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recommendations for clinicians who are uncertain about how to proceed, overturn the beliefs of doctors accustomed to outdated practices, improve the consistency of care, and provide authoritative recommendations that reassure practitioners about the appropriateness of their treatment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**

LIST OF CONTRIBUTORS

1. *Aung Cho Myint, Prof*
2. *Aung Maw, Dr*
3. *Aye Aung, Prof*
4. *Aye Aye Than, Dr*
5. *Aye Aye Thein, Dr*
6. *Chit Soe, Prof*
7. *Hla Myat Nwe, Prof*
8. *Hla Myint Tun, Dr*
9. *Hlaing Mya Win, Prof*
10. *Hlaing Myint, Dr*
11. *Htay Win, Dr*
12. *Htin Aung Saw, Prof*
13. *Htun Lwin Nyein, Prof*
14. *Khin Hla Hla, Prof*
15. *Khin Hta Yi, Prof*
16. *Khin Mi Mi, Dr*
17. *Khin Ohnmar Khine, Prof*
18. *Khin Saw Than, Prof*
19. *Khine Khine Zaw, Prof*
20. *Khine Soe Win, Dr*
21. *Ko Ko, Prof*
22. *Kyaw Myint Naing, Prof*
23. *Kyaw Thu, Dr*
24. *Kyaw Zin Wai, Prof*
25. *Kyi Kyi Nyunt, Prof*
26. *Kyi Kyi Thinn, Prof*
27. *Kyin Htwe, Dr*
28. *Lin Htet, Dr*
29. *Lwin May Oo, Dr*
30. *Mar Mar Kyi, Prof*
31. *Maung Maung Sein, Prof*
32. *May Thandar Oo, Dr*
33. *Min Han, Prof*
34. *Min Yazar, Dr*
35. *Min Zaw Oo, Prof*
36. *Moe Naing, Dr*
37. *Moe Wint Aung, Prof*
38. *Mya Thae Han, Dr*
39. *Mya Win Hnit, Dr*
40. *Myint Thaung, Prof*
41. *Myo Khine, Dr*
42. *Myo Lwin Nyein, Prof*
43. *Myo Nyunt Aung, Dr*
44. *Myo Oo, Prof*
45. *Naing Oo, Prof*
46. *Nang Phyu Phyu Aung, Prof*
47. *Nwe Mar Tun, Prof*
48. *Nwe Nwe Aung, Dr*
49. *Nyein Moe Thaw, Dr*
50. *Phyu Phyu Khaing, Dr*
51. *Rai Mra, Prof*
52. *Samuel Kyaw Hla, Prof*
53. *Saw Win, Prof*
54. *Sein Way Lwin, Dr*
55. *Than Htike, Dr*
56. *Than Than Aung, A Prof*
57. *Than Than Aye, Prof*
58. *Thar Thar Oo, Dr*
59. *Thein Aung, Prof*
60. *Thein Myint, Prof*
61. *Thet Naing Maung, Dr*
62. *Thin Thin Nwe, Dr*
63. *Tin Aye, Dr*
64. *Tin Nyunt, Dr*
65. *Tin Tin Aye, Dr*
66. *Tin Tin Hla, Dr*
67. *Tint Tint Kyi, Prof*
68. *Vijay Kumar, Dr*
69. *Win Lwin Thein, Dr*
70. *Win Zaw, Dr*
71. *Yin Yin Soe, Prof*
72. *Yin Yin Zaw, Prof*
73. *Yu Yu Lwin, Dr*
74. *Zaw Lynn Aung, Prof*

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 (20)

EAR, NOSE, THROAT, HEAD & NECK PROBLEMS

Content

Ear Problems

1. Otitis Externa (OE)
2. Otitis Media
    a. Acute Suppurative Otitis Media
    b. Chronic Suppurative Otitis Media
    c. Otitis Media with Effusion
3. Wax
4. Foreign bodies Ear
5. Trauma
6. Hearing Loss
7. Vertigo

Nose Problems

1. Allergic Rhinitis
2. Rhinosinusitis
3. Epistaxis
4. Foreign Bodies Nose
5. Nasal Polyp

Throat Problems

1. Tonsillitis, Tonsillectomy, peritonsillar Abscess
2. Pharyngitis
3. Foreign Bodies Throat
4. Stridor
5. Tracheostomy

Head and Neck Problems

1. Disorders of thyroid gland
2. Cervical Lymphadenopathy

EAR PROBLEMS

OTITIS EXTERNA (OE)

- Inflammation of external ear.

Types:

A. Infective group
   1. Bacterial: Generalized/ localized (Furuncle- Otomycosis)/Malignant
   2. Fungal: Aspergillus Niger, Monilial and other fungi
   3. Viral: Herpes zoster oticus

B. Reactive group
   1. Eczematous OE
   2. Seborrhoeic OE
   3. Neurodeermatitis

Risk Factors:

- Trauma, immunosuppression, DM, eczema, water entering into ear

Symptoms

- Pain: may be severe as skin is adherent to underlying cartilage.
- Discharge
- Deafness- due to collection of discharge. EAC swelling
- Tinnitus
- Itching- often present (may be the cause of OE)

Signs:

- Swelling- generalized/ Localized
- EAC- congested, edematous
- Otomycosis
  - Cotton-like growth- in EAC (Black specks in Aspergillus Niger)
  - Wet newspaper-like mass- multi-colored appearance
- Discharge- present in EAC
- Tenderness- movement of pinna are extremely tender

Treatment:

- Aural toilet- secretions and debris in EAC are removed
- Ear drops- Antibiotic + steroid ear drop - to reduce edema
- Antibiotics- to control infection
- Analgesics- strong analgesics may be needed for severe pain
- Diabetes- if present, should be treated.

OTITIS MEDIA- INFECTION OF MIDDLE EAR

ACUTE SUPPURATIVE OTITIS MEDIA (ASOM)

- common in children, due to their short, wide eustachian tube and presence of adenoids

Stages	C/F	Tympanic Membrane
1. Catarrhal stage	Fullness, severe pain, deafness tinnitus, autophony Constitutional symptoms	Retraction Congestion Loss of light reflex
2.Exudation	All symptoms more severe	Bulging
3.Suppuration	Pain and constitutional symptoms lessen Discharge begins	Perforation Pulsating discharge
4.Healing	Healing may begin from any stage	
5.Complication	Mastoiditis	

Treatment:

- Penicillin therapy, analgesic, antipyretic

CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM)

Aetiology

- Age: all ages
- Sex: Both the sexes are equally affected.

Predisposing Factors:

- Unresolved Acute Otitis Media
- Large traumatic perforation
- Retraction due to Eustachian tube obstruction

Causal Organisms:

- Streptococcal, Staphylococcal, pneumococcal,
- General: Unhygienic conditions, disease of nose, poverty and undernourishment

Types:

Sage (tubo-tympanic)	Unsafe (attico-antral)
Limited to middle ear and Eustachian tube	Destructive chlesteatoma (+) in attic and antrum
Central Perforation	Marginal perforation
Complications very rare	Life-threatening complications
Polyp: occasional	Polyp: common

Clinical Features:

- Discharge, deafness

Diagnosis:

- Otoscopic examination- perforation, discharge Hearing test- Conductive Deafness

Treatment:

- Regular examination under microscope (EUM) and suction clearance Ear drops, antibiotics and analgesics
- Prevent infection from outside- Eustachian tube, mastoid Surgery: Aural polypectomy for drainage, biopsy
- Myringoplasty for persistent perforation and deafness Mastoidectomy for clearance of disease in middle ear cleft (Modified Radical Mastoidectomy)
- Medical treatment should be continued with surgery

Complications:

Intracranial	Extracranial
Meningitis Encephalitis Subdural abscess Extradural abscess Brain abscess Otitis Hydrocephalus	Mastoid abscess and neck abscesses Facial nerve palsy Labyrinthitis Lateral sinus thrombophlebitis

OTITIS MEDIA WITH EFFUSION (OME)

- Common cause of conductive hearing loss

Aetiology:

Eustachian tube dysfunction	**Increased secretory activity of middle ear mucosa**
Adenoid hyperplasia PNS tumor Chronic rhinitis and sinusitis Chronic tonsillitis Palatal defect: cleft palate	Allergy: inhalants/ food

- Glue ear- common 3 to 6 years
- Unlike thin, straw-colored exudate of adult, middle ear fluid in children tends to be tenacious (Glue ear).
- NOT to be ignored because marked and persistent hearing loss may interfere with schooling

Treatment:

Medical	Surgical

• Decongestant
  ○ Nasal drop/spray/systemic
• Antihistamines, steroids
• Antibiotics
	• Myringotomy and aspiration of fluid
	• Grommet insertion
	• Tympanotomy /cortical mastoidectomy
	  ○ removal of loculated thick fluid
	• Surgical treatment of causative factors
	  ○ Adenoidectomy
	  ○ Tonsillectomy

Sequelae:

- Atrophic tympanic membrane and atelectasis of middle ear
- Ossicular necrosis Tympanosclerosis
- Retraction pockets and cholesteatoma

WAX

- Wax is produced in the outer half of the ear canal and migrates outwards along with the canal skin
- Inappropriate instrumentation can cause impaction
- Sudden expansion after getting water in can cause sudden deafness or pain Management: Sodium bicarbonate drops (SBG)

REFER:

- **tympanic membrane perforation or** previous ear surgery (need micro suction)
- only hearing ear
- pain or vertigo,
- Hearing loss persists after wax removal

FOREIGN BODIES EAR

Types:

- Animate
- Inanimate
    - Vegetable
    - Non-vegetable –
        - Compressible
        - Non-compressible –
            - Hard, smooth
            - Sharp, pointed

Clinical Features

- pain, block, deafness.
- F/B (+) in otoscopy

Treatment

- Kill living insect first by fluid & remove
- Requirements –
    - Proper light, instrument, method,
    - Patient's co-operation, skills and experience
    -

REFER

- Impacted, Infected, Bleeding, Perforated ear

TRAUMA

AURICLE

- Blunt: hematoma, perichondritis, cauliflower ear
- Sharp: Lacerated wound, dah cut wound, human bite

Treatment-

- Requires minimal debridement and suturing of perichondrium and skin in alignment.
- Primary closure is successful due to excellent blood supply in this area.
- Plastic repair may be required

Referral:

- When duration is more than six hours.
- Total separation or nearly total separation of auricle in first six hours.
- Need for plastic repair

EXTERNAL AUDITORY CANAL (EAC)

Causes:

- Loss of cotton tipped swab or sharp object to remove wax
- Foreign body in EAC e.g., insect
- Blunt trauma to ear (car accident)
- Sports injury
- Recent head injury
- Recent flying or diving causing barotrauma.

Examination:

- bleeding in ear, Tympanic membrane perforation.

Treatment:

- Sofra-tulle dressing, Ear drops, Hearing assessment later, Health education

TYMPANIC MEMBRANE

- Solid
  - Accidental perforation during ear pricking.
  - Unskilled removal of FB ear.
- Liquid
  - During syringing and Thingyan water festival.
- Air
  - Hand slapping & blunt injury

Management

- Keep ear dry by avoiding instillation of ear drops & water

- Avoid forceful nose blowing
- Systemic antibiotic and analgesic only

Referral

- Patient complained of earache, otorrhea, blood discharge, hearing loss and tinnitus
- Unhealed perforation that needs for myringoplasty

INNER EAR

Causes:

- Head injury especially temporal bone fracture (transverse #).
- Exposure to high decibel noise

High risk for acoustic trauma:

- Work at a job where equipment operates noisily
- Live or work near factory
- Frequently attend music concerts with high decibel noise.

Symptoms:

- Noise-induced Hearing Loss
- Tinnitus

Treatment:

- Can be treated but cannot be cured
- Oral steroids,
- Hearing aids,
- Cochlear implant.

Ear Protection:

- Recommend using hearing protective devices such as ear plug, ear muff
- Regular hearing assessments
- Health education to workers and owner.

HEARING LOSS

Types:

- Conductive Deafness (CD): due to outer ear and middle ear pathologies
- Sensorineural Hearing Loss (SNHL): due to cochlear and retro-cochlear pathologies
- Mixed Deafness (MD): combined CD and SNHL
- Consequences of unaddressed hearing loss:
- social withdrawal and isolation,
- early retirement (Huddle et al, 2017)
- emotional dysfunction,
- depression (Lawrence et al. 2020), and
- mental and physical decline including poor balance and falls.

Highlights

Newborn/ children	children learn to speak by imitating the voices of others such as parents, and those with hearing loss may suffer from delayed speech * If they could have hearing assessments and appropriate interventions such as hearing aids/ cochlear implants in the golden period during which speech and language develops, they can lead the life as their peers with normal hearing. Therefore, every newborn babies should be screened for hearing
School going children	Children and young adult with hearing loss have barriers to communication and learning process. If they can be helped to regain their hearing, better academic results can be achieved. Therefore, every child of school going age should be screened for hearing, better incorporated in school health program.
Adult	loss of productivity and wages,
Older people	increased risk of cognitive decline and dementia and intervention of hearing loss reduces risk of dementia by 8% at population level (Livingston et al, 2020) * should be screened for hearing and interventions provided.

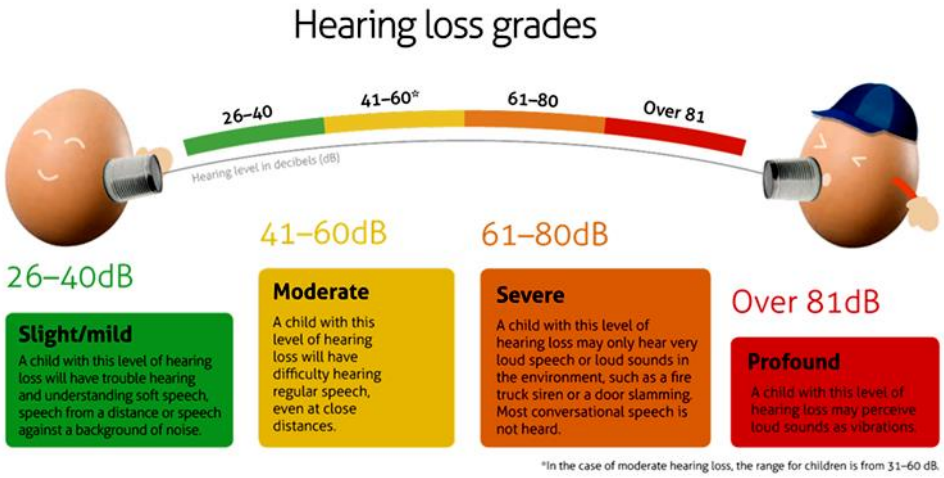
Causes:

Conductive Deafness	Sensorineural Hearing Loss
1.Congenital • atresia of EAC • Ossicular deformity	1.Congenital: • malformation, maternal rubella, Rh incompatibility, birth trauma
2.Infection: • OE, OM, E/T obstruction	2.Infection + metabolic: • Diabetes Herpes zoster, Labyrinthitis
3.Trauma: • TM perforation, foreign body, EAC, ossicular destruction, Severe head injury	3.Trauma: • Noise-induced hearing Loss • Head injury, • Blast injury

Neoplastic: • carcinoma ear, tumor postnasal space, papilloma EAC	Neoplastic: • acoustic neuroma
Miscellaneous: • Wax, Otosclerosis	5. Miscellaneous: • Presbyacusis • Meniere's disease

WHO Classification: Pure Tone Audiogram showing

Up to 25 dB	No Hearing impairment
26 to 40 dB	Mild hearing loss
41 to 60 dB	Moderate hearing loss
61 to 80 dB	Severe hearing loss
>80 dB	Profound hearing loss



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Definite diagnosis of hearing loss can be made only when the person comes to the diagnostic center for hearing tests. However, we can presume that the person may be hearing impaired by the following conditions. Awareness is a crucial factor. General practitioners with awareness can refer to the diagnostic centers to confirm hearing loss. Another method to identify hearing loss is screening the newborn, school children and adults.

RED FLAGS OF HEARING LOSS

Newborn to 3	No sounds (cooing)/quiet baby; does not react to you
4 to 6 months	No sounds/ quiet baby; no eye contact with you; no attention to voice or music
7 to 12 months	No sound play or bubbling; few vocalization; does not respond to voice or sound
12 to 15 months	No communicative gestures such as pointing or pulling, No response to parent's vocalization; no response to name; no imitative skills, Vocalization with only vowels
15 to 18 months	**No single words** by 16 months no response to directions with cues, No **imitative skills** Limited consonants in speech
18 to 21 months	Few words; **vowel distortions;** limited imitative skills, Limited variety of consonants

21 to 24 months	**Limited spoken vocabulary;** distortions of vowels or sound, Limited variety of consonants, Little response to name, directions, questions
24 to 36 months	**No language** explosion by 30 months; unintelligible speech small vocabulary, No simple 2-word combinations by 27 months Little response to questions or directions by 36 months
48 months	Unable to follow directions involving 3 or more steps no imagination play, no story telling no generation of simple rhymes "cat-bat"
60 months	cannot follow group directions "all the boys get a toy" Does not understand "if-then" ..."If you are wearing runners then line up for gym", Cannot speak to please his/her friends
Adults	Finger rub, Free field test can be considered hearing impaired if there is no response

INVESTIGATIONS

History:

Children
Maternal infection, AN care regular or not, detailed history of delivery, neonatal period, exchange blood transfusion, kernicterus, severe illness, ototoxic drug therapy, delayed milestone and speech and language development, family history of hearing loss, ear trauma, ear infection (CSOM, Otitis Media with Effusion, etc), difficulty in school (Syndromic hearing loss: renal/ cardiac signs and symptoms maybe present)
Adult- Family history of hearing loss, ear infection, ear trauma, severe illness, ototoxic drug therapy, TB, Malaria, exposure to noise (occupational/ recreational)

Examination:

Children: Craniofacial abnormalities, ear abnormalities, ear discharge, wax, foreign bodies, inflammation, tympanic membrane perforation, bulging or retracted TM, fluid or air bubbles
Adult: Ear discharge, wax, inflammation, TM perforation Tuning Fork Tests

	Rinne's test	Webers' test
Conductive deafness	negative	lateralize to bad ear
Sensorineural hearing loss	Positive	lateralize to better ear
Normal	Positive	no lateralized

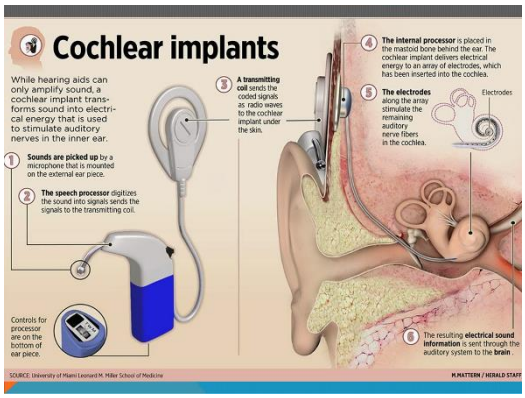
Treatment

- Treat the cause, such as CSOM, wax, removal of foreign bodies ear
- Hearing aids: according to the audiogram, better fitted by audiologist/ENT specialist
- Implants: cochlear/Middle ear
- Speech therapy

Hearing aids

- Electroacoustic device designed to amplify and modulate sound

Cochlear Implant



Indication for immediate referral

- Babies should be referred as soon as possible to be confirmed of hearing loss so that early intervention could be given.
- Adults with suspected hearing loss should also be referred for further confirmation and treatment.

Health education

- Public should be informed about the impact, possible causes, how to prevent the preventable causes, and to seek proper treatment and rehabilitation

VERTIGO

- Disturbance of sense of equilibrium and movements, where the person feels that either his surroundings are going round him, or he himself is rotating.

Highlights

- Independent of lesion site the underlying pathophysiology is that of asymmetrical neural activity
    - asymmetrical neural activity could occur anywhere from the labyrinth through lesions in the pons and even posterior cerebellum
    - Highly unlikely to get true vertigo from lesion above the level of the pons --- more likely to get imbalance, lightheadedness
    - Highly unlikely to get true vertigo from lesion in area of anterior circulation – carotid arteries

Causes:

Peripheral	Central
• Benign paroxysmal positional vertigo • Labyrinthitis • Meniere's disease • Vestibular neuronitis • Others: Head injury, Drugs	• Migraine • Multiple sclerosis Brain tumor stroke

BENIGN PAROXYSMAL POSITIONAL VERTIGO (BPPV)

One of the most common causes of vertigo, BPPV triggers short-lived but intense vertigo attacks -triggered by

- head's positions (or)
- when you stand up,
- bend over or turn over in bed.

Caused by-

- build-up of fragments (or crystals) within the posterior semicircular canal

Most cases- over 50 years of age

LABYRINTHITIS

- An infection of the inner ear (or labyrinth) most often caused by a viral infection such as a cold or flu
- cause sudden dizziness with a spinning sensation, nausea and unsteadiness.
- also cause hearing loss, tinnitus, ear pain and a raised temperature.
- a few days to a few weeks,
- recurrent symptoms, either spontaneously or when they have another cold or bout of flu.

MÉNIÈRE'S DISEASE

- Rare condition that affects the inner ear that can cause vertigo, tinnitus, ear pressure and hearing loss.
- It can cause sudden and repeated attacks of vertigo, accompanied by nausea and vomiting, that can last from two to 24 hours.

VESTIBULAR NEURONITIS

- is usually caused by a viral infection.

Symptoms:

- vertigo, unsteadiness, nausea and vomiting for a few hours or days

CENTRAL VERTIGO

- Caused by some types of neurological disorders, less common than peripheral vertigo.

MIGRAINE

- Throbbing headache, nausea, vomiting, visual disturbances and sensitivity to light and vertigo.

MULTIPLE SCLEROSIS

- A condition that affects the brain and spinal cord (central nervous system), multiple sclerosis can cause vertigo too in some people.

BRAIN TUMOUR

- Cerebellar tumor, Acoustic neuroma cause vertigo

STROKE

- In transient ischemic attack (TIA or mini stroke), the blood supply to part of your brain has been disrupted temporarily. This can cause dizziness and problems with balance and co-ordination.

Duration of vertigo

Seconds	psychogenic
<one minute	BPPV (Benign Paroxysmal Positional Vertigo)
Minutes	Vascular/ischemic
Hours	Meniere's disease or vestibular migraine
Hours to days	Vestibular neuronitis, central causes possible e.g., stroke, vestibular migraine, multiple sclerosis
Recurrent with headache, photophobia, phonophobia	Vestibular migraine

Examination:

CVS	BP: Standing and supine- 3 minutes for each position *Significant drop in BP 2:20 mmHg (when moving from supine to standing)- presyncope ECG: Heart rate, rhythm Auscultation of the neck: Carotid bruit -to exclude TIA or stroke
Eye	Nystagmus, papilledema

Ear	Inflammation, infection, secretion, malodour, signs of cholesteotoma Herpes zoster vesicles Hearing tests: Pure Tone Audiometry Balance tests: Caloric, Videonystagmography, Head Impulse test* Dix-Hallpike test for benign paroxysmal positional vertigo
Neurological	Motor /sensory changes in face, upper limbs. Cerebellar functions *If present= Central cause

Test for presence or absence of vestibulo-ocular reflex (VOR), a sign of unilateral vestibular dysfunction
Nystagmus- involuntary, rapid and repeated movement of the eye

Peripheral- horizontal Central- Vertical

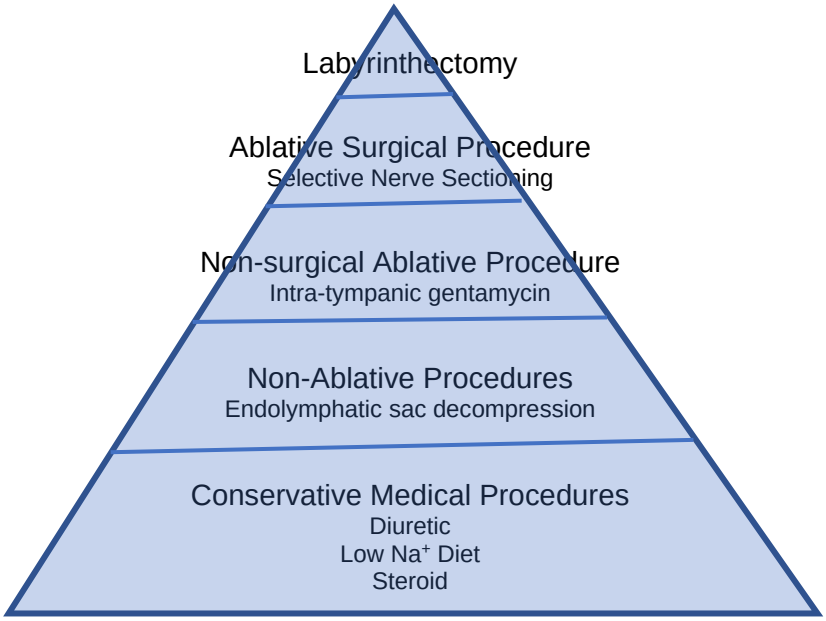
Investigations:

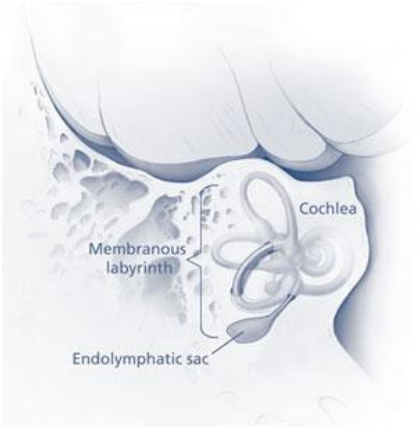
- Laboratory: Hemogram, glucose tolerance test, VDRL, Thyroid function tests Imaging: Mastoid X' ray, Cervical spine and skull, CT/ MRI head

Treatments for vertigo:

1. Specific: If there is a cause, it should be treated
   - Acute vestibular neuritis- corticosteroids, antihistamines, vestibular rehabilitation where brain is 'retrained' to adapt and rely on the signals from other parts of the body than the inner ear.
   - BPPV- Epley manoeuvre (a series of 4 head movements holding for at least 30 seconds), If ineffective, Brandt-Daroff exercises which can be done at home. Vertigo persists for months, or years may need surgery.
   - Labyrinthitis- wait to clear up viral infection and vestibular rehabilitation
2. General treatment:
   - Avoid stressful situations
   - Give up smoking- Nicotine in tobacco smoke causes vasoconstriction reducing blood supply to inner ear.
   - Drink less alcohol-

Ménière's disease





Red flags in vertigo diagnosis

Indicating possible serious underlying cause

1. Vertigo that continues for several signs
2. Nystagmus that is down-beating and continuing unremitting headache and nausea
3. Ataxia, cerebellar signs
4. Progressive hearing loss
5. Signs of suppurative labyrinthitis: bulging, erythematous tympanic membrane, fever, balance disturbance

NOSE PROBLEMS

ALLERGIC RHINITIS

- Ig E mediated type I hypersensitivity disease of mucous membrane of nasal airways characterized by
    - Sneezing
    - Itching
    - Watery nasal discharge and nasal congestion
- Associated with conjunctivitis and asthma
- Occurs in atopic individuals who are exposed to common aeroallergens

Classification:

1. Based on triggering allergens-
    a. seasonal (Hay fever due to pollen, grass)
    b. Perennial due to hypersensitivity-
    c. House dust mite, domestic pets, cockroach
2. Based on duration of clinical symptoms –
    a. periodic/ chronic
3. Based on intensity of symptoms-
    a. Mild, Moderate to severe

Clinical Features:

- Eye:
    - long, silky eyelashes
    - Dennie's Lines- horizontal lines in lower eyelids (allergic shiners) Conjunctivitis' burning & itching
    - Lymphoid aggregates on palpebral conjuntivitis
- Nose:
    - itching
    - Allergic salute and supratip crease associated with itching and rubbing: the hand lifts the nasal tip to respond to itching while temporarily opening the nasal airway.
    - Repeating this maneuver causes transverse nasal crease. Facial grimacing due to itching
    - Nasal obstruction due to enlarged inferior turbinate, sneezing,
- Mouth:
    - mouth breathing, palatal itching, nocturnal tooth grinding
- Pharynx:
    - Irritated sore throat, repeated throat clearing,
- Larynx and lungs:
    - Hoarseness, Asthma, wet cough esp. mold allergy Diagnosis:
- History:
    - inquire about - diet, pets, fumes, dust, cosmetic, soap, powder,
    - family history of AR

Clinical classification-

Intermittent	Persistent
Symptoms <4 days a week along the year Or Symptoms daily but for <4 weeks a year (<4 days a week, <4 weeks a year)	Symptoms occur daily for over 4 days a week Or >4 days a week or >4 weeks a year (>4 days a week, >4 weeks a year)

- Examination: Characteristic appearance of nasal mucosa and note presence/ absence of ethmoid polyp, hypertrophic turbinate, discharge
- Skin tests by intradermal injections
- Radio allegro sorbent test (RAST)- sensitive invitro test for assay of specific antibodies

Treatment:

- Avoiding the allergens or desensitization against allergen- ideal treatment.
- Symptomatic: Next-generation ARIA-GRADE guidelines
    - Pharmacotherapy for AR patients is considered to control the disease. It depends on patient empowerment and preferences, prominent symptoms, symptoms severity and multi-morbidity, efficacy and safety of the treatment, speed of onset of action of treatment, current treatment, historic response to treatment, impact on sleep and work productivity, self-management strategies and resource used.
- Antihistamines:
    - control the wet symptoms - rhinorrhea, sneezing, itching mucus membrane
    - 1st generation:
        - chlorpheniramine, brompheniramine, triprolidine
        - Compete with histamine for receptor site on target organ
        - SE: sedation due to BBB crossing, anticholinergic effects such as bladder neck obstruction, prostatism, excessive dryness, prolonged use- tachycardia.
    - 2nd generation:
        - Terfenadine, Astemizole, Loratadine, Cetrizine, Acrivastine
        - Non-sedative due to not crossing BBB, direct effect on allergic mediator
        - less pronounced anticholinergic effect, lack of tachyphylaxis
        - Terfenadine, Astemizole- increased risk of cardiac arrhythmias esp. when administered with macrolide antibiotic and antifungal.
    - 3rd generation:
        - Livostine, Azelastine: topically
- Designer antihistamine: Telfast
    - Fexofenadine- better safety profile, no anticholinergic activity with rapid onset of action
- Decongestant-
    - systemic:
        - Pseudoephedrine, Phenyl Ephrine alfa-adrenergic agonist-
        - oral route
        - S/E: increase BP, insomnia
    - Topical: Oxymetazoline, phenylephrine, Xylometazoline
        - Potentially addicting
        - (Should not use >5 to 7 days and not >3 times/day)
- Mast cell stabilizer:
    - Cromolyn sodium (4% spray)- prophylactically 3-4 times/day
- Corticosteroid:
    - Topical for acute phase and systemic for late phase Short acting: cortisone, hydrocortisone
- Intermediate acting:
    - prednisolone, methylprednisolone, triamcinolone Long acting: dexamethasone,

betamethasone

- Topical steroid-
  - minimize SE and systemic toxicity e.g., Fluticasone, budesonide, triamcinolone acetate
- Anticholinergic:
  - Systemic - profound over drying effect, provoke nasal crusting, thick nasal and sinus secretion
  - Topical - ipratropium bromide- decrease rhinorrhea, but not relieve congestion, sneezing, itching
- Immunotherapy:
  - when patients fail to respond to conventional therapy, specific allergen is administered with incremental dose resulting in decreased clinical symptoms.

RHINOSINUSITIS

- Rhinosinusitis can be defined as the inflammation of the lining of the nose and paranasal sinuses characterized by one or more of the following symptoms.

MAJOR SYMPTOMS	MINOR SYMPTOMS
• Facial pain/pressure • Facial congestion/fullness • Nasal obstruction/blockage • Nasal discharge/purulence/discolored posterior drainage • Hyposmia/anosmia • Purulence on nasal examination • Fever (acute RS only)	• Headache • Fever (nonacute) • Halitosis • Fatigue • Dental pain • Cough • Earpain/pressure/fullness

*Requires two major factors, **or** one major and two minor symptoms for diagnosis.*

Causes	Predisposing Factors
1. Acute rhinitis 2. Dental infection 3. Pharyngeal infection 4. Trauma 5. Swimming and diving 6. FB nose	Poor general environment (poor housing) Prolonged exposure to large number of people, cold, Obstruction due to nasal polyp, tumor, deviated nasal septum, enlarged middle turbinate Impaired clearance due to -ciliary dyskinesia (immotile cilia syndrome & Kartergener's syndrome) - impaired immune status

Clinical Features:

General symptoms	Local symptoms
-Malaise - Fever -Headache - General toxemia	-Nasal discharge, postnasal drip -loss of smell, cacosmia -epistaxis -Pain

Investigations:

- Nasal Endoscopy: plays a key role on identifying anatomical structural variations and mucosal

changes of middle meatus and osteomeatal complex causing drainage block leading to chronic Rhinosinusitis (CRS)

- Radiology: Sinus X-ray, CT nose and paranasal sinuses

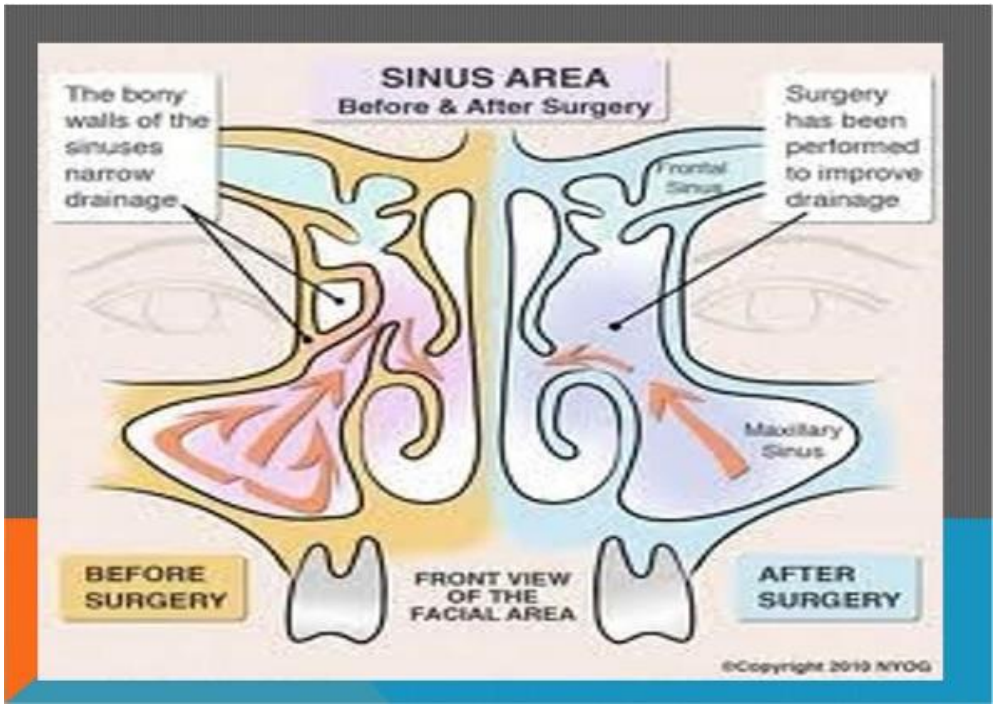
Treatment

Medical:

- Analgesic,
- Antibiotic: Minimum 2 weeks or more
  - Oral Amoxicillin/clavulanate drug of choice
  - Dental origin – caused by anaerobic organism & mixed flora
  - give – Amoxicillin & metronidazole, coamoxiclav, clindamycin
- Decongestants: oxymetazoline and xylometazoline hydrochloride * Not > few weeks
- Mucolytic: Guaiphenecsin, Acetyl cysteine & carbocysteine
- Nasal toilet: saline spay or irrigation clear thick nasal and sinus secretion
- Corticosteroid: reduces mucosal swelling

Surgical treatment:

- when medical treatment fails
- correction of predisposing factor
- removal of primary inflammatory focus
  - *Functional Endoscopic Sinus Surgery*
  - Preserve normal structures
  - Reduce bacterial or fungal load
  - Allow post-op medical and surgical management
  - Restore physiological mucous clearance



EPISTAXIS: BLEEDING FROM THE NOSE

- 90% of cases occurs in Kiesselbach's plexus, localized at the anterior portion of the septum (Little's area).

Causes:

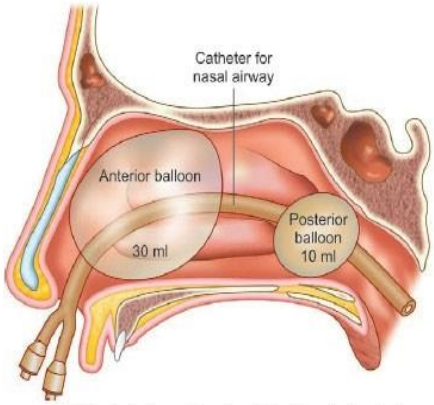
Local	Systemic
1. Congenital: Osler's d/s 2. Traumatic: injury to nose, head, post-op, nose picking 3. Inflammatory: Acute: nasal diptheria, acute vestibulitis, acute rhinitis & sinusitis, adenoids Chronic: Chronic rhinitis & sinusitis, atrophic rhinitis, TB, syphilis, leprosy 4. Tumors: Nasopharyngeal angiofibroma, angioma 5. Miscellaneous: Foreign bodies, Rhinolith, Vicarious menstruation	1. Hypertension 2. Bleeding disorders 3. Increased pressure in superior Vena Cava (mitral stenosis, Superior mediastinal tumor, Whooping cough, pneumonia) 4. Environmental: high altitude 5. Infections: Influenza, measle, enteric fever, rheumatic fever 6. Drugs: salicylate, anticoagulant, quinine 7. chronic kidney disease:

Management

(1) Immediate management

- Pinch nose with thumb and index finger for about 5 minutes
- Trotter's Method: Patient is made to sit leaning a little forward over a basin to spit any blood and breathe quietly from the mouth
- Cold compress: to cause vasoconstriction

- If not controlled- nasal packing
  - Anterior: Merocel
- If persists-
  - posterior packing: Foley catheter, double balloon device



Epistaxis balloon. Smaller (10 ml) posterior balloon and bigger (30 ml) anterior balloon are inflated. Channel of catheter provides airway for nasal breathing

(2) General management:

- Antihypertensive, haemostatic drug, sedation, replacement of loss Transfusion of blood or blood substitute if necessary
- Administration of hemostatic agents if there is deficiency. Sedatives. Systemic antibiotics

(3) Definitive management:

- Cauterization of bleeding point
- Investigation and treatment of underlying causes

Refer when:

- Bleeding cannot be controlled by any means
- Repeated attack of bleeding which need to find out the cause

For proper investigation and management

- History: Blood loss – onset, amount, site, general condition, past medical and surgical history
- Examination: Airway patency
- Anterior rhinoscopy: Bleeding, discharge

FOREIGN BODIES NOSE:

- Usually seen in children
- Common types are paper, seeds, buttons, pebbles, eraser, etc.

Suspect if presents with

- Foul smelling of one side of the nose
- Blockage of one side of the nose
- Blood- stained nasal discharge

On examination:

- Foreign body is seen in the nasal cavity which may be covered by discharge Excoriation of the nasal vestibular skin and upper lip may be present

Treatment:

- Good light and proper restraining of the child are essential
- In cooperative child, removal can be done in out-patient setting But uncooperative child may need GA
- During removal under GA, there is a risk of foreign body inhalation The other nostril must be examined to exclude a second foreign body
- Foreign body (battery) should be removed urgently

Refer when:

- FB impacted on swelling blocked for introduction of instrument Posteriorly placed FB
- Battery and buttons in nasal cavity

NASAL POLYPS

- non-neoplastic masses of edematous nasal or sinus mucosa

Aetiology

- Inflammatory condition of nasal mucosa: Rhinosinusitis
- Disorders of ciliary motility: Kartagener's syndrome
- Abnormal composition of nasal mucus: Cystic fibrosis
- Associated with - asthma, aspirin tolerance, chronic rhinosinusitis, Young syndrome, cystic fibrosis, Kartagener's syndrome

Pathogenesis:

- Nasal mucosa becomes edematous due to collection of ECF leading to polypoidal change, may become pedunculated due to gravity and excessive sneezing
- Early stage: surface of nasal polyp is covered by ciliated columnar epithelium. In response to atmospheric irritation, metaplastic changes to transitional and squamous epithelium
- Submucosa: Large ICS filled with serous fluid and infiltration with eosinophils and round cells

Site of origin:

- Lateral wall of nose, usually from middle meatus

Symptoms:

- Mostly seen in adult
- Nasal stuffiness leading to nasal obstruction
- Partial/total loss of smell
- Headache (associated with sinusitis)
- Sneezing and watery nasal discharge (associated with allergy)
- Protruding mass

Signs:

- Polyp appears as –
    - smooth, glistering Grape-like masses, pale in color
    - May be sessile or pedunculated
    - Insensitive to probing
- Do not bleed on touch
- Often multiple and bilateral
- May protrude from nostril and appear pink and vascular, simulating neoplasm
- Purulent discharge (associated sinusitis)
- Broadening of nose in long standing case

Diagnosis:

- Clinical examination, CT paranasal sinus, Histology

Treatment:

- Conservative:
    - Antihistamine to control allergy
    - Short course of steroid (associated with asthma)
- Surgery:

- Polypectomy, Endoscopic Sinus Surgery

Antro-choanal polyp:

- arise from mucosa of maxillary antrum and grows in the choana and nasal cavity, usually single, unilateral
- Parts-
  - Antral (thin stalk), choanal (round and globular), nasal
- Symptoms:
  - unilateral or bilateral nasal obstruction, nasal discharge
- Signs:
  - posterior rhinoscopy- globular mass filling choana
  - A large polyp may hang down behind soft palate and present in oropharynx
- Treatment:
  - Endoscopic Sinus Surgery

	Ethmoid polyp	AC polyp
Age	Common in adults	Common in children
Etiology	Allergy/ multifocal	Infection
Number	Multiple	Solitary
Laterality	Bilateral	unilateral
Origin	Ethmoidal sinus	Maxillary sinus
Growth	Mostly anteriorly, may present at nares	Backwards to choana, hang down behind soft palate
Size and shape	Usually small ± grape-like masses	Trilobed
Recurrence	Common	Uncommon if removed completely
Treatment	Polypectomy, endoscopic surgery	Polypectomy, endoscopic surgery

THROAT PROBLEMS

TONSILLITIS

- Tonsils - large lymphoid tissue situated in the lateral wall of oropharynx form lateral part of Waldeyer's ring occupy the tonsillar fossa between diverging palate-pharyngeal and palatoglossal folds

ACUTE TONSILLITIS

- Mainly a disease of childhood but is also seen in adults. May occur primarily as infection of the tonsils themselves or may occur as a result of URTI following viral infection.
- Organisms: Beta-hemolytic streptococcus, Staphylococcus, Hemophilus influenzae Pneumococcus

Symptoms:	Signs
Discomfort in throat Difficulty in swallowing Generalized body ache Fever Earache and Thick speech	Swollen congested tonsils with exudates Enlarged tender Jugulo-digastric lymph nodes

Complications:

1. Local: spread of infection and inflammation to the hypopharynx and larynx
   may occasionally produce increasing respiratory obstruction
2. Peritonsillar abscess means that infection has spread outside tonsillar capsule.
   Spread of infection from tonsil or more usually from a peritonsillar abscess through the superior constrictor muscle of the pharynx first results in cellulitis of the neck and later in parapharyngeal space abscess
3. Systemic or general complications- rare
   Septicemia: untreated acute tonsillitis can result in septicemia with septic abscess, septic arthritis and meningitis.
4. Acute rheumatic fever and glomerulonephritis
   - follow infection with Beta-hemolytic streptococcus.
   Antibodies produced against the streptococcus may in some instances cross react with patient's own tissue.

Treatment:

- Bed rest, plenty of fluids
- Analgesic: paracetamol
- Antibiotics: Penicillin- drug of choice x 7-10 days.

Complications:

- Chronic tonsillitis, Peritonsillar abscess, Parapharyngeal abscess, cervical abscess
- Acute Otitis Media, Rheumatic fever, acute glomerulonephritis, subacute bacterial endocarditis

TONSILLECTOMY

Indications

- Local:
- Obstructive Sleep Apnea
- Repeated attack of acute tonsillitis
- Chronic tonsillitis.
- Peritonsillar abscess.
- Enlarged tonsil causing snoring, speech problem, suspicious of malignancy.
- Focal: Septic focus for Rheumatic fever or Nephritis Contraindications: Acute stage of tonsillitis, Blood dyscrasia, Polio endemic.

Complications:

- Bleeding, Pain, Infection, Trauma

PERITONSILLAR ABSCESS (QUINSY)

- collection of pus between fibrous capsule of the tonsil usually at its upper pole and the superior constrictor muscle of pharynx.

Clinical features

- repeated attacks of acute tonsillitis.
- Preceded by a sore throat for 2-3 days
- ill with fever, often a headache and severe throat, referred otalgia
- pain and swelling in the neck due to infective lymphadenopathy

Signs-

- Ill looking patient, Pyrexia, severe trismus. oedema and hyperemia of the soft palate Enlarged hyperemic and displaced tonsil,
- Usually enlarged lymph nodes in JD region

Treatment:

- Admitted to hospital
- analgesics and antibiotics
- early peritonsillar abscess (peritonsillar cellulitis)- incision and drainage are not recommended
- I/D - undertaken at the point of maximum bulge.
- Interval tonsillectomy after 6 weeks

Complications:

- potentially lethal condition
- Pharyngeal & Laryngeal oedema, Parapharyngeal space abscess
- Pharyngitis-inflammation of pharynx

ACUTE PHARYNGITIS

- a sudden painful inflammation of pharynx,

Causes:

- Viral: adenovirus, influenza virus, Epstein-Barr virus, herpes simplex virus.
- Bacteria: Group A streptococcus (GAS), Mycoplasma pneumoniae, Neisseria gonorrhoeae, influenzae type B

Clinical features:

- Pain (body, swallowing), dry cough, fever, edema, Redness and swelling in tonsillar pillars, uvula, soft palate Lymph node enlargement

Diagnosis:

- History, physical examination, culture and sensitivity test, blood tests, Rapid streptococcal antigen test

Treatment:

- Antibiotics-
    - Doxycycline 100 mg twice daily for 5-7 days Azithromycin once daily for 3 days Cefuroxime for 5-10 days
- Anti-inflammatory: ibuprofen
- Potassium permanganate gargle
- Soft, bland. Warm diet

CHRONIC PHARYNGITIS

- Persistent inflammation of pharynx, characterized by multiple, white elongated keratinized epithelial outgrowths project from the surface of tonsil, base of tongue or posterior pharyngeal wall.
- common in adults who work in dusty surroundings, use their voice to excess, suffer from chronic cough
- Habitually use alcohol and tobacco.

Types:

- **Hypertrophic:** General thickening and congestion of pharyngeal mucus membrane
- **Atrophic:** Mucus membrane – thin wrinkled
- **Chronic granular (Clergyman's sore throat):** Numerous swollen lymph follicles on pharyngeal wall

Clinical features:

- Foreign body sensation
- Constant sense of irritation/ fullness in the throat

Treatment

- Avoidance of exposure to irritants, correct URTI
- Nasal decongestants
- Antihistamine, pseudoephedrine

- Aspirin/ acetaminophen
- Tonsillectomy

FOREIGN BODIES THROAT

- FB in oropharynx: Sharp - fish bone, pins, wires
- Blunt - coins, chicken bone, duck bones, Meat bolus Site of impaction: Tonsils, posterior 1/3 of tongue, post-cricoid, pyriform Management:

Confirmed by:

- History, oral examination, palpation
- Advice to stop further swallowing of banana and rice ball
- Radiological confirmation
- Removal with forceps

Refer:

- When F/B is in posterior 1/3 of tongue or post- cricoid.
- Present of F/B on lateral neck X ray film.
- Tenderness on palpation of neck.

Complications:

- Retro-pharyngeal abscess
- Para-pharyngeal abscess

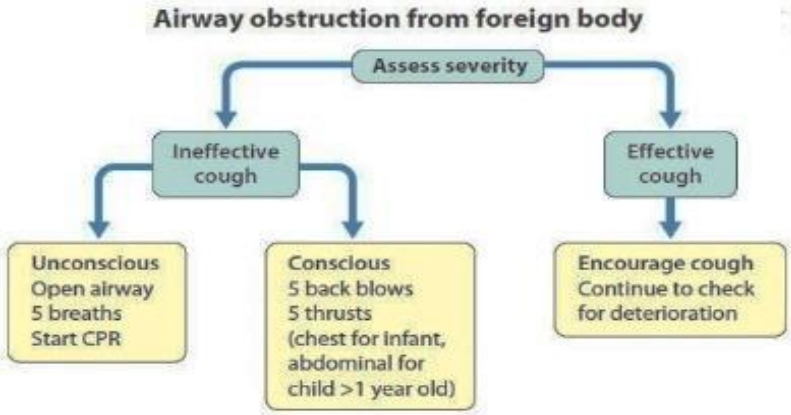
FB IN TRACHEA-BRONCHIAL TREE:

- Vegetable- ground nut, Auza seeds
- Non-vegetable- plastic ball, candy

Management:

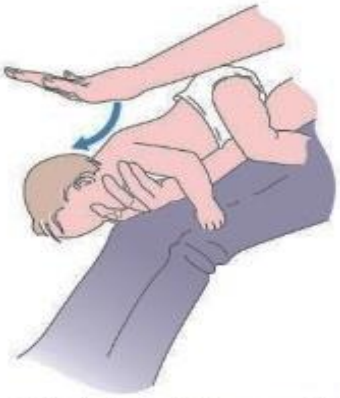
- As an emergency, hanging of patient upside down & slapping of the back in small children.
- Heimlich manouvre in older children & adults

Inhaled foreign body



Management of a foreign body.

Abdominal thrusts using the Heimlich manoeuvre in older children to expel an inhaled foreign body. One hand is formed into a fist and placed against the child's abdomen above the umbilicus and below the xiphisternum. The other hand is placed over the fist. Both hands are thrust into the abdomen. This is repeated several times. The child can be standing, kneeling, sitting or supine.



In infants, back blows and chest thrusts are recommended to expel an inhaled foreign body. Abdominal thrusts are best avoided in infants as they may cause intra-abdominal injury.

Refer

- Presence of noisy breathing.
- Sign of respiratory distress
- Reduced movement of right side of the chest (or) reduced air-entry to right side of the chest

STRIDOR

Noisy breathing due to partial upper airway obstruction.

Causes:

- Congenital: Laryngomalacia (soft larynx), Laryngeal stenosis.
- Trauma: Ext –blow, Int-F/bs.
- Infections:
    - Acute Epiglotitis, Diphtheria, Acute laryngo-tracheobrochitis, Ludwig's angina-
- Neoplasia: papilloma, carcinoma. Neuro…bilateral vocal cord palsy, bulbar palsy,
- Miscellaneous: Angioneurotic edema.

Management:

Emergency management-

- Relief of stridor is more important than diag.
- Oxygen inhalation.
- Tracheostomy –Don't wait for obvious cyanosis which may be very late.

Definitive treatment.

- Confirm the cause of stridor-
    - history (onset, duration, associated symptoms)
    - Examination: general condition, severity, cyanosis
    - ENT- IDL, MPL, neck exam
    - Radiological- Neck, chest, CT, MRI
- Remove the causes.
- Regular follow up.

HEAD AND NECK PROBLEM

DISORDERS OF THYROID

- Benign disorder
  - Hypothyroidism
  - Hyperthyroidism
- Malignant disorder (Thyroid cancers)
  - Well differentiated
  - Papillary
  - Follicular
  - Hurtle cell Carcinoma
- Undifferentiated
  - Anaplastic
- Medullary
- Lymphoma
- Metastatic to thyroid

HYPOTHYROIDISM

- due to low levels of thyroid hormones

Causes:

- Iodine deficiency (most common),
- Hashimoto thyroiditis,
- subtotal/Total thyroidectomy,
- radiation to neck as for lymphoma or head and neck cancers
- radioactive iodine for Graves' disease
- drugs inducing hypothyroidism (amiodarone, lithium) and antithyroid drugs
- Goitrogenic substances in diet

Signs and Symptoms:

Symptoms	Signs
- fatigue and weakness - intolerance to cold - dry skin - coarse and sparse hair - hoarseness - poor memory and lack of concentration - weight gain - excessive menstrual bleeding followed by oligomenorrhoea/ amenorrhea - constipation - Hearing loss	- dry and coarse skin - puffy face - puffiness of hands and feet - bradycardia

Treatment:

- Exogenous thyroid hormone

SIGNIFICANCE: NEONATAL HYPOTHYROIDISM

- It can occur in neonates (1:5000) and thus there is need to test them after birth. Cretinism causes lethargy, stunted growth, mental retardation, and hearing loss.

Causes:

- Inadequate iodine in mother's diet
- Administration of anti-thyroid drugs or radioactive iodine to mother to treat her thyrotoxicosis
- Agenesis of thyroid in the infant
- It is therefore essential for all pregnant mothers to maintain euthyroid state.

HYPERTHYROIDISM

- due to high levels of thyroid hormones.

Causes:

- Graves' disease- autoimmune disorder
- Toxic multinodular goiter
- Autonomous nodule
- TSH-secretory pituitary tumor
- Functioning thyroid cancer/ metastases
- Exogenous intake of thyroid hormone

THYROIDITIS

GRAVES' DISEASE

- features of hyperthyroidism, goiter, opthalmopathy, uncommon dermopathy
- women: men= 5;1 to 10:1
- caused by antibodies against TSH receptors. When antibodies react with receptors, thyroid cells are stimulated to form excess thyroid hormones.

Symptoms	Signs
Nervousness, irritability, hyperactivity, heat intolerance and sweating, weight loss despite increased appetite, diarrhea, palpitation, fatigue/weakness, oligomenorrhea	Tremors, warm moist skin, tachycardia, atrial fibrillation, diffuse/nodular goiter, diffuse alopecia, high pulse pressure, Graves' disease only: Lid retraction, exophthalmos, periorbital edema, thyroid dermopathy (myxedema)

Diagnosis-

- C/F of hyperthyroidism
- Lab tests: TSH is suppressed. T4 (free and bound) is raised.

MALIGNANT DISORDERS

Sex -	Female: Male = 2 to 4: 1 Genetic factor-plays a part
Type:	Papillary Carcinoma (65-70%), Follicular (10-15%), Anaplastic (<5%), Medullary (5%), Lymphoma
Age:	PCT-3rd to 4th decade, Follicular-at age 50, Anaplastic- 60-80 years, MCT-50 to 60 years, Lymphoma- 60-80 years
Sex (Female:Male):	PCT-2 to 3:1, Follicular-3:1, Anaplastic-3:2, Medullary- 1:1 Lymphoma-3:1
Risk factors:	Ionizing radiation and familial (5-10% - family history of thyroid CA) Arise from: Follicular cell-PCT, follicular carcinoma Parafollicular C cell- Medullary B cell-Non-Hodgkin Lymphoma (pre-existing Hashimoto thyroiditis)

Clinical feature

PCT:	Asymptomatic mass in thyroid, Metastatic nodes in the neck, Symptoms of local invasion, Pulmonary/bone metastasis
Follicular:	Solitary thyroid nodules, Distant metastasis due to blood spread 10-15%
Anaplastic:	Aggressive- stridor, dyspnea, dysphagia, LN involvement 80%, Distant metastasis-brain, bone
Medullary:	Aggressive- Neck mass with cervical nodes Types: sporadic 80% and unifocal 20% Included in MEN IIa and MEN IIb
Lymphoma:	Rapidly growing painless thyroid mass…. invades surrounding structures causing stridor, hoarseness, dypsnea, dysphagia

Treatment:

- Surgery- Lobectomy/Near Total Thyroidectomy/Total Thyroidectomy
- Neck Dissection if cervical LNs are palpable

Prognosis:

- PCT- favorable, Follicular, Anaplastic, Medullary- poor

LYMPHADENOPATHY

- The majority of neck nodes in children are benign; the majorities in adults are malignant.

INFECTIVE LYMPHADENOPATHY:

- Non-specific: Jugulo-digastric node enlargement during tonsilitis
- Specific: TB, HIV, Toxoplasmosis, Brucellosis, glandular fever

Diagnosis

- blood test and CXR, FNAC and even excision biopsy may be needed to exclude malignancy.

NEOPLASTIC LYMPHADENOPATHY:

- Lymphoma- primary malignant tumour of the lymphatic tissue.

Clinical features:

- Multiple nodes of a rubbery consistency.
- night sweats ± weight loss, axillary or groin nodes, and lethargy.

Investigation:

- FNAC may be suspicious of malignancy, but an excision biopsy is often required to confirm the diagnosis and allow for sub typing.
- Blood tests- FBC, ESR/CRP, Paul- Bunnell/monospot/IM screen, Toxoplasma, HIV test.
- A CXR and/or a Chest CT scan may be done, or, for staging, a CT scan of the abdomen or pelvis.
- Bone marrow may be needed for staging.

Treatment

- REFER to Hematology & Oncology
- May involve chemotherapy and/or radiotherapy. The patient may need a lymphoma Multi-Disciplinary Team review.

SQUAMOUS CELL CARCINOMA:

- primary muco-cutaneous malignancy which commonly spreads to local lymph nodes.
- Single or multiple nodes.

Clinical features:

- ENT - related symptoms such as a sore throat, a hoarse voice.
- The nodes may have a firm or hard consistency. The patient may have a history of smoking.

Investigations:

- FNAC,
- ENT examination looking for ENT primary carcinoma
- CT or MRI scan of the neck, a CT scan of the chest and/or CXR (metastases), a pan- endoscopy and excisional biopsy.
- Where no ENT primary is seen on examination, a rigorous search should be done for a silent tumor. This will usually involve imaging as above with ipsilateral tonsillectomy, biopsy of the tongue base, post-nasal space and piriform fossa as a mm1mum.

Referral

- Any inflammatory mass persistent beyond 3 weeks with antibiotic treatment
- Lump associated with hoarseness and persisting for >3 weeks; with or without CXR being suggestive of upper aerodigestive tract malignancy
- Suspected infectious mononucleosis or Tuberculosis

CONGENITAL

- Persistent neck mass (non-inflammatory) beyond 4-6 weeks
- Mass is rapidly enlarging with or without inflammatory and/or fixe
- Mass is in the thyroid gland
- Mass is in the parotid gland
- Lump associated with features of malignancy
    - oral mucosa ulcer >3 weeks,
    - oral swelling >3 weeks,
    - red or red & white patches of oral mucosa,
    - dysphagia >3 weeks,
    - unilateral nasal obstruction with purulent discharge,

- cranial neuropathies,
- orbital mass,
- lymphadenopathy (> **1 cm**) persisting more than 6 weeks,
- hepatosplenomegaly,
- features of thyroid malignancy
- Lump presenting with stridor