may be normal, or show pleural thickening or effusion. Chest X-rays are diagnostic in pneumothorax.
- Radionuclide angiocardiography, coronary arteriography, lung scans, echocardiography may be helpful in pulmonary embolism. Echocardiography is helpful in diagnosis of pericardial effusion.
- Barium studies, X-ray cervical spine may need to be done if the suspected cause of chest pain is outside the chest.

Laboratory investigations

- Biochemical cardiac markers are now available for early diagnosis of ischaemic heart disease causing chest pain.
- Troponins, CK-MB, and myoglobin elevation will be confirmatory. The patient should be referred if there is a likelihood if ischaemic chest pain.

Management

- A decision is made on the likelihood of an acute, life-threatening condition. If this is not likely, symptomatic and expectant management is given; there are patients who diagnosis of musculoskeletal chest pain is clear from history, examination with or without simple investigations.
- Where a psychogenic cause is clear, the physician should delve further into the family and social background and enlist help from these quarters in the management of the patient if necessary.

Indications for referral

- In acute, life-threatening conditions, referral for hospital management should be made urgently, after having stabilised the patient in whatever emergency measure available, e.g. setting up an intravenous infusion.
- Where diagnosis is in doubt, or where the investigative procedures required are sophisticated, the patient should be referred to the appropriate specialists for further management. The threshold for referral is reduced in a patient with multiple cardiac risk factors.
- Where the chest pain does not improve with symptomatic and expectant treatment, or becomes more frequent, a review and possibly referral should be made.

Recurrent chest pain

- Repeated ECG evaluation may be worthwhile.
- If chest pain is stress-related, exploring cause/s of stress may be helpful.

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9. DIARRHOEA

DIARRHOEA IN ADULTS

Relevance to general practice

- Diarrhoea is an affliction familiar to everyone. Most episodes are brief, self-limited and well-tolerated without need for medical attention.
- Diarrhoea being a self-limiting complaint, it is useful to find out why for this episode, the patient needs to see the doctor.
- Symptomatic treatment is often all that is necessary for acute diarrhea. However, one should be alert for the occasional serious cause.

WORKUP

History

- **Onset:** It is important to establish whether the diarrhoea is an acute problem of a few days duration or a chronic one spanning some time.
- **Timing:** One should ask when the diarrhea usually occurs. Diarrhoea occurring at night is always pathological.
- **Nature of stools:** Watery stools constitute diarrhea whereas loosely formed stools do not and may indicate a different pathology like irritable bowel syndrome. It is also important to ask whether the stools are mucoid, blood stained or foul smelling and floating.
- **Travel:** Recent travel overseas may be aetiologically important.
- **Food taken:** Although it is often difficult to establish the source of the diarrhea, a history of the types of food taken within the last 24 hours may be helpful.
- Milk and dairy products can cause loose stools in the susceptible adult.
- If an epidemic of food poisoning occurs, information on the type of food eaten and the place where it was served will help the Ministry of Environment (Health) in its investigations.
- **Associated symptoms:** Vomiting, nausea, dizziness, colicky abdominal pain, fever, thirst indicates that a bacterial infective cause for the diarrhea is likely.

Physical Examination

Assessing dehydration

- One should look at the tongue and mucous membranes as well as the turgor of the patient's skin. A dry tongue and mucous membrane with or without a rapid pulse rate indicate that dehydration needs to be corrected.

Abdomen

- An examination of the abdomen for tenderness and bowel sound is warranted to reassure the patient, that there is nothing more serious. A rectal examination is indicated if bloody diarrhea is present.

Other system

- If a systemic cause for the diarrhea is suspected, a full examination should be done.

Investigations

- There are not necessary for the majority of mild acute diarrhea. Chronic cases will require a workup or hospital referral.
- Stool culture and smear for cysts and organisms are useful if giardiasis or amoebiasis is suspected.
- Endoscopy, barium enema or barium meal may be needed for the evaluation of a chronic diarrhea.
- Other investigations: Thyroid function tests, glucose tolerance tests and other endocrine tests may be necessary.

Management

The adult patient

Most acute cases need only symptomatic treatment.
These are:

- Bed rest if diarrhea is severe or frequent
- Adequate fluid and electrolyte replacement
- Drugs like kaolin, charcoal which have some absorptive properties may be prescribed.
- Anti-cholinergics like loparamide or opiates like codeine phosphate may help to relieve the symptoms if diarrhea is severe
- Antibiotics and metronidazole are rarely indicated unless the responsible organism is identified as being bacterial or amoebic respectively.
- Anti-emetics may be useful if vomiting is severe.

Indications for referral

Referral may be indicated for the following:

- Severe cases which may be infectious or warranting IV fluid replacement
- Chronic cases for diagnosis and treatment
- Cases where the diagnosis is not clear.

Diarrhoea in infants and children

Relevance to general practice

- Diarrhoea in a child had to be attended to promptly as the patient is more prone to suffer from dehydration and its consequences.
- Parents may have their incorrect views of diarrhea in their child; thus teething does not cause diarrhea, contrary to what is often believed by mothers.
- Fully breast-fed babies may have loose stools. Their stools are explosive, contain cured and may be bright green in colour. These babies should not be treated for diarrhea.
- Starvation stools should not be confused with diarrhea.

Common causes

Mild formula and improper feeding

- Infants vary widely in tolerance to quantity and quality of food. The contents of protein, fat and carbohydrate affect the volume of stools.
- Volume of water in stool varies directly with fat and sugar content of formula, e.g. babies on formula high in polyunsaturated fats have looser stools than those on formula containing greater percentage of saturated fats.
- Also, if sugar content in formula is greater than 7.2% weight per volume, stools tend to be soft and watery. With age the gut matures and tolerance to food content improves.

Breastfed babies may have frequent loose stools. This is normal.

Infections

- Infection, as a cause of diarrhea, is common. It may be enteral or parental. Rotavirus is the commonest cause. If blood is associated with diarrhea, Shigella or Salmonella should be suspected.
- Cholera produces profuse rice water stools. Stool culture should be done if a bacterial cause is suspected, such as dysentery, typhoid or cholera.

Management

Management begins with assessment of the severity of the diarrhea and degree of dehydration (see table)

Table 1. How severe is the dehydration?

		Mild	Moderate	Severe
1. Ask	Diarrhoea	less than 4 liquid stools/day	4-10 liquid stools/day	More than 10 liquid stools/day, with or without blood and/or mucus
	Vomiting	Normal	Some	Very frequent
	Thirst	Normal	More than normal	Unable to drink
	Urine	Normal	Small amount, dark coloured	No urine for 6 hours
2. Look	Condition	Well, alert	Unwell, drowsy or irritable	Very sleepy, floppy, unconscious, having fits or seizure
	Eyes	Normal	Sunken	Very dry and sunken
	Mouth and Tongue	Wet	Dry	Very dry
	Breathing	Normal	Faster than normal	Very fast and deep
3. Feel	Skin	Pinch, goes back quickly	Pinch, goes back slowly	Pinch, goes back very slowly
	Pulse	Normal	Faster than normal	Very fast, weak, or cannot be felt
	Fontanelle (in infant)	Normal	Sunken	Very sunken
4. Weigh		No weight loss	Weight loss of 25-100g for each kg of weight	Weight loss of >100g for each kg of weight
5. Take temperature				Fever >39ºC (102ºF)
6. Decide		Treat	Treat	Refer patient to hospital speedily

Children above age of one year
Mild diarrhea (<4 stools/day)

- Continue breastfeeding if child is breastfed.
- Establish cause of diarrhea, e.g. overfeeding, dietary indiscretion, viral upper respiratory tract infection, systemic infection and food allergy
- Treat the underlying cause. If mild dehydration and child is able to retain fluids – treat as outpatient.

Moderate diarrhea (4-10 stools/day)

- Off solid diet
- Half-strength milk
- Oral rehydration fluid, e.g. rice-water or dextrose saline solution. Oral rehydration by commercially available solutions. Give 50-100ml after each stool.

Severe diarrhea (>10 stools/day)

- Off solid and off milk. Only Oral Rehydration Solution (ORS).
- Continue ORS till at least 3 consecutive stools of normal frequency and consistency. When reverting back to milk formula, advice graduated increase in strength of milk.
- If diarrhea recurs on restarting milk gradually, suspect lactose intolerance (usually temporary).
- May need to continue on soy formula for a longer duration before attempting to switch back to milk. May consider lactose free cow's milk.
- Refer to hospital if no improvement and symptoms deteriorate.

Infants

- **Mild diarrhea:** not more than 1 stool every 2 hours, give 10-15 ml/kg/hr ORS until diarrhea stops (approximately 1 dissolved ORS tablet for each liquid stool). If breastfed, continue breastfeeding.
- **Moderate diarrhea:** >1 liquid stool every 2 hours. Give 10-15 ml/kg/hr ORS until diarrhea becomes mild (approximately 1 dissolved ORS tablet every hour or as much as patient will accept). If breastfed, continue breastfeeding. Solution should be given slowly, in sips at short intervals to reduce vomiting and improve absorption.
- **Severe diarrhea:** refer to the hospital.

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10. CONSTIPATION

Definition

- There is no uniform definition of constipation. To some it means movements that are too infrequent or stools that are too hard. Others complain of incomplete or difficult evacuation.
- Among normal people, bowel habits vary widely, and there are diverse perceptions of what is normal. Population studies show that most normal people have more than three bowel movements per weeks.

CONSTIPATION IN ADULT

Relevance to general practice

- Constipation is a common symptom in general practice. It is among the most frequent reasons for self-medication and is particularly troublesome in the elderly.
- There is a need to clarify what the patient means by constipation and what is the normal bowel habit for that patient.
- The primary care doctor must be able to uncover any underlying pathology and to provide symptomatic relief to those without a structural lesion.

Causes

The common causes of constipation in the adult are shown in table 1.

Table 1. Causes of constipation

General

Poor fluid intake
Inadequate dietary fibre
Inconvenience toilet access
Inactivity

Specific pathology

Depression
Hypothyroidism
Abdominal tumour – large bowel cancer, external compression
Spinal cord compression

Drugs

Opiates
Anticholinergics
Tricyclic antidepressants
Phenothiazines, haloperidol
Antacids containing calcium or aluminium
Iron

WORKUP

History

The presence of associated symptoms is sought to define any underlying cause, which may be serious.

- Abdominal pain, recurring and colicky – suggests mechanical obstruction
- Perianal pain – suggests anal fissure or abscess
- Alternating diarrhea and constipation, with or without blood in stools – suggest colonic carcinoma
- Low mood, negative feeling and fatigue – there are symptoms of depression
- Observation of family members that the patient shows a slowing of physical and mental activities, weight gain and cold intolerance – there are symptoms of hypothyroidism.

Physical examination

A selective physical examination includes:

- observation of the general health of the patient and mental state
- abdominal examination for faecal masses and other masses, abdominal distension and tenderness
- rectal examination is useful to detect perianal conditions, faecal impaction, and also to obtain a sample of stools for inspection and occult blood testing.
- the hypothyroid patient has characteristic facies and delayed relaxation of deep tendon reflexes.

Investigations

- Investigations are unnecessary where a cause of constipation can be found.
- A barium enema may be considered if a large bowel carcinoma is suspected.

Management

- The management of constipation extends well beyond the use of laxatives. Attention to other issues – diet, fluid intake, mobility, physical activity, and barriers to physical activity including pain – contributes to an effective outcome.

SIMPLE CONSTIPATION

- Attend to patients' concerns about constipation
- Advice to increase
    - fluid intake
    - fibre intake e.g. at least 1-2 servings of vegetables for lunch and dinner; include fruits in the diet if not already done.
- Advice to increase physical activity
- Laxatives or suppositories as a temporary measure (table 2)

Faecal impaction in the bedridden elderly

- Manual evacuation followed by regular enemas and laxatives may be necessary
- Advice to increase fibre and fluid intake but bearing in mind the problems of eating in the elderly
- Fruits like bananas, papaya are suitable and the making purees of vegetables will be necessary.

Table 2. Laxative Effects and Side Effects

Type of laxative	Mechanism of action	Onset of action	Potential adverse effects
Bulk laxative • Psyllium seed • Bran • Calcium polycarbophil	Increase faecal bulk as well as the fluid retained in the bowel lumen	12-24 hrs or more	Increased gas; bloating; bowel obstruction if strictures present; chocking if powder forms are not taken with enough liquid
Emollients and stool softeners • Dioctyl sodium • Calcium sulfosuccinate (docusate sodium)	Lubricates and softens faecal mass	24-48 hrs	Minor effects such as better taste and nausea
Stimulants and irritants • Bisacodyl	Alters intestinal mucosal permeability	10 minutes (Sodium bicarbonate+	Dermatitis; electrolyte imbalance; melanosis coli

• Senna • Cascara • Sodium bicarbonate+ potassium bitartrate	Stimulates muscle activity and fluid secretion	potassium bitartrate suppository) 2-12 hrs	
Osmotic laxative • Ricinoleic acid • Lactulose • Magnesium salts • Sodium salts • Sorbitol	Salts lead to retained fluid in the bowel lumen, with a net increase of fluid secretions in the small intestines	2-48 hrs	Electrolyte imbalance; excessive gas; hypermagnesemia, hypocalcemia, and hyperphosphatemia in patient with renal failure; dehydration
Enema • Tap water • Saline • Sodium phosphate • oil	causes reflex evacuation	within 30 minutes	Dehydration; hypocalcemia and hyperphosphatemia in patients with chronic renal failure

Schaffer & Cheksin, 1998

Indications for referral

- Further assessment is indicated where a colonic carcinoma is suspected.

CONSTIPATION IN THE CHILD

Relevance to general practice

- Breastfed infants tend to have frequent loose stool, whereas bottle-fed infects tend to have less frequent hard stools
- Some older children may normally have a bowel movement as seldom as once or twice a week
- Parents often worry about whether their child's bowel movements are normal.

Causes

- The diet is the commonest cause: inadequate fluid and fibre intake; and excessively concentrated formula milk in the younger child.
- The child fearful of defecation or crying after defecation, and blood in stools point to the presence of a perianal fissure.
- Serious causes are rare:
- Hypothyroidism in a child may present as persistent constipation in the neonate
- Acute intestinal obstruction would present with associated abdominal pain or a persistently crying baby
- Stubborn constipation (obstipation) with failure to thrive is present in Hirschsprung's disease (very rare)

WORKUP

History

- A detailed history is important. It should cover age of onset; precipitating events such as diet changes, toilet-training problems, pain and bleeding with defaecation; abdominal pain; bowel routine; behavioural problems; previous treatment including punitive measures; and medications for other reasons.

Physical examination

- An observation is made of the child's well-being and general health, growth and development. Children with the rate serious causes like Hirschsprung's disease and hypothyroidism frequently fail to thrive.
- Abdominal palpation often reveals faecal masses. Perianal inspection may reveal a fissure.

Management

For simple constipation

- Allay parental anxiety and concern about constipation and advice on bowel training where necessary.
- Advice about bottle feeding, increasing fluid and fibre intake e.g. water and fruit juices for the older infant.
- A laxative may be prescribed liquid paraffin or (sodium citrate and sodium lauryl sulfoacetate).

Indications for referral

- Referral is indicated for intestinal obstruction and anal fissure.

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11. VOMITING

Relevance to general practice

- Vomiting is a relatively common presenting symptom in general practice and is twice as common in children as in adults.
- It is a non-specific symptom covering a wide range of possible causes which will be identified only by piecing together other clinical features of the illness presented.

Causes

- There are many possible causes of nausea and vomiting and it requires time, observation, clinical experience and awareness to decide on the cause of the problem and the correct management. Nausea and vomiting may result from local, central or general causes.

Local causes

- 'Acute gastritis' (a useful label for the syndrome of vomiting abdominal pain and malaise).
- This may be caused by an infective agent (e.g. viral) or some other ingested gastric irritant (in particular, excessive alcohol consumption).

Central causes

- Acute vertigo associated with nausea and vomiting (as in Meniere's syndrome or acute labyrinthitis), motion sickness, migraine and rarer conditions like vestibular neuronitis and tumour.

General causes

- Reactions to drugs (e.g. digoxin and aspirin), uraemia, diabetes ketoacidosis, and rarities like Addison's disease.

WORKUP

History

- The history will give guidance to a likely diagnosis. Systematic enquiry should be made on how the symptoms began and how long they have been present. Any nausea and/or vomiting that go on longer than three to four days, in the absence of pregnancy, must raise possibilities of an underlying cause.
- The timing of the vomiting may be noteworthy. Vomiting of relatively unaltered food soon after a meal suggests and oesophageal obstruction. Pyloric stenosis is associated with large offensive vomitus but with no evidence of bile. A gastro-colic fistula characteristically produces faeculent vomit.
- The possibility of nausea and vomiting being part of a psychiatric disturbance is unlikely. They are not features of an anxiety state or depression. In anorexia nervosa, although refusal of and abstention from eating are the main symptoms, there may also be induced vomiting.

Examination

- The many possible causes of vomiting make it necessary to carry out a full physical examination of patients presenting with this symptom. Associated symptoms, however, may direct particular attention to certain areas.

The child patient

- The pyrexial infant or child who presents with vomiting will lead the practitioner to look particularly for neck stiffness, signs of inflammation in the ears and throat, and abdominal tenderness. In the presence of respiratory distress or cough he will try to elicit signs of pulmonary infection. In the absence of any abnormalities in these systems he will examine a mid-stream specimen of urine bacteriologically.

- Very often vomiting in infancy is caused by mold gastroenteritis, when the practitioner's main concern will be with eliciting signs of dehydration, in the absence of which rapid recovery may be expected.
- A question about the frequency with which the infant is wetting his nappies is a useful guide to impending dehydration.
- In the apyrexial infant in the first few weeks of life pyloric stenosis may be suspected by the presence of projectile vomiting and the doctor will then examine the infant during a feed in order to identify a pyloric tumour.

The adult patient

- The apyrexial adult presenting with vomiting associated with colicky abdominal pain and possibly diarrhea is almost certainly suffering from an acute dietary indiscretion or gastrointestinal infection. In these cases it is always wise to examine the abdomen for localized tenderness to exclude appendicitis.
- Nausea and vomiting associated with vertigo or headache should lead to a careful neurological examination with particular examination of the optic fundi for signs of raised intracranial pressure, eye movements for nystagmus, and for signs of ataxia in the limbs. The ears should also be examined.
- Nausea and vomiting of gradual onset will draw special attention to the gastrointestinal tract. The practitioner should look for signs of weight loss, abdominal masses, visible peristalsis and abdominal distension and should carry out a rectal examination.
- In the young adult infective hepatitis often presents with nausea and jaundice and liver tenderness should be looked for.
- In a young woman pregnancy is a common cause of nausea. This may be confirmed by a urine pregnancy test.

Investigations

- This will depend on the history and examination. In the vast majority of patients presenting in general practice with vomiting they will add nothing to the diagnosis.
- In the second half of life, patients presenting with nausea and vomiting of gradual onset will require a full investigation to exclude organic bowel disease.

Management

- In selecting the treatment for patients presenting with nausea and vomiting, the first priority is to make a correct diagnosis.

The child patient

- In the infant and child most cases will be due to feeding problems, gastrointestinal infections or infections of the upper respiratory tract. Feeding problems are most commonly due to faulty technique rather than faults in the content of the feed. They require time for diagnosis and not only must a careful history be taken, the mother must be observed feeding her infant.
- In treating acute gastro-intestinal infections in the child, (and adult), the most important step is to stop all solid food and to ensure an adequate intake of simple fluids, of which water is the most appropriate. In the infant, dehydration may occur rapidly.
- The mother should be instructed to give 30-120 ml of water every two hours, the amount depending on the size of the infant. In most cases this will maintain hydration and vomiting will cease.
- Probably more harm than good comes from administering electrolyte solution to infants in general practice. As vomiting ceases, the child should be slowly weaned back on to a normal diet. Should electrolyte replacement become necessary the child should be admitted to hospital.
- Acute infections in childhood other than gastro-intestinal should be treated with an appropriate antibiotic. In the vomiting child this should normally be administered by intramuscular injection. Parents in this situation should be particularly warned not to use aspirin which may exacerbate the gastro-intestinal upset.

The adult patient

- In the adult patient the most common cause of vomiting is a dietary indiscretion or gastro-intestinal infection. Treatment consists of bed rest, withdrawal of all solid food and adequate simple fluids.

- Very commonly diarrhea follows the gastric symptoms and may be relieved by a kaolin mixture or codeine phosphate, 30 mg four hourly, loparamide 2 tabs tds or Imodium 2 tabs tds.
- Some of the specific causes of nausea and vomiting may be treated with more specific remedies. Thus, vestibular disorders, including motion sickness, vestibular neuronitis and Meniere's disease, may be helped by the use of hyoscine hydrobromide 0.1-0.5 mg or one of the anti-emetic antihistamines, e.g. diphenhydramine 50mg or prochlorperazine maleate 5mg.
- Transdermal scopolamine is also effective for prevention of motion sickness. The major side-effects are dry mouth and lightheadedness. A single patch lasts up to 72 hours.
- Vomiting in pregnancy will usually resolve without specific treatment but with reassurance and advice about taking something by mouth before rising in the morning, and small frequent snacks, rather than large meals, during the day. The more resistant case may be helped by use of meclozine hydrochloride, 25mg, or diphenhydramine 50mg which has stood the test of the time and for which there is no evidence of teratogenicity.
- Vomiting may be a troublesome symptom in migraine. It may be prevented by the administration of ergotamine tartrate, 2mg, early in an attack and in some proprietary preparations this drug is combined with an anti-emetic antihistamine. In the established attack, suppositories of prochlorperazine maleate may be useful.
- In terminal illness, particularly that due to gastro-intestinal neoplasm, vomiting may be troublesome. The use of morphine for pain relief may exacerbate this symptom. In such cases diamorphine should be preferred and this may be combined with chlorpromazine or prochlorperazine.

Indications for referral

- The child with more than mild dehydration
- The patient with serious organic gastrointestinal disease. Referral for surgical treatment may be required urgently.
- The patient with hyperemesis gravidarum. Give nothing by mouth for 48 hours, and maintain hydration and electrolyte balance by giving appropriate parenteral fluids and vitamin supplements as indicated.

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12. ABDOMINAL PAIN

Relevance to general practice

- The causes of abdominal pain in general practice cover a wide clinical spectrum. Although most cases may not be dramatic, the GP must be vigilant for the occasional patient with serious physical pathology.
- A careful history followed by appropriate examination helps to clarify the cause.
- The probability of various diseases depends on the age group. A practical classification of abdominal pain in general practice is according to the mode of onset.
- The patient with acute abdominal pain requires a careful early assessment. Non-acute abdominal pain allows the doctor more time to think and act but a systematic approach is essential in the history, examination and investigation.

Causes

Abdominal pain may be divided chronologically into acute and less acute pain.

Acute abdominal pain

A useful classification of acute onset of abdominal pain is summarised in Table1.

- Group A causes are life-threatening which require surgical intervention except for acute pancreatitis
- Group B causes are managed medically initially
- Group C causes are the commonest causes which may upset the patient or family tremendously, but are not life-threatening.

Other causes to keep in mind are:

- Acute myocardial infarction
- pneumonia
- diabetic ketoacidosis
- herpes zoster (pre-rash stage)
- ruptured aortic aneurysm (rare)
- Munchausen syndrome

Less-acute abdominal pain

- Organic – any intra-abdominal organic disease can present as a less acute or even have an insidious onset of abdominal pain, e.g. appendicitis
- Functional – irritable bowel syndrome and periodic syndrome are common conditions in young adults and children respectively.

Table 1. Causes of Acute Abdominal Pain

Group A: Life-threatening conditions which must be excluded

Appendicitis
Acute obstruction
Perforated peptic ulcer
Liver abscess
Acute pancreatitis
Ectopic pregnancy
Twisted ovarian cyst
Obstructed hernia

Group B: Less urgent but important conditions

Acute cholecystitis
Biliary colic
Hepatitis
Renal colic
Pelvic inflammatory

Group C: Common causes

Gastritis/Dyspepsia
Mesenteric adenitis
Dietary indiscretion
Gastro-enteritis
Alcohol abuse
Migraine
Constipation

The likely diagnosis varies with age:
Age related conditions are:

In infancy: Intussusception
In children: periodic syndrome, any febrile illness
Young adults: gastritis, peptic ulcer, hepatitis, irritable bowel syndrome, dysmenorrhoea
Middle age: peptic ulcer, gall bladder disease, irritable bowel syndrome, carcinoma of stomach, colon, pancreas or liver
Elderly: gastric ulcers, gall bladder disease, neoplasms, obstructed hernia

Acute appendicitis and acute intestinal obstruction are important causes to exclude in all age groups (although acute appendicitis is most common in young children and young adults).
Acute gastroenteritis is a common cause in all age group.

WORKUP

Three questions to answer
The questions facing the general practitioner presented with a patient with abdominal pain are:

- Is there a surgical or medical cause of pain?
    - If not surgical, should the patient be admitted or managed at home?
- Is this an acute abdomen?
    - If not clearly, an **acute abdomen** should the patient be admitted for observation?
- If managed at home, what should be done?

ACUTE ABDOMINAL PAIN

History

A good history may reveal as much, if not more (about the likely cause), than the physical examination.

- It is helpful to assess and manage the patient and family in the context of past knowledge of their demeanour, attitudes and beliefs. Nevertheless, it is wise to remember that even the most neurotic, anxious and depressed patients may suffer from serious abdominal disease at times.
- Any relevant history of previous abdominal diseases and operations should be noted, A family history for major diseases e.g. carcinoma of colon, should also be recorded.
- Clarity the features of the abdominal pain:
    - duration
    - site and radiation
    - character: colicky or dull ache
    - onset and progression: constant, intermittent, increasingly severe, recurrent
    - severity: dull ache or agonizing pain
    - aggravating and relieving factors
- Look for associated features:
    - nausea and vomiting
    - loss of appetite
    - change in bowel habits
    - delayed or current menstruation
    - frequency, dysuria or haematuria

Examination

General

- the patient's general demeanour
- appearance, pallor or jaundice
- temperature
- pulse
- character of respiration
- tongue and
- skin turgor

Abdomen

- **Observe** any obvious distension, movement with respiration, and any obvious skin signs e.g. an occasional case of herpes zoster
- **Palpate** all quadrants of the abdomen carefully; note any masses and tenderness (any deep tenderness in area of pain?). Search specifically for right iliac fossa pain of appendicitis, Murphy's sing of cholecystitis and renal angle tenderness of pyelonephritis.
- **Percuss** for: air, fluid, or mass abnormalities
- **Auscultate** for: a silent or a very noisy abdomen which may be high significant in the context of suspected ileus or intestinal obstruction.

Other examination

If the diagnosis is in doubt, the examination may be extended to include the chest, back and central nervous system. Frequently a rectal and/or vaginal examination will be necessary to clarify the diagnosis or exclude disease in the pelvis.
Cardinal features of some major causes of an acute abdomen are shown in Table 2.

Table 2. Cardinal Features of Major Causes of Acute Abdomen

Cause	Features
Colic	Arise from viscera – exaggerated peristalsis (pain typically waxes and wanes)
Renal colic	Site of pain: loin Radiation: loin to groin Associated features: vomiting, dysuria and haematuria
Biliary colic	Site of pain: right hypochondrium or epigastric region Tenderness in right hypochondrium
Appendicitis	Site of pain: early states periumbilical region and later right iliac fossa pain Pain worse on coughing Vomiting Guarding if perforated Mild fever, non in early stages Constipation or diarrhea may be a presentation Tenderness in right iliac fossa Rectal tenderness
Peritonitis	Site of pain: generalized Rebound tenderness and board-like rigidity Associated with perforated peptic ulcer, ruptured appendix, or ruptured ectopic pregnancy
Peptic ulcer	Site of pain: epigastrium History of drug intake – NSAIDs, steroid Relation to meals – night pains in duodenal ulcer and postpreandial pain in gastric ulcer
Pancreatitis	Site of pain: epigastrium and radiating to the back Severity out of proportion to clinical findings May be in hypovolaemic shock Serum amylase is markedly elevated

Investigations

- No investigations will be required in the majority of patients with abdominal pain, who suffer from relatively minor conditions of short duration.

Non-acute abdominal pain

- In such cases, there is more time to think and act, but a systematic approach is essential in the history, examination and investigation.
- A relatively small number of causes of non-acute recurrent of persistent abdominal pain account for most of the symptoms. These causes include peptic ulcer, hiatus hernia, gall bladder disease, the irritable bowel and new growths of the large bowel or stomach.
- Relevant useful investigations available in the clinic and its support facilities include:
    - urine tests for infection
    - stool examination for occult blood, ova or cysts
    - haemoglobin, total white, serum amylase and liver function tests
    - ultrasound of liver, gall bladder, pancreas, kidneys and pelvis
    - plain X-rays, contrast radiography and CAT scan
    - endoscopic procedures

Special aspect of chronic abdominal pain

Irritable Bowel Syndrome (IBS)

- **Ask about alarm symptoms (RED FLAGS)**
  Rectal bleeding, anaemia, weight loss, persistent diarrhoea, severe constipation, fever, a family H/O CRC, age>50
- Ask about other non-GI symptoms

  Lethargy, insomnia, muscle pains, urinary frequency, anxiety, depression, somatization
- Check for other related conditions:

  Fibromyalgia (32% Vs 2%) CFS (14% Vs 0.4%) chronic pelvic pain (35% Vs 14%) TMJ disorder (16% Vs 5%)
- Ask about family H/O functional abdominal pain (double likely IBS)
- Examine for organic pathology: look for abdominal or rectal mass
- Check for CP, ESR
- If there are no alarm S/S, check Rome criteria

  The Rome 2 criteria

- Abdominal discomfort or pain for 12 weeks or more in the last year, with at least two of the following features:

1. Relieved with defecation
2. Onset associated with a change in the frequency of the stool
3. Onset associated with a change in the form of the stool

- Symptoms supporting the Dx of IBS
- a. abnormal stool frequency (>3 a day or <3 a week)
- b. abnormal stool form (lumpy/hard or loose/watery stool)
- c. abnormal passage of stool (straining, urgency or feeling of incomplete defecation)
- d. Passage of mucous
- e. Bloating or feeling of abdominal distension
    - Criteria met—LR (4.7) probability (86%)
    - Criteria not met-LR (0.3) probability (30%)
    - Note

1. 17% of those with organic disease met Rome criteria
2. 30% of those who did not meet Rome criteria still had a functional bowel disorder
3. The GP should realize that these LR may not apply to primary care

ABCDE diagnosis of IBS

A. Abdominal pain
B. Bloating
C. Change in bowel habit
D. Defecation –relieved with defecation
E. Evacuation-incomplete

Management

Acute abdomen pain

- Where the cause is clear and minor, symptomatic and definitive treatment may be all that is necessary.
- Where the decision is to observe the patient, as for example, when the diagnosis of the mesenteric adenitis is made, the patient should be pain increase over the next six hours.
- This asked to report back or to go to hospital should be emphasized to the patient. Hospital admission is necessary for the obvious acute abdomen or when an acute abdomen cannot be excluded.
- It is better to err on the side of caution than to take the risk of leaving a patient at home with a possible progressing abdominal emergency.

Non-acute abdominal pain

- The management of the patient with a non-acute abdominal pain depends on the underlying pathology. Psychological causes should be liked for if organic causes have been excluded.
- Attention to reasons for encounter may provide useful cues, where no organic cause is found, the patient should be reassured and followed-up.

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13. SKIN RASHES

Relevance to general practice

- A rash account for 5% of all new symptoms presented in general practice
- Extent of involvement and the presence or absence of accompaniments of itch or constitutional upset is helpful in differential diagnosis.

Definitions

It is important to define the terms commonly used to describe skin rashes.

Macule - A flat spot which differs in colour from the surrounding skin
Papule - A raised spot on the surface of the skin
Nodule - A lump deeply set in the skin
Scale - A flake of horny cells loosened from the skin surface
Crust - Dried serum adherent to the skin
Vesicle - A skin bleb filled with clear fluid
Bulla - A blister filled with clear or blood-stained fluid
Pustule - A skin bleb filled with pus
Urticaria - An irregular white or pink pruritic weal

Causes

An approach to skin rashes is to group them into the following:

Generalised rash of acute onset

- accompanied by malaise and fever
- accompanied by acute pruritis as a prominent feature
- accompanied by minimal constitutional upset or pruritis

Localised rash (at times can be widespread)

Generalised rash of acute onset
Accompanied by malaise and fever

Most are due to specific infectious diseases:

- **Measles:** This is commonly associated with cough, running nose and conjunctivitis. The child is usually miserable. Koplik spots may be found on the oral mucosa before the onset of the rash. The rash itself consists of dusky red macules which coalesce to form irregular blotches. The rash remains as a brownish staining for 2-3 weeks after the fever has subsided.
- **Rubella:** The constitutional upset is mild compared to measles. The rash consists of pale pink macules, and first appears on the face. It spreads rapidly over the trunk and limbs and fades in 2-4 days. Generalised lymphadenopathy is an accompanying feature. **Enlargement of the suboccipital lymph nodes are typical.**
- **Chicken pox:** The rash appears as macules which rapidly progress to umbilicated papules and vesicles. It appears in crops and is commonly found to be in different stages of development on the same patient. It first appears on the trunk and has a centripetal distribution.
- **Non-specific viral infections:** These are usually accompanied by catarrhal symptoms. The rash is commonly macular or erythematous, clinically similar to rubella, and fades in 24-48 hours without leaving any serious sequelae.
- **Infectious mononucleosis:** The rash, which occurs in 10% of patients, consists of an erythematous eruption occurring on the trunk, buttocks and extensor surfaces of the limbs. Accompanying features include membranous tonsillitis, lymphadenopathy, and splenomegaly. **Patients given ampicillin will develop a widespread, maculopapular erythematous eruption.**

Accompanied by acute pruritis as a prominent feature

- The causes may be drugs, insect bites or allergens. The morphology of the rash ranges from erythematous papules and macules to urticaria and purpura. Mucous membrane lesions are sometimes present. The reaction may be mild, lasting several days, or may be severe and life-threatening.

Accompanied by minimal constitutional upset or pruritis

These are not so common. Two conditions which are sometimes seen in general practice are:-

- **Erythema multiforme:** The rash consists of slightly raised macules up to 1 cm in diameter which may coalesce and show target lesions. Steven-Johnson Syndrome is a more severe form, with mucous membrane involvement.
- **Pityriasis rosea:** seen mainly in young adults. The rash consists of symmetrical oval-shaped macules, spreading over the trunk and proximal parts of the limbs. This may be preceded by a **herald patch** several days earlier.

Localised rash

- These are usually not associated with any constitutional symptoms, and may have typical sites of occurrence. The cause may be endogenous or exogenous. Exogenous causes may be infective or non-infective.

Atopic eczema

This is part of the eczema-asthma-hay fever syndrome, Onset is usually in the second year of the life. The rash is typically located in the flexures of the elbows and knees. It can also be found on the face, neck, wrists and buttocks. In the infantile form, it may be generalized, but it usually persists as a recurrent flexural eczema in older children.

Irritant dermatitis

These are produced by substances that chemically damage the skin. Some are very powerful, and produce eczematous skin changes even with very short contact. Examples are alkalis and certain solvents. Other irritants are low grade, and cause changes on prolonged repeated contact. Detergents and soaps can be classified under this category. The skin changes are varied, but are usually localized to the site of contact.

Allergic dermatitis

This occurs when the skin is in contact with a substance to which the patient is allergic. The reaction may be localized, or may spread to other areas not in contact with the allergen. Examples are allergy to nickel and cement.

Other eczemas

These include ***seborrhoeic dermatitis***, which is of exudative nature, and can be found on the hair margins, face, axillae, chest and groin; ***pompholyx***, which is a blistering condition occurring on the palms and soles; ***lichen planus*** and others of uncertain aetiology classified under morphology and distribution.

Psoriasis

This presents most commonly in early adult life. The characteristic lesion is a raised red plaque with a well-defined margin, covered with silvery scales. The lesions occur mainly on the extensor aspects of the knees and elbows, the sacrum and the scalp. Psoriasis may also present as ***guttate psoriasis*** which appears as small lesions 0.5-1 cm in diameter scattered over the skin surface, sometimes after a streptococcal infection. Other forms of psoriasis include ***pustular*** and ***erythrodermic*** form, which are potentially serious. Nail involvement is common, Arthritis occurs in about 10% of patients.

Skin infections

These may be bacterial or fungal.

- Bacterial infections include **impetigo**, which is mainly localized, and had characteristically golden yellow crusts; **folliculitis**, involving the hair follicles; **boils** and **carbuncles**.
- Fungal infections run a more chronic course, and are spread over a wider area. Those caused by dermatophytes are classified according to the distribution, e.g. tinea capitis, tinea cruris. The lesions are typically annual, with the outer edge as the most active area, and central clearing. Scales may be present. Tinea versicolor is caused by a yeast.
- The lesions may be hypo- or hyperpigmented. There is no characteristic distribution. Candida albicans is an opportunistic yeast. The skin lesions are found mainly in the warm, moist parts of the body, and consist of inflammatory reaction with satellite lesions. Mucous membrane involvement consists of white exudative plaque.

Parasitic infestations/insect bites

Scabies is caused by the mite *Sarcoptes scabiei*. The characteristic lesion is a burrow, at the end of which the mite can sometimes be found. The distribution is typically in the skin fold areas, between the fingers and toes, and in the groin.

Papular urticaria represents an urticarial and vesicular response to a variety of insect bites, including fleas, bedbugs, motes, and mosquitoes. The lesions are seen mainly on the exposed parts of the body.

WORKUP

History

- One should establish the duration of illness, the site and distribution of the rash.
- In patients presenting with skin rash of short duration, the presence of associated symptoms should be asked for, namely, constitutional disturbance, and itch.
- A history of prior unaccustomed food and drugs ingestion, immunization, allergy should be obtained. A working diagnosis can often be reached even before the patient is examined.
- In patients presenting with a more chronic rash, it is important to establish the site of onset and mode of spread of the rash, any aggravating or relieving factors, or allergy. Past, family, social, and occupational histories are also important, as for example, in atopic eczema, in contact dermatitis.

Physical Examination

- Examination of the skin should include examination of the mucous membranes and the nails. Some conditions can be diagnosed by morphology and distribution e.g. pompholyx.
- Some acute conditions have characteristic non-cutaneous physical signs, e.g. presence of suboccipital lymph nodes in rubella, which help in narrowing down the differentials.
- Look out also for signs confirming certain symptoms, e.g. excoriation marks in patients complaining of pruritis, lichenification in long-standing rash. A magnifying glass is a useful aid in studying the morphology of the rash.

The distribution of rashes provides a useful guide as to the differential diagnoses in rashes of insidious onset.

- Rashes affecting
    - **the hands** – irritant eczema, pompholyx, scabies
    - the flexor aspects of the arms and leg – atopic eczema most common
    - **the feet** – tinea pedis most common, contact dermatitis due to leather, or dye from shoes also common
    - **the extensor surfaces of the limbs** – characteristic in psoriasis, uncommonly dermatitis herpetiformis
    - **the groin area** – tinea cruris, seborrhoeic dermatitis
    - **the axilla** – contact eczema e.g. due to deodorants, less commonly seborrhoeic dermatitis, tinea capitis, psoriasis, impetigo

    - **the trunk** – seborrhoeic dermatitis, guttate psoriasis, tinea corporis, tinea versicolor, pityriasis rosea, rarely secondary syphilis
    - **the buttocks** – scabies, psoriasis, napkin rash, and atopic dermatitis in infants
- **Mucous membrane lesions** – moniliasis, less commonly Steven-Johnson syndrome, syphilis, lichen planus, etc.

Laboratory investigations

- Laboratory investigations are limited in the office setting. One useful procedure is skin scrapping for the diagnosis of fungal infections using potassium hydroxide.
- Other more involved investigative methods e.g. biopsy, and patch testing can be done if facilities are available.

Management

- Management depends on the diagnosis. Acute infections of viral origin need only symptomatic treatment. Patient education and reassurance are important.
- Allergic and contact eczema are managed by identification and avoidance of the offending agent, antihistamines, topical applications and steroids for severe cases.
- Psoriasis and skin infections are treated according to specific protocols.
- General guidelines regarding the vehicle for therapeutic agents of all rashes are as follows: -
- Lotions to be used for moist or weeping lesions
- Creams for oedematous but not exudative lesions
- Ointment for dry lichenified fissured lesion.

Indications for referral

- For consultation where diagnosis is in doubt
- For specialized investigative procedures e.g. patch testing, or management e.g. ultraviolet light treatment in psoriasis
- In acute life-threatening conditions e.g. erythrodermic psoriasis, exfoliative dermatitis, severe allergic reactions.

References

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14. BACK PAIN

Relevance to general practice

- Backpain is a common accompaniment of common conditions like viral fever, urinary tract infections and multiple psychosomatic complaints.
- In over three-quarters of cases of acute backache, symptoms disappear within 4 weeks with simple general measures and analgesia.
- The remaining likely serious causes should be identified as early as possible.

Causes

Table 1. shows the main causes of back pain.

Table 1. Causes of Backache

Spondylogenic

- Injury
  - musculo-ligmentous strain
  - disc prolapsed
  - bony injuries
- Structural defect
  - scoliosis
  - spondylosis
  - spondylolisthesis
  - spinal stenosis
- Infection
  - tuberculosis
  - pyogenic
- Inflammatory arthritis
  - ankylosing spondylitis
  - rheumatoid arthritis
- Tumour
  - malignancies – myeloma, secondaries
  - vascular malformations
- Others
  - osteomalacia

Viscerogenic

- Pyelonephritis
- Pancreatitis
- Dysmenorrhoea

Psychogenic

- Functional overlay
- Tension
- Hysterical conversion
- Depression

Important Causes of Low Back Pain

Mechanical (97%)	Nonmechanical Spinal Condition (1%)	Visceral Disease (2%)
Lumbar strain or sprain (70%)	Neoplasia (0.7%)	Aortic aneurysm
Degenerative disk or facet disease (10%)	Metastatic carcinoma	Renal disease
Herniated disk (4%)	Multiple myeloma	Pelvic disease
Osteoporotic compression fracture (3%)	Spinal cord tumor	Abdominal disease
Spondylolisthesis (2%)	Lymphoma, leukemia	
Trauma (<1%)	Infection (0.01%)	
Diskogenic disease	Osteomyelitis	
	Epidural abscess	
	Septic diskitis	

Inflammatory disease (0.3%)
Ankylosing spondylitis
Psoriatic arthritis
Reiter's syndrome
Inflammatory bowel disease

Adapted from Deyo RA, Weinstein JN. Low back pain. N Engl J Med 2001;344:363, with permission

WORKUP

- The cornerstone of the assessment of the patient with acute low back pain is a careful medical history and physical examination, which is critical in determining the presence of more serious conditions.

History

- General
- **Age:** This could indicate the likely diagnosis as many causes of back pain are age related, for example, degenerative diseases, Paget's disease and malignancy. In young and middle aged, PID is considered and Spinal stenosis in aged>50 years.
- **Occupation:** This should be asked as it may reveal the main reason for consultation, i.e. compensation, medical certification and therefore aid in the patient's management.
- Symptoms
- **Duration:** One should ask the duration and onset of the back pain and whether it has been recurrent.

Association: RED FLAGS

  - Age: < 20 > 55yrs
  - **Cancer:** History of cancer, unexplained weight loss, night pain/rest pain
  - **Infection:** fever, immunocompromised state (steroid, diabetes), rest pain, IVDU
  - **Cauda equine syndrome:** saddle anaethesia, urinary retention, fecal incontinence, bilateral lower extremity weakness/numbness or progressive neurological deficit
  - **Fracture:** use of steroids, recent significant trauma, age more than 70 years or history of osteoporosis
  - **Significant herniated nucleus pulposus:** major muscle weakness, pain worse if lying down
  - **Acute abdominal aneurysm:** rest/night pain, age more than 60 years, other atherosclerotic vascular disease

Psychogenic back pain (YELLOW FLAGS):

- Low back pain can also be psychogenic or a symptom of depression; however, other diagnosis must be excluded beforehand.
- Yellow flags-psycho-social features associated with progression to chronic problems or disability
- Is the patient reluctant to do anything that brings on the pain as they think that this is harmful?
- Does he fear the pain and is this fear making him increasingly inactive?
- Is he more inclined to think that passive –as opposed to active- treatment will help?
- How is his mood? Is he anxious, stressed or socially withdrawn?
- Is there a history problem at work?
- Are his families overprotective?
- An exaggerated response to examination can also be a yellow flag.

Indicators for nerve root problems:

- Unilateral leg pain other than low back pain
- Radiates to foot or toes
- Numbness and paraesthesia
- SLR test induces more leg pain especially below knee
- Localized neurology (limited to one nerve root)

Past history: A history of recurrent pain and what had been done for the patient in the past, e.g. surgery, traction, etc. would be helpful

Physical examination

- Observation of the back

  Acute disc prolapse: there may be a forward tilt obliterating lumbar lordosis and a lateral tilt (sciatic scoliosis)

- Palpation of the back

  Local tenderness common in apophyseal joint, ligmentous injury and often in acute disc prolapsed. Note that acutely tender areas due to strains may be helped by local injection.

- Movement (flexion, extension, rotation, lateral flexion, also test the sacroiliac joints)

  In ligmentous injuries the movements are likely to be full. In apophyseal joint dysfunction there may be locally reduced mobility. In disc prolapsed movements are restricted by pain but one or two movements (often flexion) restricted more than others.

- Straight leg raising (SLR) and Cross SLR

  Reduced in prolapsed intervertebral disc with sciatic nerve irritation. Cross SLR is more specific than SLR.

- Femoral stretch test (knee flexion when prone)

  Positive if upper lumbar root involvement.

- Power

  In particular movements of foot and big toe.

- Sensation

  Especially the saddle area, as saddle area anaesthesia may be a feature of central protrusion.

Table 2. Nerve Roots and Associated Neurological Signs

Nerve root	Changes in power	Reflexes
L2	Hip flexion	No changes
L3	Weakness of the quadriceps (knee extension)	Reduced or absent knee jerk
L4	Weakness of knee extension and dorsiflexion of the foot (foot drop)	Reduced or absent knee jerk
L5	Weakness of dorsiflexion of the foot and toes (foot drop)	No changes
S1	Weakness of planter flexion (unable to stand on tip-toe)	Absent ankle jerk
Cauda equina lesion	Any or all of the above with bladder and rectum paralysis	Ankle jerk lost, and reflexes lost

Investigations

- Laboratory testing should be reserved for patients who have red flags.
- Diagnostic imaging is rarely indicated in the acute setting of low back pain. Plain films remain the most widely available modality for imaging the lumbar spine. Plain X-rays are rarely useful in evaluating or guiding treatment of adults with acute low back pain in the absence of red flags.
- The primary objective if X-ray us to identify any bony and/or structural abnormality associated with back pain. Plain lumbar X-rays are helpful in detecting spinal fractures and in evaluating tumour and/or infection.
- In most instances, the routine ordering of plain lumbosacral spine films in patients presenting with back pain is low in yield and neither cost-effective nor useful for decision making
- Further investigations on imaging will be in the domain of the referred specialist.

NOTE:

- MRI and CT should be limited to patients who are either sufficiently symptomatic that surgical intervention must be considered or are suspected of having serious systemic disease.
- The high sensitivity of these tests for disk disease can produce misleading results unless the patient and clinician are aware that disk bulges and protrusions are extremely common (50% MRI is the test of choice in suspected cauda equina syndrome, epidural abscess, or cancer-related epidural spinal cord compression by virtue of its superiority in detecting soft-tissue pathology and 30%, respectively) in asymptomatic people.

Management

- Acute nonspecific back pain (no evidence of neurologic compromise or other serious pathology) is best managed conservatively because prognosis is generally very favorable.
- Such nonspecific acute low back resolves in about one third of patients by 1 week and in two thirds by 7 weeks. Even in those with disk herniation, the figures are similarly favorable, with only about 10% needing consideration of surgery at week 6; moreover, disk herniation tends to regress over time.
- **Analgesia:** Consider muscle relaxants, physiotherapy.

General back care:

- Staying active rather than bed rest
- Avoid lifting heavy weight
- Avoid bending the back: when lifting objects, bend at the knees keeping back straight.
- Posture: when sitting, do not hunch; a small cushion as lumbar support is useful; try to get a well-designed chair.
- Attend to psychogenic factors. (Yellow flags)

Follow up:

- When conservative treatment fails –
- review compliance
- reassess home/work environment
- reassess clinically, as thoroughly as on the initial examination
- refer to specialist assessment

Indications for referral

For diagnosis

- Suspected serious disease i.e. neoplasia, TB, referred pain
- Treatment i.e. traction, surgery
- Failure of conservative therapy. This means failure of therapy after at least three weeks bed rest and analgesia faithfully complied with.
- Emergency referral for surgery i.e. cauda equina lesion. Symptoms are: saddle area anaesthesia, retention of urine/urinary symptoms, atomic anal sphincter, severe weakness of legs peripherally.

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15. JOINT PAIN AND MUCULO-SKELETAL PAIN

Relevance to general practice

- Patients with diffuse, chronic musculoskeletal pain but no evidence of arthritis account for a large number of office visits.
- Although the cause of the syndrome is unknown, it appears to be common and is estimated to have prevalence as high as 5% among adult women, who account for 80% to 90% of cases.
- Although osteoarthritis accounts for many of the more obvious cases of joint pain (particularly in the elderly), the differential diagnosis can encompass a bewildering array of conditions, both articular and non-articular, inflammatory and non-inflammatory.
- Many patients with joint pains self-medicate and seek advice from friends and alternative medicine practitioners before they consult a doctor.
- Careful attention to the history and physical examination helps chart a logical course to minimize diagnostic error and cost and maximize patient benefit.

Causes

- There are many ways that joint pains can be classified, One way is to classify aetiologically as table 1.

Table 1. Causes of Joint Pains seen in General Practice

ACQUIRED CAUSES

- Inflammatory
  - infective
  - non-infective
    - rheumatoid arthritis
    - ankylosing spondylitis
    - psoriatic arthritis
    - SLE, inflammatory bowel disease
  - metabolic
    - gout
    - pyrophosphate arthropathy
- Degenerative
  - Osteoarthritis, spondylosis, intervertebral disc prolapsed
- Trauma/overuse
  - Shoulder capsulitis, tendonitis, tenosynovitis, bursitis, carpel tunnel syndrome, ligment/muscle tear, chondromalacia patella, trigger finger, metatarsalgia, and planter fasciitis
- Miscellaneous
  - Psychogenic rheumatism, neoplasm

HEREDITARY (Uncommon)

- Marfan's syndrome, Ehlers-Danlos, Osteogenesis imperfect

Source: Grahame R. The Practitioner, 1986:316

WORKUP

History

The history should address the following questions:

- Is the problem articular or non-articular?
- Is it inflammatory or non-inflammatory?
- Is the involvement polyarticular (≥5) or pauci-articular?
- Are there any extra-articular manifestations?

- The site of maximal tenderness establishes whether the problem is within the joint or outside. Bursitis and tendonitis are conditions that are extra-articular.
- The features that differentiate between inflammatory and non-inflammatory joint pain are shown in Table 2.

Table 2. Inflammatory and Non-inflammatory Joint Disorders

Symptoms & Signs	Inflammatory	Non-inflammatory
Morning stiffness	>1 hr	<1 hr
Fatigue	Marked	Occasional
With activity	Better	Worse
With rest	Worse	Better
Soft tissue swelling	Yes	Uncommon
Bony swelling	Uncommon	Yes

Source: Catherine Alderice. Can Fam Physician 1990;36:553

- If the involvement is mono-articular, consider trauma, septic arthritis and monoarticular stage of a polyarthritis. Of these, septic arthritis is the most important condition to be sorted out.
- If the involvement is polyarthritis, the distribution of joints helps to define the underlying disorder. In rheumatoid arthritis, typically, the joints involved are the feet, metacarpophalangeal joints, proximal interphalangeal joints and wrists.
- In osteoarthritis, when the hands are involved, these joints are usually not involved.
- The presence of extra-articular manifestations helps to clinch the diagnosis. (Table 3)

Table 3. Extra-articular Manifestation in Joint Disorders

Inflammatory arthropathy	Extra-articular manifestations
Polyarthropathy	
Rheumatoid arthritis	Extra-articular manifestations tend to occur later in the course of disease. Subcutaneous nodules, sicca symptoms (dry eye and dry mouth); hand deformities – volar subluxation, swan neck, boutonniere deformity, ulnar deformity of metacarpophalangeal joints are common.
Systemic lupus erythematosus	Extra-articular manifestations are usually prominent, often preceding joint complaints: alopecia, mouth ulcers, Raynaud's phenomenon, butterfly rash, photosensitivity and serositis
Psoriatic arthritis	In 15% of patients with psoriatic arthritis, the arthritis appears first and the typical skin rash develops months to years later. Typically the skin lesions and nail changes clinch the diagnosis.
Chronic tophaceous gout	Tophaceous deposits found under the skin
Oligoarthropathy	
Ankylosing spondylitis	Iritis, aortic incompetence
Reuter's syndrome	Conjunctivitis, keratoderma blenorrhaghica, balanitis in males
Psoriatic arthritis	skin rash, nail changes reveal the diagnosis
Inflammatory bowel arthropathy	Ulcerative colitis and regional ileitis
Early rheumatoid arthritis	subcutaneous nodules

Physical examination

- Examination may be normal or there may be redness and swelling of affected joints, deformities and extra-articular manifestations.
- Every painful joint should be examined with regard to the following:
  - joint swelling and tenderness
  - synovial and capsular thickening

- deformity
- range of movement
- instability
- gait
- muscle power
- Next consider the pattern of affliction and symmetry of the disease:

- peripheral joints
  - symmetrical pattern in RA
  - asymmetrical pattern in gout (usually single joint affected)
- axial joints (sacroiliac, spine, lower limbs)
  - AS, Reiter's syndrome
- For polyarticular disease other systems need to be examined and these should include:
  - the eye e.g. conjunctiva, sclera, iris, and retina
  - skin – pattern of rash, ulcers, ischaemia and infarction, nodules, nails, and hair
  - mucous membranes – ulcers
  - abdomen and genitor-urinary system
  - cardiac murmurs
  - muscle wasting (disuse atrophy), dermatomyositis in SLE

Investigations

- Not all joint pains require further investigations. A negative result does not necessarily exclude the presence of the disease process.
- In inflammatory polyarthropathy, initial investigations need only to be confined to the following:

Erythrocyte sedimentation rate

The erythrocyte sedimentation rate (ESR) is a very useful test of inflammatory activity, particularly in patient with rheumatoid arthritis or polymyalgia rheumatic. In RA it is raised and very high in the acute stage. In the elderly with polymyalgia rheumatic (PMR) a markedly raised ESR is usually present.

Complete blood count

- Hb – moderate anaemia is the most common systemic manifestation of inflammatory joint disease. Its severity reflects the activity of the disease.
- TW – Total white is raised in infection, and in gout
- Platelets – can be raised or low.

Rheumatoid factor

Rheumatoid factor is an important test in confirming the diagnosis, but only if the positive results, correspond to the patient's symptoms and current knowledge of rheumatoid arthritis. Early in the disease, it may be negative in rheumatoid arthritis but will normally turn positive within one year. Rheumatoid factor is used mainly to confirm a diagnosis. It should never be used to monitor disease activity.

Anti-nuclear antibodies (ANA)

Anti-nuclear antibodies (ANA) should be approached in the same way as a positive test for rheumatoid factor. Only if the patient's symptoms strongly suggest SLE should a positive test for ANA be taken as confirmation of the diagnosis. Like rheumatoid factor, ANA tests are not useful to monitor disease activity.

Synovial fluid analysis

- In oligoarthropathy and monoarthropathy, synovial fluid analysis is helpful. It is almost diagnostic in septic arthritis and in gouty or pseudogout arthritis. By contrast, such analysis does not help to differentiate the aetiology of polyarthropathy.

Radiological investigations

- X-rays of joints are useful as a baseline examination and for monitoring progress. The following should be looked for:
    - soft tissue changes
    - juxta-articular osteoporosis
    - uniform narrowing of joint spaces
    - erosions at joint margins

Table 4. X-ray Features in Joint Disorders

Rheumatoid arthritis
: Periarticular osteoporosis, and periosteal reaction

Ankylosing spondylitis
: Typical diagnostic features: blurring of margins of sacro-iliac joints, erosions and squaring of lumbar vertebrae; "bamboo spine"

Gouty arthritis
: In late stages of disease, punched out juxta-articular erosions and degenerative joint changes

Osteoarthritis
: Narrowed joint space, irregular joint space, sclerosis of subchondral bone, subchondral cyst, osteophytes

Fibromyalgia Syndrome (FMS)

- **ACR criteria**

1. A history of widespread pain for at least 3 months involving left and right sides and areas above and below the waist, and involving the axial skeleton (cervical spine ,or thoracic spine, or anterior chest or lower back)
2. Where pressure on 11 out of 18 trigger points causes pain
3. Other features-fatigue, non-restorative sleep, mood alterations, non-neurological paresthesia, headaches, stiffness, irritable bowel syndrome, restless leg syndrome.

Management

This depends on the cause and stage of the joint disease and is based on a combination of:

- physiotherapy
- local injections
- drug therapy – a wide range of drugs is available from the simplest analgesics, NSAIDs, gold to cytotoxics,
- surgery - to joint and deformities
- aids for walking and ADL
- patient education and counseling
- social and community support/self-help groups

For the standpoint of management, patients can be divided into 3 groups:

- Inflammatory arthropathy and physical examination is positive
    - Patients whose history indicates inflammatory polyarthropathy and who have objective evidence of joint involvement are usually fairly easy to manage. If gouty arthritis or septic arthritis is present, the treatment is specific. In inflammatory polyarthritis, the initial management is symptomatic. Self-limiting conditions, particularly a viral illness (which can mimic rheumatoid arthritis), will resolve within six weeks.
    - If symptoms persist beyond six weeks, one must establish the most likely diagnosis and then treat the symptoms as they occur; the need for second line drugs may need to be sought.
- Inflammatory arthropathy but physical examination is normal

    - These patients probably have early arthritis like rheumatoid arthritis but may not have yet developed recognizable features. The patient may develop new symptoms over time or will have a complete resolution of their symptoms. Treatment at this time is with NSAIFs and they should be followed up more closely than the other two groups.
- Non-inflammatory arthropathy
    - These are patients who have no inflammatory features on physical examination of affected joints. Advice on judicious exercise, weight reduction of the overweight is needed.
    - Consider the Diagnosis of Rheumatic fever using Modified Jone's criteria.

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16. DIZZINESS

Relevance to general practice

- Dizziness is a common symptom and its interpretation can be difficult, made worse by its very subjective nature and the many disorders that can cause it, few doctors will not feel a sense of despair when confronted with a patient whose main complaint is that of dizziness.
- A careful history including drug intake will help determine whether the Dizziness is a true vertigo or pseudovertigo and pinpoint the diagnosis.
- Important serious causes to keep in mind are cerebral tumours and cardiac dysrhythmias.

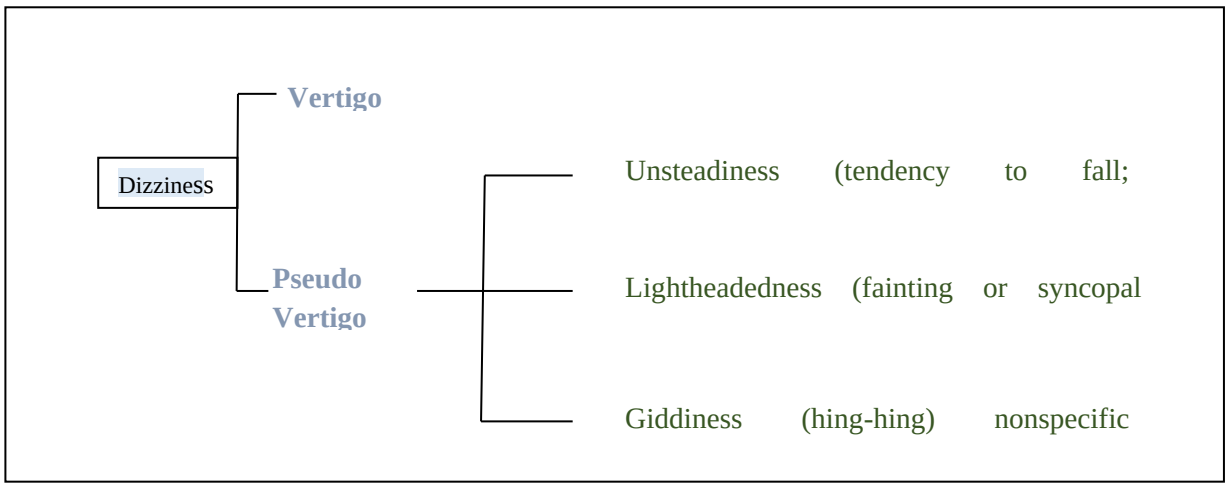
Meaning of dizziness

- It is a term that includes many symptoms and presentations, none of which can be objectively measured.
- Dizziness is a sense of abnormal balance, and results from disturbance of one or more of the organs maintaining balance.
- When a patient complains of "dizziness", he or she can be using this term to describe many different phenomena, and hence a careful history is required to unravel the problem

Scenario

- A 30-year-old male comes to your office for assessment of dizziness. The dizziness occurs when he rolls over from lying position to either the left side or the right side. It also occurs when he is looking up. He describes a sensation of "the world spinning around "him. The episodes usually last 10 to 15 seconds. They have been occurring for the past 6 months and occur on average one to two times per day.
- It is useful to try and categorize the patient's symptoms into one of the following categories in Figure 1.

Figure 1. Classification of Dizziness



- **Vertigo** – a sense of rotation, that is either the patient or his surroundings are spinning around. In its severest form, it may be accompanied by nausea, vomiting, pallor and sweating.
- **Unsteadiness** – characterized by a tendency to fall; disequilibrium
- **Lightheadedness** – presyncopal feeling. May be relieved by assuming a supine position.
- **Giddiness** (hing-hing) – nonspecific; cannot be easily put into any recognizable pattern. In the elderly, consider a problem of multisensory deficits. These sufferers may have cataracts, neuropathy, limited neck movements and aging of the vestibular system.
- Differentiation into these categories must be attempted despite the obvious difficulty in doing so, because this helps in identifying the problem.

Causes

The causes of dizziness are show in Table 1.

Table 1. Causes of Dizziness

Peripheral disorders	
Labyrinth	Labyrinthitis Meniere's disease Benign paroxysmal positional vertigo Labyrinthine window fistula
Eighth nerve	Vestibular neuronitis Acoustic neuroma
Central causes	
Brain stem Cerebellum	Vertebro-basilar insufficiency Infarction Degeneration Tumour
Others	Hypotentive drugs, alcohol, tranquilisers, anticonvulsants, Cardiac dysrhythmias, Anaemia

Table 2. Red flags for patients with dizziness suggesting that the patient may have a serious, possibly urgent underlying disease

Red flag	**Suggested diagnoses**	**Suggested interventions**
Cardiovascular symptoms (e.g. chest pain, dyspnoea, palpitations)	Acute ischaemic heart disease or AMI, acute heart failure, arrhythmia, valvulopathy	ECG, Holter monitor, echocardiogram, cardiac markers (e.g. troponin level) Consult cardiologist
Central nervous system symptoms, such as cranial nerve palsies, visual symptoms or vision loss, unilateral weakness	Brainstem or cerebellar stroke, TIA, tumour, posttraumatic symptoms, multiple sclerosis	MRI of bran, cardiovascular risk evaluation Consult neurologist
Gradula hearing loss and tinnitus	Acoustic neuroma	MRI, audiogram, BAER Consult otolaryngologist
Severe otalgia and vesicular eruption, usually of the external canal and pinna	Herpes zoster oticus/Ramsay-Hunt syndrome	Neurologic examination, especially of cranial nerves Consult otolaryngologist
Propensity to pass out and/or severe lightheadedness on standing	Hypovolaemia, orthostatic hypotension, peripheral neuropathy, overmedication, multiple deficits (common in older people)	Medical assessment for volume depletion, anaemia, new or multiple medications, deconditioning, gait or balance disturbance Consult geriatrician
Vomiting blood, black stools, or gradual increase in weakness with postural presyncope, especially in patients with risk factors for GI bleed (e.g. anticoagulation, prior bleed, or NSAID use)	Upper or lower GI bleed	Complete blood count, stool for occult blood, additional testing for underlying cause Consult gastroenterologist

AMI=Acute myocardial infarction; BAER=Brainstem auditory evoked response; CHF=Congestive heart failure; ECG=Electrocardiogram; GI=Gastrointestinal; MRI=Magnetic resonance imaging; NSAID=Nonsteroidal anti-inflammatory drugs; TIA Transient ischaemic attack.

From the standpoint of diagnosis, it is useful to classify dizziness as with or without vertigo. **A. Dizziness without vertigo suggests one of the following:**

- **Acute infection usually viral in origin**. This may be associated with other symptoms such as gastric or bowel disturbance and aches and pains in the limbs or body.

Postural hypotension.

- This is seen most often in young women who are otherwise fit. This may be due to the earlier stages of pregnancy. Postural hypotension in the known hypertensive on treatment and the diabetic with autonomic neuropathy may also be a cause of dizziness. Postural hypotension
- Check the BP sitting then standing and again after standing for 3 minutes.
- Condition exists if there is fall in Systolic >20, or in Diastolic> 10 on changing from supine to standing. Or a fall in mean pressure of at least 20.
- Even then, significant fall does not mean this is a cause of the patient's symptoms and negative test does not rule it out.

Hyperventilation

- One of the important causes of dizziness especially when the patient complaints of lightheadedness is HVS (Hyperventilatory Syndrome)

Dx: the Nijmegen Questionnaire

- Do you have any of the following, and if so, how often? Feeling tense, chest pain, blurred vision, dizzy spells, feeling confused or out of touch, tight feelings in the chest, bloated feeling in stomach, faster/deeper breathing, short of breath, tingling in fingers, unable to breathe deeply, stiff fingers and arms, tight feelings around mouth, cold hands/feet, heart racing, feelings of anxiety
- 91% sensitivity (LR-0.05) 95% specificity (LR+18)
- Hyperventilation Test-ask the patient to breathe deeply and rapidly for 3 minutes(100% sensitivity, 79% specificity)
- Do not diagnose as a Dx of exclusion

Hyperventilation provocation test

- Ask the patient to breathe deeply and rapidly for 3 minutes.
- 100% sensitive,79% specific (Utah Study)

Dizziness of psychological origin

- A vague and imprecise history such as sensation of motion that does not suggest vertigo.
- Brief attacks that can occur several times/day.
- Normal or inconsistent clinical examination and investigations.
- Multiple other complaints that raise the suspicion of a somatisation disorder
- Do not diagnose dizziness of psychological origin as a diagnosis of exclusion.
- Anxiety and depression may be the causes of dizziness as the primary cause or secondary effects.

Dizziness as a geriatric syndrome

- Anxiety trait
- Depression
- Impaired balance
- Past MI
- Postural hypotension
- Five or more medications(polypharmacy)
- Impaired hearing

- Romberg's Test can distinguish organic from psychological ones.

Dizziness in older patients in the community (Edinburgh study)

- Cerebrovascular disease 70%
- Cervical spondylosis 66%
- Anxiety or hyperventilation 32%
- Poor vision 15%
- Postural hypotension 9%
- BPV 4%
- Other 26%
- No diagnosis made 4%

Total comes to >100% because some patients had more than one condition.

- **Hypoglycaemia**. This is associated with sweating and hunger, in a known diabetic or a one who omits his regular meals for whatever reason.
- **Drugs**. Drugs should not be forgotten as a cause of dizziness without vertigo. Examples are hypotensive drugs, tranquilisers and anticonvulsants.
- **Other causes**. Anaemia (often implicated but not substantiated) and cardiac disease (e.g. aortic stenosis and regurgitation; dysrhythmia) are other causes of dizziness without vertigo.

Dizziness with vertigo may be caused by:

Benign positional vertigo (BPV)

BPV is the most common cause of vertigo in General Practice setting.

- **Adults presenting with vertigo in primary care(Irish Study)**

1. BPV 42%
2. Vestibular neuronitis 41%
3. Vascular 3%
4. Neurological 1.5%
5. Psychological 1.5%
6. Unable to specify 1.5%

Diagnostic test: Dix-Hallpike maneuver –sensitivity 56%, specificity 90 % (LR+ 3.0, LR- 0.5)
With the patient in sitting position, turn the patient's head 30 degrees to one side. Move the patient quickly to the supine position, keeping the head turned, until the patient's head is hanging 30 degrees off the table.
This position places the lower ear's posterior semi-circular canal- that most commonly involved in BPV-in a plane relative to gravity, thereby causing the endolymph to spin and symptoms to be provoked.

Meniere's disease.

- The attacks of vertigo may last for hours. Malaise or instability may persist for a day or two, and there is always associated with deafness, which may be unilateral.
- Long periods of freedom between attacks are common.

Diagnostic triad

- At least two attacks of vertigo lasting at least 20 minutes each
- Hearing loss
- Tinnitus or fullness in the ear

Vestibular neuronitis. This is characterized by the acute onset of rotator vertigo with systemic disturbance. The vertigo may subside spontaneously after a day or few hours, and may recur on sudden head movement or on postural change during the following few weeks. This condition is usually self-limiting. A viral infection of labyrinth has been postulated, though there is little direct evidence for this.

Diagnostic triad of Vestibular Neuronitis

1. Vertigo that is usually sudden onset, although the patient may report several days of increasing problems
2. Absence of cochlear symptoms (deafness and tinnitus)
3. No central neurological symptoms and signs
   It affects the young and middle-aged. It is a single episode lasting 1-5 days. The most intense of all causes of vertigo:

- Often a single episode of persistent vertigo lasting days
- Can be exacerbated by any positional change, unlike the specific head movements that induce BPV attacks.
- May be preceded by a nonspecific viral infection.
- Little or no nystagmus or vertigo during Dix-Hallpike testing

Balance system screening evaluation

- Test for balance: vision, vestibular system, propioception
- If there is sway with eyes open---cerebellar problem
- If sway with eyes closed---Romberg Test (+)
- Vertigo+ R (+) -----vestibular problem
- Vertigo (-) R (+) -----propioceptive problem like Neuropathies

Diagnostic test of VN- Head impulse test

- Sensitivity 35-93%
- Specificity 61-97%
- Hold the patient's head with both hands.
- Ask the patient to fix his gaze on a distant object (examiner's nose)
- In a quick movement, rotate the patient's head about 15 degrees, watching his eyes.
- In vestibular disease, the patient loses fixation momentarily and the eyes then flick back to fix on the object again. The test is positive now.
- **Vertebro-basilar insufficiency**. This may be the result of, either arteriosclerotic narrowing of the blood vessels or narrowing of the intervertebral foramina secondary to osteoarthrosis. As expected, it is seen most commonly seen in the elderly.

Central vertigo

E.g. Brainstem stroke, lateral medullary Syndrome, cerebellar stroke

- Persistent and worsening vertigo
- Atypical vertigo(vertical)
- Severe headache
- Altered consciousness
- Eye symptoms (diplopia, visual disturbance)
- Cranial nerve and long tract signs
- Vertical nystagmus

Other causes. Temporal lobe epilepsy and an acoustic neuroma, also cause dizziness with vertigo.
Acoustic Neuroma

- Vertigo (50%)
- Postural instability (50%)
- Hearing loss (95%)
- Tinnitus (83%)

WORKUP

History

- When the patient present with 'light-headedness', not associated with rotation, the history and examination will be directed towards identifying a non-vestibular complaint.
- Does the patient experience the symptom after rising rapidly from the sitting position? Is the patient receiving treatment for hypertension or diabetes mellitus? Does the patient sweat or feel hungry during an attack, and is it relieved by eating food?
- In evaluating a patient with vertigo, there may be associated symptoms of tinnitus and impaired hearing. A patient complaining of vertigo should be asked if he has suffered any head injury in the recent past, or about ingestion of drugs with known toxic effects on the inner ear (such as salicylates, quinine and streptomycin).
- The addition of headache to these symptoms suggests the possibility of acoustic neuroma causing raised intracranial pressure.

Physical Examination

- The patient who suffers from 'light-headedness' unaccompanied by rotation is not suffering from any disease of the labyrinth. In such a patient, the clinical examination will be directed towards identifying a non-vestibular cause. It will include recording of the pulse, temperature and blood pressure on lying and standing.
- If an infective cause for the symptom is suggested by raised pulse and fever, then a general examination of throat, sinuses, ears, chest and abdomen will be conducted to identify the site of the infection.
- Signs of early pregnancy should be looked out for in the young woman complaining of dizziness, especially if her period is delayed.
- True vertigo requires detailed examination of the ears and function of the labyrinth. Conductive deafness (bone conduction better than air conduction in Rinne's test) will suggest a local middle ear cause for vertiginous symptoms, Perceptive deafness (air conduction greater than bone conduction) will suggest the possibilities of disease of eight nerve or cochlear end organ.
- Nystagmus should be looked out for, as it may be caused by disease of labyrinth or its central connections (though bearing in mind that it may occur in normal subjects on extreme lateral gaze, or if the test object is held too close).
- Benign positional vertigo is confirmed by a positive Dix-Hallpike maneuver. This is done with the patient sitting on the couch and suddenly lowering the patient to a position below horizontal and with the head turned 45º to the side. The patient is left in this position for about 30 seconds before returning to the sitting position with the head looking at the same direction for another 30 seconds.
- The test is then repeated with the head turned to the other side. Severe vertigo and nystagmus occurring some seconds (that is, with latency) after lowering the patient indicates a vertigo of peripheral origin. If fatigable (disappears after repeated testing) it is virtually diagnostic of benign positional vertigo. If there is no latency and there is no fatigability, a posterior fossa tumour has to be excluded,

Investigations

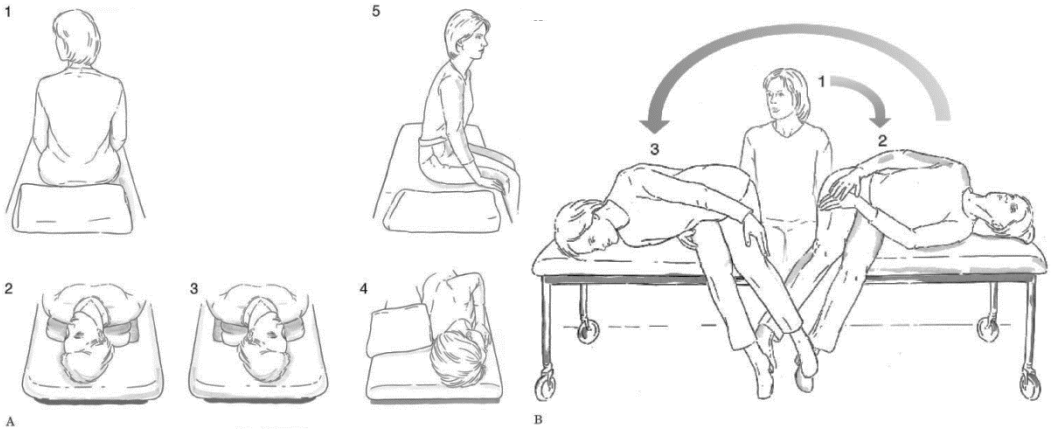
- A simple blood count, chest X-ray and electrocardiogram may be needed to further evaluate suspected anaemia or cardiac disease.
- The known diabetic requires measurement of his blood sugar level to identify hypoglycaemia as a cause of his symptoms.
- In a patient with associated deafness, audiometry will determine whether the deafness is caused by a lesion of the cochlear end organ (e.g. Meniere's disease). This will show the characteristic known as loudness recruitment: as the sound intensity is increased, the subjective loudness in the affected ear progressively approximates that of the good ear.
- More sophisticated tests for example computerized tomograms, cerebral arteriograms are required only when a posterior fossa tumour is suspected.

Management

- **Manage accordingly on diagnosis.**

Management of BPV

- The Epley maneuver—75% success rate at one week, majority being cured after one office visit
- Medication is not usually indicated except in severe or persistent cases in which vestibular sedative like Cinnarazine.
- Fig A-modified Epley maneuver, Fig B-Semont maneuver



- If the dizziness is due to a self-limiting viral infection, symptomatic treatment and fluids are all that are needed. If the site of the infection is identified and the organism amenable to antibiotics then appropriate antibiotics may also be required.
- Vestibular neuronitis is also treated with symptomatic remedies, such cinnarizine or prochlorperazine.

Treatment of Vestibular neuronitis

- Without treatment, the vertigo typically improves on a daily basis, such that within 7-10 days.
- During the acute phase, methyl prednisolone 100mg daily for 3 days then tapering to
- 10 mg daily for 3 weeks
- Metoclopramide 10 mg oral or IM
- Magnesium sulphate twice daily IV
- Gabapentin 300 mg BD or TDS
- TENS
- The hypertensive patient with postural hypotension will require readjustment of the dose or schedule of hypotensive agents. The hypoglycaemic attacks occurring in the known diabetic require similar reassessment of his regime of treatment.
- The elderly patient with dizzy attacks may benefit from the wearing of a cervical collar which will restrain the movement of the cervical spine.
- The advice to rise slowly from the sitting position and to avoid movements which will provoke the attack is also of help. Prochlorperazine tablets, 5 mg twice daily, will often reduce the intensity of the attacks.
- The medical treatment of Meniere's Disease is at present symptomatic. Low-salt diet and diuretics may be employed with variable degrees of success. Betahistine has had some success in a dose of 8 mg thrice daily. Vestibular sedatives are helpful and of these cinnarizine has been recommended.
- Vertigo in the presence of middle ear infection requires an urgent opinion from an ear specialist.
- If dizziness is caused by psychiatric illness, this may require appropriate management by psychotherapeutic means, tranquilisers or antidepressants.

Indications for referral

- **Central vertigo** – characterized by presence of neurological features. Vertebro-basilar stroke is an emergency.
- **Suspected serious disease** e.g. aortic stenosis, psychosis, for expert management.
- When the diagnosis is not clear.

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17. HEADACHE

Relevance to general practice

- Headaches are a very common experience and about 90% of the population will have had this symptom within one year. Commonly, it is an accompaniment of acute febrile illness where the cause is clear. At other times, the causes are usually benign.
- The primary care physician's most immediate task is to identify on clinical grounds the occasional patient who requires aggressive work up. The ever-present possibility of a serious organic cause in the minority makes it incumbent for the doctor to take a careful history and conduct an appropriate examination in a patient with headache.
- The nature of the headache is of some value in diagnosis. An occipital headache is more likely than a frontal one to be due to an organic lesion. A headache of recent onset, changing character, increasing frequency or severity, persistent, or accompanied by vomiting or behavior change suggests an organic cause.

Causes

- Headache may be broadly classified as primary or secondary. Primary headaches are those without underlying structural pathology. Secondary headaches are caused by underlying disease. See Table 1.
- A diagnosis of primary headache requires the prior exclusion of a secondary headache. A previously diagnosed primary headache does not preclude a secondary headache developing.

Table 1. Causes of Headaches (2004)

PRIMARY HEADACUES – STRUCTURAL LESION ABSENT

- Migraine
- common
- classical (with aura)
- migraine variants
- Tension-type headache (TTH)
- Cluster headache and other trigeminal autonomic cephalalgias
- Other primary headaches e.g. cough headache

SECONDARY HEADACHES – UNDERLYING LESION PRESENT

- Headache attributed to:
- Head and/or neck trauma
- Cranial or cervical vascular disorder
- Non-vascular intracranial disorder
- Substance or its withdrawal
- Infection
- Disorder of homeostasis
- Disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth, or other cranial structures
- Psychiatric disorder
- Cranial neuralgias and central causes of facial pain
- Other headache, cranial neuralgia, central or primary facial pain not elsewhere classified

Source: International Headache Society Headache Classification & Diagnostic Criteria (2004), 2nd edition

WORKUP
ACUTE HEADACHE

History

- This should include inquiry into onset, severity, location, associated symptoms especially neurological deficits and fever. A previous history of headaches and head trauma should also be noted.

- Headache of extraordinary severity ("my worse headache ever") suggests a serious intracranial cause, namely, subarachnoid haemorrhage, raised intracranial pressure and meningitis.
- Diffuse headache in conjunction with a stiff neck and fever suggest acute meningitis.
- Subarachnoid haemorrhage typically produces a sudden severe headache – the ("thunder clap") headache.
- When acute headache and stiff neck occur in conjunction with ataxia of gait and profuse nausea and vomiting, a midline cerebellar haemorrhage is uncommon, but early recognition is important because prompt treatment can be life-saving.
- Acute fever with fronto-orbital headache is suggestive of acute sinusitis
- Eye pain and blurred vision raise the possibility of acute glaucoma.
- New onset of headache in an elderly patient requires consideration of temporal arteritis.
- Acute throbbing headaches are mostly vascular in aetiology: the patient needs to be asked about, fever, vasodilator use, drug withdrawal, and hypoglycaemia.
- Migraine (common migraine and classic migraine) produce a recurrent acute headache.
    - Common migraine (migraine without aura) – occurs in 80% of patients with migraine, the headache is bilateral or shifts sides, nausea, photophobia and related symptoms usually accompany the headache.
    - Classic migraine (migraine with aura) accounts for 10-15% of cases. It is characterized by prodrome of transient visual, motor or sensory disturbance followed by onset of a hemicranial throbbing headache, nausea, photophobia and sensitivity to noise.
- Hypertensive encephalopathy may be heralded by diffuse headache, nausea, vomiting and altered mental status.

Physical examination

- In a patient where headache is an accompaniment of fever or an acute respiratory infection, confirmation of the fever and selective examination of the affected part will be all that is necessary.

Where the cause is not immediately clear, physical examination to rule out a serious cause is necessary.

- The blood pressure and temperature should be checked for any elevations.
- Examination of the scalp for cranial artery tenderness; the sinuses for tenderness to percussion.
- Examination of eye: pupils are noted for loss of reactivity and the cornea for haziness due acute glaucoma; the disc margins for blurring from raised intracranial pressure.
- Examination of neck: neck rigidity on anterior flexion suggests meningitis or a vascular leak from an AV malformation or an aneurysm.
- Neurological examination for ataxia in patient with severe, profuse vomiting suggesting cerebellar haemorrhage; early recognition is important because prompt treatment can be life-saving.

Investigations

- If the causes are obvious and benign, investigations are not needed.
- Where organic neurologic cause is suspected patient should be referred to hospital for further investigation s such lumbar puncture, CT scan etc.

CHRONIC AND RECURRENT HEADACHES

History

It is important to keep in mind that more than one kind of headache may be present; a full description of each type of head pain must be elicited.

- A dull, steady, recurrent, unilateral headache that occurs in the same area each time and progressively worsens in frequency and severity is suggestive of an intracranial lesion (tumour, brain abscess).

- Recent head trauma and a symptom-interval between injury and onset of headache are characteristic of subdural haematomas; patients may show only subtle personality changes and be mistakenly thought to have a psychogenic problem.
- Most throbbing, recurrent headaches are of vascular origin; migraine accounts for the vast majority.
- Headache that are variable in quality and location, or constant over weeks to months but not relentlessly progressive in severity are likely to have a muscle contraction or psychogenic aetiology.

Physical Examination

- A complete examination is necessary. The finding of a fixed focal deficit is important evidence of intracranial pathology, especially in a patient with a headache that is progressively worsening.

Laboratory studies

- The patient with a chronic or recurrent headache that is getting worse with time deserves consideration for CT scan.

Management

- The effect taken to perform a careful history and physical examination are well worth the time, for these methods remain the best means available for the accurate diagnosis of headache.
- For benign causes, symptomatic management like analgesics should be given. Treatment of specific causes e.g. sinusitis, upper respiratory tract infections and migraine.
- For the patient in whom headache is a manifestation of a deep-seated conflict, psychotherapy is often necessary.

Recurrent headaches in children

- Headache in childhood that is not typical of migraine and not due to structural intracranial pathology is common. In some cases there is strong clinical evidence that acute or chronic psychological stress is important in the genesis of the headache and in a small number of children frank psychiatric illness such depression is present. However, in a not insignificant number of cases, the basis of the headache remains uncertain.
- It is of vital importance to remember that a stressful family or school situation does not protect the child from having significant intracranial pathology as the basis of headaches. Headaches due to psychological stress and psychiatric illness occur in several different situations with quite different implications for management.

Indications for referral

Urgent situations

- Any patient with evidence suggesting meningeal irritation, increased intracranial pressure, an AV malformation or malignant hypertension obviously requires prompt hospital admission.
- Presence of symptoms suggestive of an intracranial mass lesion requires hospital admission.
- The ophthalmologist needs to be consulted at once if acute glaucoma is felt to be the cause of an acute orbital headache.

Non-urgent situation

- Referral to neurologist for the rate case of migraine refractory to treatment, the patient with muscle contraction or psychogenic headache that requires reassurance.
- Dental consultation is indicated if temporo-mandibular joint problems appear refractory to conservative therapy.
- Referral for a vision check and assessment of the need for refraction.

Recurrent headache

- May require referral for a more thorough assessment to exclude space occupying lesion.

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18. INSOMNIA

Definition

- Insomnia is defined as the complaint of long-standing (more than 2 weeks) trouble falling or staying asleep that is associated with compromised daytime functioning. In this framework insomnia is the end point of disorders in the initiation and maintenance of sleep (DIMS).

Working definition of Insomnia

- The World Health Organization defines insomnia as a problem initiating and/or maintaining sleep or the complaint of non-restorative sleep that occurs on at least three nights a week and is associated with daytime distress or impairment

Normal sleep

- By using the polysomnogram (a continuous, all-night recording of a patient's respirations, eye movements, electroencephalogram (EEG), muscle tone, blood oxygen saturation and electrocardiogram), normal sleep can be divided into two basic phases: REM, or rapid eye movement sleep, and nonREM (NREM).
- REM is a state of mental and physical activation. Pulse and respiration are increased but muscle tone is diminished, so little body movement occurs. The brain is active, and the EEG shows a pattern similar to that seen during waking. Most dreaming occurs during REM.
- In contrast, NREM is a time of deep rest. Pulse, respiration, and EEG all slow, and the patient goes from light sleep, called stages 1 and 2, to deep of delta sleep, called stages 3 and 4. REM and NREM normally cycle in a reciprocal pattern, giving a typical "architecture" to the polysomnogram. The entire cycle lasts about 90 minutes, and is repeated smoothly four or five times during the night.
- There is no polysomnographic pattern pathognomonic of insomnia. Some insomniacs have slightly shorter than normal sleep time. Some have less stages 3 and 4 sleep, but most have normal-appearing polysomnograms.
- Recent data suggest that slight disruptions of the normal smooth cycling caused by frequent brief arousals may be related to subjectively unsatisfying sleep. Other data indicate that psychological variable strongly influence and insomniac's perceptions of the time spent in bed and its influence on satisfaction during the day.

Relevance to general practice

- Insomnia is the most common sleep disorder in general practice with the incidence up to 30%.
- Impact of illness: they contribute greatly to decreased quality of life and increased morbidity. Improving sleep can be an invaluable way to improve overall health and quality of life of the patients and their families.
- The complaint of disordered sleep is common and it is estimated that as much as a quarter of adult population has sleep problems.
- The elderly and those with psychiatric problems are more likely to complain of sleep problems.
- The primary care doctor needs to be skilled in the assessment and therapy of insomnia, not because the problem is extremely common and a cause of considerable misery but also because it is an important precipitant of excessive drug use and habituation.

Classification of insomnia

- Primary insomnia-insomnia not caused by another disorder, underlying psychiatric or medical condition
- Secondary insomnia-insomnia due to underlying psychiatric or medical disorder

NIH consensus classification

- Transient insomnia< 1 wk

- Short term insomnia-1-3 wks
- Chronic insomnia-> 3wks

Causes

These are shown in Table 1.

Table 1. Disorders in Initiation and Maintenance of Sleep (DIMS)

Psychiatric Disorders – 50%

- Affective disorders: major depression, dysthymic disorder, manic depression disorder
- Character disorders: Anxiety, obsessive-compulsive, borderline, narcissistic character disorders
- Psychosis: schizophrenia

Drug and Alcohol Abuse – 10-15%

- Sedatives: alcohol, benzodiazepines, barbiturates, narcotics
- Stimulants: caffeine and stimulant xanthenes in coffee, tea, cola and chocolate
- Anti-asthmatics, decongestants: terbutaline, aminophylline, phenylpropanolamine
- Cigarettes

Medical/Surgical Problems – 10%

- Cardiovascular: nocturnal angina, arthopnoea, PND
- Respiratory: COPD
- Renal: UTI, urinary frequency
- Endocrine: hyperthyroidism, and hypothyroidism
- Delirium: dementia, infection, metabolic derangement, medication toxicity (e.g. anticholinergic delirium secondary to OTC sleep aids)

Primary Sleep Disorder – 10-20%

- Sleep apnoea
- Nocturnal myoclonus
- Phase shift (night shift, jet lag)

Other – 10%

- Idiopathic insomnia
- Psychophysiological, or conditioned insomnia
- Persistent complaint without objective evidence
- Unusual polysomnographical patterns: alpha-delta sleep

Source: Weilburg JB in Goroll et al Primary Care Medicine 3rd ed. Philadelphia Lippincott 1995: 1063

Causes of insomnia based on Primary and secondary causes

Primary sleep disorders	Secondary causes
stless leg $ Narcolepsy Primary insomnia	Anxiety Asthma CCF COPD Depression Fibromyalgia GORD Hyperthyroidism Menopause Pain Pruritus Urinary incontinence, Nocturia Drugs: Alcohol, Antidepressants, β blockers, Caffeine, Chemotherapy, Cimetidine, Diuretics, Herbal remedies, Nicotine, Phenytoin, Pseudoephedrine, Steroids, Stimulant laxatives, Theophylline

Initial Diagnostic work up

Find out more about the insomnia—

- Difficulty getting to sleep? (61%)
- Difficulty staying asleep, including early morning waking? (73%) more common in old age and excess alcohol use
- Poor sleep quality (48%)
- Check what effect the insomnia is having and has a vicious circle?

Look for a cause---

  - Ask about practical issues "Is there anything keeping you awake?"
  - Ask about the patient's sleep habits (daytime naps, eating or exercise immediately before trying to sleep)
  - Ask about the patient's mental state especially anxiety and depression
- Ask about drugs and excess caffeine use
- Ask about alcohol: When was the last time you had more than 5 drinks in a day (4 drinks for women)? Answer is within the last 3 months; the test is positive. sensitivity (85%) specificity (70%)
- Ask about physical illnesses-pain, breathlessness, nocturia, itchiness (to exclude CCF, COPD/asthma)
- Ask about specific sleep disorders- two screening questions for OSA: Do you habitually snore when asleep? Do you sometimes stop breathing when asleep?
- Ask about (Restless-leg-syndrome) screening question for RLS: are you kept awake by an uncontrolled urge to move their legs?
- Ask about practical issues: a snoring partner, noisy sounds
- Be reluctant to make a diagnosis of primary insomnia

PROPER WORKUP

History

- A careful clinical history, which systematically addresses the host of possible aetiologies of DIMS, is the key to the workup of insomnia.
- Close attention must be given to medication, drug, and food intake, current mental and physical status, past and family medical and psychiatric history, as well as occupational and travel patterns.
- Whenever possible, interviewing the spouse, bed partner, or family member is of great value.
- The use of a sleep log, or diary, which includes time in bed, estimate of time asleep, any awakenings, time of morning arousal, estimate of sleep quality, and comments on unusual events, recorded by the patient directly upon getting up each morning, should be standard procedure in every insomnia workup.
- Those who have a brief, time-limited disturbance or sleep related to stressful events in their lives also do not have "insomnia". The same pertains to the normal elderly patients who experience the decline in total sleep time, depth, and continuity which are a natural part or the aging process.
- **Psychiatric disorders** are believed by most experts to be the underlying cause of DIMS in about half of all insomnia cases.
  - Among the psychiatric aetiologies, the affective disorders – major depression and dysthymic disorder (mild depression, or the old "neurotic" depression) – account for approximately 50% of the cases. Patients suffering from dysthymic disorder typically complain of tired. They often feel irritable, have difficulty falling asleep and report that they cannot get enough sleep to feel rested. Sometimes they deny feeling or depressed and focus only on their physical complaints. Indeed, insomnia may be the major presenting complaint in many of these patients. Patients with major depression complain of either difficulty falling asleep or of waking in the early morning and being unable to return to sleep. /diurnal variation of mood is often noted.
  - Character disorders make up about 40$ of the other psychiatrically based DIMS. Patients with anxiety and obsessive disorders frequently have great difficulty falling asleep because they lie in

bed and ruminate. They have difficulty falling asleep because they focus on their lack of sleep as the source of all their troubles. They lie in bed, furiously trying to make themselves sleep. Such patients may use their insomnia as a justification for their inability to function or to improve their lives.

- Active psychosis of any type e.g. schizophrenia produces disturbed sleep and accounts for the other 10% of psychiatric insomnia. The other signs and symptoms of psychotic illness appear along with the insomnia, facilitating recognition of this problem.

- The remaining 50% of DIMS are non-psychiatrically based. Drug and alcohol abuse are responsible for about 10-15% of this group. Alcohol induces sedation, but the resulting sleep is often shallow, fragmented, and not restorative. Alcoholics can have prematurely "aged" sleep (i.e. shallow and short) during and for months after cessation of drinking. Sedatives, such as most benzodiazepines and especially barbiturates, and rebound anxiety prompt reuse, and tolerance a vicious cycle.
- Sedatives and alcohol depress respiratory function, which can lead to very poor-quality sleep in patients with sleep apnoea. Stimulant drugs such as amphetamine or methylphenidate, activating antidepressants such as phenelzine or protriptyline and the phenylpropanolamine found in many over-the-counter decongestants, cold and diet remedies can induce significant difficulty falling asleep. Terbutaline, aminophylline, and other anti-asthmatics can produce insomnia. The caffeine and stimulant xanthenes found in team coffee, cola drinks, and chocolate may produce difficulty falling asleep in most people if used in large enough quantities, and if used at all in some who are sensitive. Finally, the nicotine and other substances found in cigarette smoke have been shown to disrupt sleep induction and continuity.
- Medical problems of all types can cause insomnia and make up approximately 10% of all DIMS. Pain, of whatever source, is a frequent cause of insomnia in the elderly. Delirium is another frequent cause of insomnia in the elderly. Dementia, unrecognized infection, and even medication toxicity (sometimes secondary to the anti-cholinergic agents used to induce drowsiness in over-the-counter sleep remedies) are common source of delirium. Cardiovascular dysfunction leading to orthopnoea, paroxysmal nocturnal dyspnoea (PND), or nocturnal angina; chronic obstructive pulmonary disease; hyperthyroidism, and urinary frequency also can produce insomnia.
- Primary sleep disorders make up approximately 10-20% of DIMS. Ask the patients be partner for observations of cessation of respiration (sleep aponea) or twitching of legs (nocturnal myoclonus or restless legs syndrome). These produce poor quality sleep and lead to the complaint of "insomnia".

Physical Examination

- A full examination should be conducted to exclude medical causes of insomnia.
- The effects of alcoholism and addictive drugs if any should be noted.

Investigations

These will depend on the nature of medical problems detected.

Management

Treatment options:
Acute insomnia

Sleep onset difficulties:

1. Cognitive behavioral therapy (CBT): CBT has been shown to effectively treat insomnia over the long term and incorporates elements of stimulus control therapy, sleep restriction therapy and cognitive restructuring.

2. **Hypnotics** are considered safe and effective—new generation hypnotics-zolpidem, Ramelteon, Doxepin

Doses: Zolpidem 5 mg orally once daily at bedtime when required.
Zalepron 5-10 mg orally once daily
Eszopiclone 2-3 mg orally once daily
Ramelteon 8 mg orally once daily

Doxepin 3-6 mg orally once daily
Note: alprazolam, ativan, diazepam should not be used
3. first line---sleep hygiene and relaxation techniques including biofeedback.
Treat the secondary cause of insomnia

CBT for insomnia

(1) Stimulus Control Therapy (SCT)

1. lie down intending to go to sleep only when sleepy,
2. avoid any behavior in the bed or bedroom other than sleep or sexual activity,
3. leave the bedroom if awake for more than 15 minutes,
4. Return to the bed only when sleepy.

Items 3 and 4 are repeated as needed

(2) Sleep Restriction Therapy (SRT)

FIGURE 3.1. Sleep restriction.

(3) Sleep Hygiene Education

Relaxation Training

- This type of intervention may be most suitable for patients who characterize their insomnia as an "inability to relax" (e.g., the patient may say: "I feel like my heart is racing when I am trying to fall asleep"), and/or for patients who present with multiple somatic complaints (e.g., deep muscle pain, headaches, gastric problems, etc.).
- There are essentially four forms of relaxation therapy.
- Progressive muscle relaxation is used to diminish skeletal muscle tension.
- Diaphragmatic breathing is used to induce a form of respiration that is slower, deeper, and mechanically driven from the abdomen as opposed to the thorax. (It is interesting to note that this form of respiration resembles what occurs naturally at sleep onset.)
- Autogenic training focuses on increasing blood flow by having subjects imagine, in a systematic way, that each of their extremities feels warm.
- Imagery training entails the patient selecting a relaxing image or memory and evoking the image and engaging with it from a multisensory perspective

Therapeutic Recommendations

- If the DIMS is related to affective disorders, begin a sedating tricyclic antidepressant, such as amitriptyline 25mg, to be taken an hour before bedtime every night for at least a month. Increase the dose as needed.
- If the DIMS is related to anxiety or other personality disorder, offer psychiatric consultation and treatment, require close adherence to good sleep hygiene, If the insomnia persists and daytime anxiety is also a problem, begin therapy with a before-bed dose of flunazepam (15mg).
- If the DIMS is related to drugs, alcohol, or other substance use, clearly inform the patient that improvement is based on proper substance withdrawal and the maintenance of abstinence. Supervise withdrawal; support the patient's effort at maintaining abstinence. Try to avoid treating "dry" alcoholics with sedatives, as there may rekindle their drinking.

- Treat any underlying medical DIMS; a brief course of benzodiazepine therapy after treatment can re-establish the sleep pattern and boost patient confidence.
- Use reduced dose and caution when prescribing sedative for the elderly.
- Withdraw benzodiazepine therapy slowly in tapering fashion over 1-2 weeks to avoid.
- Rebound insomnia if drug therapy has been used daily for more than 6-8 weeks.
- Refer patients with primary sleep disorders, or those who are refractory to all efforts, for evaluation by a sleep laboratory.

Indications for referral

- Referral to a sleep laboratory if primary sleep disorder (sleep apnoea, or nocturnal myoclonus) is suspected, or careful workup fails to reveal the source of DIMS.
- Psychiatric consultation is indicated only when character problems interfere with diagnosis or management, or if the nature of a suspected mental or emotional problem is obscure.

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19. MEDICALLY UNEXPLAINED PHYSICAL SYMPTOMS (MUPS)

Introduction

- In Myanmar, we come across so many patients brought to us together with a bunch of medical record books concerning with various specialist's consultations. For example, when a patient suffered from dizziness, he/she was concerned about stroke and directly came to neurologist.
- At the same time, he/she also suffered from chronic abdominal pain thereby went to gastroenterologist. And so on, he/she went to various specialists for various complaints. Thus, finally he/she came to Family physician's office with thick files of medical records.
- Actually, it is nothing but MUPS case. To work up this sort of problem efficiently in daily practice is a MUST competency which Myanmar Family Medicine doctors have.

Relevance to general practice/ family medicine:

Physical symptoms such as headache and dizziness prompt almost 50% of all primary care consultations.

- Shown to have organic origin in only 10-15% of patients followed up for 1 year
  - *Katon J Clin Psychiatry 1998;59 (supplement 20):15-21*
- Patient diagnosed with MUPs after appropriate assessment unlikely to show later evidence of underlying organic disease
- **Prevalence** of medically unexplained episodes in frequent attenders categorised by referral complaint (stratified by age). Figures are number of medically unexplained symptoms/number of referrals

Referral complaint	18-45 yrs	46-65 yrs
Abdominal pain/bowel habit	25/30	14/23
Pelvic pain	7/20	0/6
Headache	13/18	4/9
Back pain	14/19	15/23
Joint pain	4/21	6/39
Chest pain	25/31	15/52

Types of MUPS

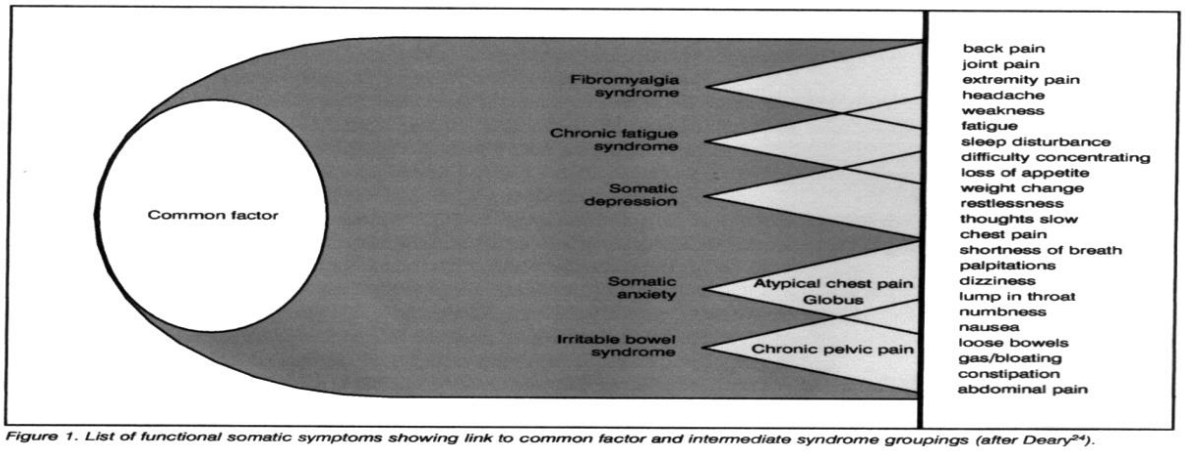

Figure 1. List of functional somatic symptoms showing link to common factor and intermediate syndrome groupings (after Deary[24]).

Ref: BJGP March 2003

Functional somatic syndromes	
Medical specialty	Somatic syndromes
Gasteroenterology	Irritable bowel syndrome, functional dyspepsia
Gynaecology	Pre-menstrual syndrome, chronic pelvic pain
Rheumatology	Fibromyalgia
Cardiology	Atypical or non-cardiac chest pain
Respiratory medicine	Hyperventilation syndrome
Infectious disease	Chronic fatigue syndrome
Neurology	Tension headache, non-epileptic attacks, functional gait disorders
Dentistry	Temporomandibular joint dysfunction, atypical facial pain
ENT	Globus syndrome
Allergy medicine	Multiple chemical sensitivity

Ref:

Davidson's principles and practice of medicine 23rd edition Somatic fixation:

- It is a personal distress in the form of somatic and refused to believe that no organic disease is present.
- Somatic Fixation is unnecessary to avoid thick file $ or Fat envelope $.
- Symptomatic management is not enough.
- Fragmented care should be discouraged instead organized care or holistic care should be applied.
- Defragmentation is essential in FM. Holistic approach must be applied in such cases.

WORK UP

General management
General management principles for MUPS
• Take a full sympathetic history • Exclude disease but avoid unnecessary investigation or referral • Seek specific treatable psychiatric syndromes • Demonstrate to patients that you believe their complaints • Establish a collaborative relationship • Give a positive explanation for the symptoms, including but not over-emphasizing psychological factors • Encourage a return to normal functioning

1. The disorder should be treated as a chronic illness, with the focus on functioning rather than symptom cure.
2. Gradual change should be expected, with periods of improvement and relapse. Physicians should practice secondary prevention, especially of iatrogenic harm.
3. When new symptoms arise, at least a limited physical examination should be performed. However, invasive diagnostic and therapeutic procedures should be permitted only on the basis of objective evidence, not subjective complaints.
4. The need for unnecessary tests and procedures can be avoided by having the patient feel "known" by the physician.

Specific issues

Patient-Centered Care

- Feelings of illegitimacy by patients and common physician attitudes toward patients contribute to power differentials and struggles.
- These can be avoided by practicing the relational behaviors patients prefer from their providers.
- Physicians should speak with patients as equals, listen well, ask lots of questions, answer lots of questions,
- Explain things understandably, and allow patients to make decisions about their care. A collaborative relationship should be developed in which the physician works together with the patient to understand and manage patient problems.
- "Common ground" shared by the physician and the patient should be monitored and differences discussed.

Office Visits

- Regular, brief appointments should be scheduled, thus avoiding "as-needed" medications and office visits that make medical attention contingent on symptoms.
- Practical time-related strategies include negotiating and setting the agenda early in the visit, paying attention to the emotional agenda, listening actively rather than in a controlling manner, soliciting the patient's attributions for the problems, and communicating empathetically.

Psychosocial Issues

- Reassurance should be provided to the patient, but not too soon. Psychosocial questions should be interspersed with biomedical ones to explore all issues: physiologic, anatomic, social, family, and psychological.
- The physician should inquire about trauma and abuse. As trust builds, the patient should be encouraged to explore psychological issues that may be related to symptoms.
- In this way, symptoms can be linked to the patient's life and feelings. The term *stress* should not be overused. Eventually and subtly, patients are likely to reveal their personal side and concerns.

Family Involvement

- Family members should be invited to participate in patients' visits. An occasional family conference can be valuable.
- Each person's opinion about the illness and treatment can be solicited, and family members can be asked how family life would be different if the patient were without symptoms.
- Physicians should solicit and constantly return to the patient's and family's strengths and areas of competence.

Pharmacotherapy

- Because these patients may be extremely sensitive to side effects, psychopharmacologic agents generally, should not be used unless the patient has a demonstrated pharmacologically responsive mental disorder such as major depression, generalized anxiety disorder, panic disorder, or obsessive-compulsive disorder.
- Selective serotonin reuptake inhibitors (SSRIs), other nontricyclic antidepressants, and benzodiazepines are the medications most frequently used for coexisting psychiatric conditions. Treatment should be initiated at subtherapeutic doses and increased very gradually, as described elsewhere.
- Contrary to standard placebo effect-enhancing practice (i.e., enthusiastic recommendation of a medication), psychopharmacologic agents should be recommended with a degree of

pessimism, with the notion that it is unlikely to be very beneficial but may be worth a try. Hypochondriasis and body dysmorphic disorders are similar to obsessive-compulsive disorder and patients with these disorders may benefit directly from higher doses of SSRIs, if side effects are tolerated.

- Those with transitorily extreme dysmorphic concerns may benefit from temporary treatment with an atypical antipsychotic medication.

Consultation or Referral

- Involvement of a mental health clinician may be helpful to diagnose comorbid mental conditions, offer suggestions for psychotropic medications, and engage some patients in psychotherapy.
- However, patients are unlikely to see the value of consultation or may experience referral as an accusation that their symptoms are not authentic. Pressuring the patient to accept a consultation is unlikely to be effective and may render the consultant encounter unproductive.
- Trust must first be established and psychological issues must be made a legitimate subject for discussion.
- The idea of referral can be reintroduced later. When possible, it can be more effective to see the patient along with the mental health clinician so that a comprehensive approach continues to be emphasized, the patient does not feel abandoned, and doubts that the patient's concerns are not taken seriously are alleviated. Extreme distress or preoccupations worsening to delusional levels may require inpatient hospitalization.

Psychotherapeutic Interventions

- Standardized group or individual cognitive-behavioral therapies can be an effective treatment for chronic somatoform disorders, reducing somatic symptoms, distress, impairment, and medical care utilization and costs.
- Cognitive interventions train the patient to identify and restructure dysfunctional beliefs and assumptions about health.
- Behaviorally, the patient is encouraged to experiment with activities that are counter to usual practices, such as avoidance, "doctor shopping," or excess seeking of reassurance.
- In addition, patients learn relaxation and meditation techniques to manage symptoms of anxiety. With high emotional distress respond more rapidly to psychotherapy and patients able to at least partially attribute symptoms to psychological factors show better therapeutic outcomes than patients who firmly believe that their physical symptoms have a physical cause .

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20. RED EYE

Relevance to general practice

- The red ye is the most common eye problem encountered by the primary care physician.
- Patients present with a wide range of conditions that are characterized by a red eye. Most are fortunately self-limiting or easily treatable conditions.
- There is a need to be alert for the occasional serious red eye.

Causes

These can be classified into lid or eye conditions and of gradual or sudden onset (see Table 1)

Table 1. Causes of the Red Eye

RED EYE OF GRADUAL ONSET

Conjunctivitis

- viral, bacterial or chlamydial conjunctivitis
- allergic conjunctivitis
- prolonged wearing of contact lens

Problems of the eye lid

- blepharitis
- stye
- Meibomian cyst, chalazion
- entropion and ectropion
- dacryocystitis or dacryoadenitis

Keratitis

- viral or bacterial keratitis
- marginal keratitis
- iritis and anterior uveitis
- episcleritis

RED EYE OF SUDDEN ONSET

- Spontaneous subconjunctival haemorrhage
- Foreign body
- Arc eye
- Acute glaucoma
- Blunt trauma
- Chemical burns

Source: Khunti K. Update Jun I, 1995:751 (Arranged in order of frequency as seen in general practice)

RED EYE OF GRADUAL ONSET

Conjunctivitis

- Conjunctivitis is the most common cause of a red eye.

Viral conjunctivitis

- Viral conjunctivitis is characterized by watery, sometimes mucoid discharge, often beginning in one eye but spreading to the other eye several days later.

- It may be associated with fever and pharyngitis particularly in children. Periauricular adenopathy is common.

Bacterial conjunctivitis

- Bacterial conjunctivitis is characterized by a mucopurulent discharge and usually occurs unilaterally without pre-auricular adenopathy. The eyelids have a thick crust on them after a night's sleep. Pneumococcus, streptococcus, staphylococcus and haemophilus are common causal agents.

Allergic conjunctivitis

- Allergic or atopic conjunctivitis is characterized by itching, tearing and redness of both eyes and may be associated with atopic dermatitis or vasomotor rhinitis.

Contact lens conjunctivitis

- This is common as the number of contact lens users are increasing, it is usually a bacterial conjunctivitis.

Chemical keratoconjunctivitis

- Chemical keratoconjunctivitis is a common industrial injury due to a splash of an irritant solution. The conjunctiva is uniformly red, the pupil constricted, vision decreased, the cornea may be hazy and the eye painful because of spasm of the iris. Alkaline solutions are more dangerous than acidic ones.

Malingering

- Occasionally the doctor may come across one who fakes a diseased red eye by rubbing his eye with irritant substances such tobacco. The eye is red and may have chemosis. The cue is that there is much tearing that is clear and not mucoid or purulent; however, allergic conjunctivitis can also appear like this.

Eyelid conditions

- Included are blepharitis, stye, meibomian abscess, chalazion, ectropion and entropion and orbital cellulitis.

Blepharitis

- Blepharitis is inflammation of the lid margin. In the mild squamous variety, skin scale and grease line the lid margin which is slightly inflamed. In the ulcerative variety, the lash follicles are inflamed and the lid margin is ulcerated.

Stye

- A stye is an inflamed lash follicle.

Meibomian abscess

- A meibomian abscess may form in a meibomian gland forming a visible swelling on the eyelid.

Chalazion

- After the acute inflammation in Meibomian gland has subsided, a Meibomian cyst may form. This is called a chalazion. Some may resolve spontaneously so some period of observation is in order.

Entropion and ectropion

- An entropion or ectropion can cause a red eye. Entropion may do so because of conjunctival and corneal irritation by in-turned lashes and ectropion because the everted conjunctiva and stagnant pool of teas become secondarily infected.

Keratitis and corneal ulcers

- Some conjunctivitis is associated with corneal involvement, There are many causes of keratitis and corneal ulcer: bacterial ulcers secondary to foreign body, blunt injury or contact lens wear, exposure secondary to facial palsy, thyrotoxic eye disease and herpes simplex infection.

Iritis and Uveitis

- There may be secondary to systemic disease or more likely, of unknown cause. One or both eyes may be affected. Photophobia and impaired vision are prominent complaints. There is ciliary injection, altered iris colour, smaller pupillary size with sluggish light response in the affected eye.

Episcleritis and scleritis

- Episcleritis is usually a benign inflammation of superficial episcleral vessels. Sometimes seen in association with collagen diseases, gout, allergic conditions and psoriasis.
- The patient complains of tender irritated eyes, the conjunctiva shows local raised areas of redness. Scleritis is inflammation of deeper layers of the sclera. In most cases no specific cause is found by it may occur as a feature of systemic lupus erythematosus, rheumatoid arthritis or polyarteritis nodosa.

RED EYE OF SUDDEN ONSET

Subconjunctival haemorrhage

- The cause is a rupture of subconjunctival vessels either spontaneously, or as the result of strain at stools or from coughing, often in an elderly person. In patients receiving anticoagulant medications, spontaneous subconjunctival haemorrhage may be a sign of overdose.

Foreign body

- Foreign body on the bulbar conjunctiva or under either upper or lower lid may result in copious tearing and conjunctival injection.

Acute glaucoma

- Acute glaucoma is an ocular emergency that presents as a painful, red eye with prominent ciliary flush. The patient reports cloudy vision, coloured rings around lights, unilateral headache, nausea and vomiting.

WORKUP

History

- The patient should be asked specifically about the onset and progression of the red eye. Key symptoms to ask are the presence if any, of visual impairment, discharge, pain, photophobia, grittiness and itch.
- A past history of eye problems and any recent injury or foreign body entry should be sought. The patient should be asked if any of the family is affected.

Physical examination

If the diagnosis is not obviously a lid problem, bilateral conjunctivitis or a subconjunctival haemorrhage, then a complete examination of the eye using a bright light is important. The distribution of the red eye should be noted.

- The lid margins should be inspected for crusting, ulceration, ectropion or entropion, and infection as well as localized lesions such as stye, dacryocystitis or dacryoadenitis. Bilateral eyelid oedema may be caused by an allergy.

- The upper and lower eyelids should be retracted to and the eye carefully examined to exclude any foreign bodies.
- The conjunctiva should be inspected for redness, ciliary flush and foreign body. The palpebral conjunctiva should not be overlooked.
- Corneal ulcer, hypopion and corneal opacity should be looked for.
- The pupil size should be checked. Abnormality is seen in iritis or glaucoma,
- If there is any suggestion of visual impairment or if there is any diagnostic doubt, it is essential to measure the visual acuity.
- Fundoscopy should be done if there is history of injury by a flying foreign body.

Table 2 summarises the chief features in differentiating conjunctivitis from iritis, keratitis and acute glaucoma.

Table 2. The Red Eye

Clinical features	Conjunctivitis	Iritis	Keratitis (corneal inflammation or foreign body	Acute glaucoma
Vision	Normal or intermittent blurring that clears on blinking	Slightly blurred	Slightly blurred	Marked blurring
Pain	None or minor and superficial	Moderately severe and aching	Sharp, severe, foreign body sensation	very severe, frequently nausea and vomiting
Photophobia	Nil	++	+	Nil
Discharge	Usually significant with crusting of eye lashes	None	None to mild	None
Pupil size	Normal	Constricted	Normal or constricted	Semi-dilated and fixed
Conjunctival injection	Diffuse	Circumcorneal	Circumcorneal	Diffuse with predominant circumcorneal
Cornea	Clear	Clear or slightly hazy	Opacification present; altered light reflex; positive fluorescein staining	Hazy; altered light reflex
Pupillary response to light	Normal	Minimal further constriction	Normal	Minimal or no reaction if dilated pupil
Anterior chamber dept	Normal	Normal	Normal	Shallow

Investigation

- For purulent discharges, culture and sensitivity should be done.

Management

The management if the patient general practitioner can provide symptomatic relief or specific treatment for the following:

- **Viral conjunctivitis** – hydrocortisone or betamethasone eye drops. Steroid eye drops are contraindicated if corneal ulcer is present; consider referring such patients to the ophthalmologist for further management.
- **Bacterial conjunctivitis** – antibiotic eye drops.
- **Allergic conjunctivitis** – antihistamine eye drops or mild steroid eye drops.
- **Contact lens conjunctivitis** – advice on proper care of the lens and avoid lens wear until conjunctivitis subside.
- **Stye, cellulitis, meibomian inflammation** – systemic antibiotics with or without incision and drainage may be necessary.
- **Superficial foreign body** – dislodging and removing this with moistened cotton bud may be tried initially for a very superficial foreign body.
- Removal of a lightly embedded foreign body may be attempted by the use of a syringe needle tip under good lighting if one is sufficiently experienced; if that fails the patient should be referred.

Indications for referral

- Red eye associated with eye pain, visual disturbance, signs of acute glaucoma or iritis should be referred immediately.
- Corneal ulcer – particularly, the dendritic ulcer should be regarded as an emergency.
- Gonococcal infection of the newborn is a serious potentially blinding condition which requires intensive treatment. It is characterized by profuse mucopurulent discharge.
- Foreign bodies and more than superficial eye injuries should also be immediately referred.
- A conjunctivitis that is not recovering after initial treatment of 2-3 days or even earlier; if in doubt, one should not hesitate to refer.

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