

ENT

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Goal:

The broad goal of the teaching of undergraduate students in Otorhinolaryngology is to acquire adequate knowledge and skills for optimally dealing with common disorders and emergencies in ENT and principles of rehabilitation of the impaired hearing.

A. Knowledge

At the end of the course, the student will be able to

1. Diagnose and manage the common ENT diseases and emergencies.
2. Adopt the rational use of commonly used drugs keeping in mind their adverse reactions.
3. Suggest common investigations and interpret their results.
4. Should be in a position to identify the cases which require specialist care.
5. To identify deaf individuals at the earliest and refer them for proper rehabilitation.
6. To recognise Pre - Malignant & Malignant lesions of Head & neck region at an early stage.

B. Skills

At the end of the course the students should be able to

1. Use Head mirror, Nasal Speculum, tongue depressor, otoscope, Tuning Fork.
2. Aural Toilet (Ear Mopping wet & dry, ear suctioning & syringing)
3. Do Siegalisation
4. Ear wick placement
5. Anterior and Posterior nasal packing for epistaxis
6. Foreign body removal from ear, nose and throat
7. Mastoid dressing
8. Conduct CPR (cardio-pulmonary resuscitation) and First Aid in newborn, children & Adults including Endotracheal Intubation.
9. To be familiar with drainage of intra-oral & neck abscesses.
10. Assist Emergency procedures like Tracheostomy and endoscopies.
11. Assist Diagnostic Nasal endoscopy, Video Laryngoscopy.
12. Interpret Clinical Audiometry and Tympanometry findings.

C. Integration:

Theory classes should include integrated teaching.

Horizontal Teaching:

General Surgery – General principles of surgical management like wound healing, acid-base balance, blood transfusion & sterilisation.

Neurosurgery – Knowledge of intracranial complications caused by diseases of ENT region. (Meningitis, intracranial abscess, cavernous sinus thrombophlebitis.)

Ophthalmology – Knowledge of orbital complications of Sino-nasal disease.

Sino nasal Neoplasm - pathological basis of sinonasal neoplasms, Radiological investigations. Clinical features and management-2 hours (These lectures will be handled by faculty from Otorhinolaryngology, Radio diagnosis, radiotherapy, surgical & medical oncology)

Laryngeal malignancies: Anatomy of larynx, physiology of phonation and swallowing. Pathology of laryngeal malignancy, Etiology, clinical features and management of laryngeal malignancies-2 hours. (These lectures will be handled by faculty from Otorhinolaryngology, radio diagnosis, radiotherapy, surgical & medical oncology)

Vertical Teaching:

Otology: Anatomy of middle ear, physiology of middle ear. Microbiology of CSOM. CSOM mucosal and squamous type, clinical features and management- 2 hours (These lectures will be handled by faculty from anatomy, Physiology, microbiology and otolaryngology). Otosclerosis: Pathology, clinical features, investigations and management -2 hours (These lectures will be handled by faculty from pathology and otolaryngology)

Rhinology: Anatomy of lateral nasal wall, physiology of nose including Mucociliary clearance mechanism. Microbiology of sinus infections. Acute and chronic rhinosinusitis and its management-2 hours (These lectures will be handled by faculty from anatomy, physiology, microbiology and otolaryngology)

Throat – Chronic Tonsillitis: Anatomy, Microbiology, Pathology, Pharmacology, Anaesthesia and Otorhinolaryngology - 2 hours.

Airway management: Anatomy of upper airway. Physiological basis of oxygen transport including nasobronchial reflexes. Acute airway obstruction and its management. Intubation, Tracheostomy, ventilator support in such conditions and biochemical changes in these patients.-2 hours (These lectures will be handled by faculty from anatomy, physiology, anaesthesia and otolaryngology)

Teaching Hours – 70 Hours:

Lectures- 50 hours.

One lecture on Medical Ethics

Integrated lectures-10 hours. (2 hours each.)

Seminars - 10 hours. (2 Hours each.)

Teaching methodology

Theory Teaching -

Theory classes include integrated teaching.

Vertical integration with involvement of anatomy, physiology, bio-chemistry, microbiology & Pharmacology. Horizontal integration with involvement of Ophthalmology, Neuro-surgery, Radiology, Radiotherapy, General Surgery and Oncology. Didactic lectures, seminars and short lectures.

Practical Teaching-

Demonstrations, treatment room and endoscopic procedures observation, case presentations and discussions, theatre live surgical demonstration, attending ward rounds, Audiometry demonstration and OSCE.

Theory Syllabus

I. EAR

MUST KNOW:

Basic sciences:

- 1) Anatomy: external, middle and inner ear. Anatomy of facial nerve.
- 2) Anatomy and physiology of Eustachian tube.
- 3) Anatomy and pneumatisation of temporal bone.
- 4) Physiology of hearing and vestibular function.
- 5) Bacterial flora, specific antibiotic therapy of upper respiratory infection
- 6) Common antibiotics used in ear infections; acute and chronic, topical antibiotics, ototoxic and vestibulotoxic drugs

Clinical conditions:

- 1) Symptoms of ear disease and referred pain in the ear.
- 2) Examination of the Ear: Tuning fork tests: Rinne, Weber and Absolute bone conduction. Caloric test, Positional test. Instruments for ear examination.
- 3) Eustachian tube function tests
- 4) Deafness: types and causes.
- 5) Diseases of the external ear: Perichondritis; otitis externa; cerumen; foreign body, hematoma auris, Malignant otitis externa, Keratosis Obturans, preauricular sinus, Myringitis granulosa
- 6) Diseases of the middle ear: Acute and Chronic suppurative otitis media (Mucosal and squamosal disease); Otitis media with effusion, Tympanosclerosis, Adhesive otitis media, Tuberculous otitis media.
- 7) Audiometry – Pure tone; Impedance Audiometry- basics, Assessment of hearing in Paediatric patients. (Basics)
- 8) Determination of type and degree of hearing loss by pure tone audiogram.
- 9) Facial nerve-anatomy, functions and clinical evaluation. Bell's palsy
- 10) Congenital hearing loss and delayed speech development.
- 11) Complications of otitis media, intratemporal and intracranial: Mastoiditis (acute and chronic); facial palsy, labyrinthitis; petrositis; lateral sinus thrombosis; otogenic meningitis; otogenic brain abscess,
- 12) Vertigo- how to ask basic history, examination. Meniere's disease symptomatology and management, BPPV, Vestibular neuronitis

- 13) X-ray of mastoid; Laws view in normal and in patients with acute or chronic Mastoiditis
- 14) Pseudocyst Pinna
- 15) Ototoxicity
- 16) Sudden hearing loss
- 17) Non organic hearing loss
- 18) Injuries to ear- traumatic, acoustic trauma and barotrauma
- 19) Presbycusis
- 20) Tinnitus
- 21) Myringotomy and grommet insertion
- 22) Surgery: Cortical and Modified Radical Mastoidectomy, Tympanoplasty/ Myringoplasty – Principles and complications. Instruments used.

DESIRABLE TO KNOW:

- 1) Otosclerosis: Diagnosis and management; basics of Stapedectomy
- 2) Vestibular function tests, caloric test, positional test.
- 3) Meniere's disease –detailed evaluation.
- 4) Brainstem Audiometry, Electrocochleography, OAE.
- 5) Tests for recruitment
- 6) Cochlear implants basics.
- 7) Tumours of the Ear, Glomus jugulare and tympanicum and squamous cell carcinoma -Clinical features, diagnosis and management.
- 8) Epidemiology of otitis media and hearing loss in India
- 9) Hearing aids
- 10) Acoustic neuroma
- 11) Deaf mutism
- 12) Middle ear risk index (MERI)

NICE TO KNOW:

- 1) Surgery for vertigo
- 2) Surgery for facial palsy
- 3) Surgery for tumours of the ear
- 4) High resolution CT of Temporal bone
- 5) Temporomandibular joint disorders
- 6) Implantable hearing aids including bone anchored hearing aids
- 7) CP angle tumours
- 8) National programme of prevention and control of deafness. NPPCD
- 9) Congenital ear disorders

II. NOSE AND PARANASAL SINUSES

MUST KNOW:

Basic Sciences:

- 1) Anatomy and physiology of the nose and paranasal sinuses including olfaction. Nasal cycle and nasal resistance

- 2) Viruses and bacteria causing acute and chronic rhinitis and sinusitis
- 3) Antibiotics used in acute and chronic sinusitis, nasal furunculosis
- 4) Mechanism of sinonasal allergy (basics)
- 5) Mucociliary clearance mechanism

Clinical Conditions:

- 1) Symptoms of nasal diseases; causes of nasal obstruction, and nasal discharge
- 2) Methods of examination of the nose and paranasal sinuses. Instruments used.
- 3) Diseases of the nasal septum: deviation of nasal septum and principles of Management
- 4) Types of Septal surgery- basics and instruments used
- 5) Diagnosis and management of nasal bone fracture
- 6) Epistaxis; anterior and posterior, common causes and emergency management
- 7) Foreign bodies in nose including Rhinolith.
- 8) CSF Rhinorrhoea: diagnosis and causes
- 9) Nasal allergy – Diagnosis, evaluation and management, Vasomotor rhinitis
- 10) Nasal Polyposis; types and management.
- 11) Inflammation of the nose: Furunculosis of vestibule of the nose, acute rhinitis.
- 12) Inflammatory diseases of paranasal sinuses: acute and chronic maxillary sinusitis, frontal sinusitis, Ethmoidal sinusitis and complications of sinusitis.
- 13) Atrophic rhinitis,
- 14) Types of fungal sinusitis- invasive and non-invasive; Rhino cerebral Mucormycosis- clinical features, diagnosis and management (Broad outline)
- 15) Nasal Septum Perforations, Septal haematoma and Septal Abscess.
- 16) Juvenile Nasopharyngeal Angiofibroma clinical features, diagnosis and management
- 17) Granulomatous diseases of the nose, Rhinoscleroma, Rhinosporidiosis
- 18) Rhinitis Medicamentosa
- 19) X-ray of paranasal sinuses and its indications
- 20) Rigid nasal endoscopy; basic steps and indications
- 21) Endoscopic sinus surgery(FESS): indications and basic steps and complications
- 22) Outline of management of benign tumors of nose and paranasal sinuses – Inverted Papilloma & Osteoma
- 23) Outline of management of Malignant tumors of nose and paranasal sinuses – Squamous cell carcinoma.
- 24) Nasal Myiasis
- 25) Caldwell Luc surgery

DESIRABLE TO KNOW:

- 1) Maxillectomy: indications and brief steps
- 2) Maxillofacial trauma types and management, blow out fracture
- 3) CT scan of paranasal sinuses basics
- 4) Tests for nasal allergy
- 5) Choanal Atresia
- 6) Mucocele of paranasal sinuses
- 7) Craniopharyngioma
- 8) Proptosis

NICE TO KNOW:

- 1) Rhinomanometry
- 2) Balloon sinuplasty
- 3) Navigation techniques
- 4) Endoscopic skull base surgeries (hypophysectomy, orbital decompression and optic nerve decompression)
- 5) Microdebrider uses
- 6) Endoscopic DCR
- 7) Septorhinoplasty

III. PHARYNX

MUST KNOW:

Basic Sciences:

- 1) Anatomy and physiology of the Oropharynx, Nasopharynx and Laryngopharynx
- 2) Commensals of the oral cavity and Oropharynx, Organisms causing acute and chronic tonsillitis.
- 3) Antibiotics used in acute and chronic tonsillitis

Clinical Conditions:

- 1) Symptoms of diseases of Nasopharynx, Oropharynx and Laryngopharynx
Methods of examination – Nasopharynx Oropharynx and Laryngopharynx.
Instruments used.
- 2) Diseases of the pharynx: adenoids including x rays; acute and chronic pharyngitis; Diphtheric pharyngitis;
- 3) Acute follicular tonsillitis and differential diagnosis of membranous tonsillitis: chronic tonsillitis; tonsillectomy and adenoidectomy – indication; Peritonsillar abscess. Including instruments
- 4) Dysphagia including acid ingestion emergency management.
- 5) Ludwig's angina; causes, presentation and management
- 6) Premalignant lesions of the oral cavity and differential diagnosis of white patch over tonsil, Oral Candidiasis.
- 7) Acute and Chronic Retropharyngeal abscess
- 8) Plummer Vinson's syndrome
- 9) Laryngopharyngeal reflux
- 10) Snoring and obstructive sleep apnoea: basics
- 11) Stertor
- 12) Foreign body oesophagus
- 13) Dysphagia
- 14) Tongue tie
- 15) Nasopharyngeal carcinoma
- 16) Pharyngeal pouch

DESIRABLE TO KNOW:

- 1) Broad outline of management of malignant tumors of Oropharynx.

- 2) Submandibular gland sialolithiasis
- 3) 1st and 2nd branchial arch anomalies
- 4) Eagle's syndrome
- 5) Lingual thyroid
- 6) Post Cricoid malignancy
- 7) Pan- endoscopy including laryngoscopy, bronchoscopy, oesophagoscopy
- 8) Polysomnography and UVPP
- 9) Corrosive Stricture – Oesophagus.
- 10) Achalasia Cardia

NICE TO KNOW:

- 1) Oesophageal Diverticulum.
- 2) Drooling
- 3) Robotic surgeries,
- 4) Thyroid gland diseases
- 5) Salivary gland diseases
- 6) Functional evaluation of swallowing disorders
- 7) Parapharyngeal tumours

IV. LARYNX

MUST KNOW:

Basic sciences:

- 1) Anatomy and physiology of the larynx.
- 2) Organisms causing acute laryngotracheal bronchitis.

Clinical Conditions:

- 1) Symptoms of diseases of the larynx
- 2) Methods of examination of the larynx. Instruments used
- 3) Hoarseness of voice
- 4) Etiology and Management of Stridor in Children and Adults.
- 5) Paralysis of Vocal cords including bilateral abductor palsy.
- 6) Laryngocele
- 7) Puberphonia and functional aphonia
- 8) Inflammatory lesions of the larynx. eg: acute laryngitis, acute Epiglottitis
- 9) Vocal cord nodules, contact ulcer and polyps and Reinke's edema
- 10) Benign tumors of larynx (including Papilloma Larynx.)
- 11) Premalignant lesions of the Larynx.
- 12) Malignant tumors of larynx: etiology, clinical presentation, classification and broad management.
- 13) FB larynx, trachea and bronchus presentation and management.
- 14) Tracheostomy: Indications, techniques and complications. Types of Tracheostomy tubes.
- 15) Gastroesophageal reflux disease
- 16) X ray neck; views and indications
- 17) Flexible laryngoscopy; basic steps and indications.
- 18) Laryngomalacia

- 19) Microlaryngoscopy and surgery and direct laryngoscopy: Indications and basic steps. Including instruments.

DESIRABLE TO KNOW:

- 1) Tuberculosis of the larynx.
- 2) Basic speech disorders including stuttering
- 3) Cricothyrotomy
- 4) Subglottic stenosis, tracheal stenosis
- 5) Percutaneous dilatation Tracheostomy
- 6) Laser
- 7) Stuttering and stammering

NICE TO KNOW:

- 1) Laryngocele
- 2) Total laryngectomy; indications and steps
- 3) Post laryngectomy rehabilitation
- 4) Phonosurgery
- 5) Thyroplasty
- 6) Co- ablation, cryosurgery
- 7) Stroboscopy.

IV. HEAD AND NECK

MUST KNOW:

Basic Sciences:

Broad anatomy of neck nodes, levels or groups

Clinical Conditions:

- 1) TB of neck nodes: diagnosis and management.
- 2) Secondaries in the neck: common sites of primary, diagnosis and broad management.
- 3) Neck Space infections - causes and management.

DESIRABLE TO KNOW:

- 1) Thyroglossal cyst, Sistrunk's operation
- 2) Neck dissection: basic types and indications

NICE TO KNOW:

- 1) Neck trauma

Practical syllabus

Includes attending out-patient department, observing the treatment protocol followed in the OPD by the consultants, Proper history taking & clinical examination of

patients and case presentation to the teaching faculty. They should maintain log book regarding the theory, clinical, ward and OT activities.

Must Know:

1. Use of head mirror.
2. Anterior Rhinoscopy.
3. Nasal airway patency tests.
4. Paranasal sinuses examination.
5. Use of tongue depressor and throat examination.
6. Neck node examination.
7. Use of Otoscope, Siegalisation.
8. Aural toileting.
9. Eliciting Mastoid tenderness.
10. Tuning Fork tests (Rinne, Weber & ABC).
11. Fistula Test.
12. Clinical examination of the Facial Nerve.

Desirable to Know:

1. Post – nasal Examination.
2. Indirect Laryngoscopy.
3. Cranial Nerves Examination.
4. Bi-digital Palpation for Sub-mandibular Salivary gland.
5. Laryngeal Crepitus.

Nice to Know:

1. Vestibular Function Tests (Romberg, Tandem Walking)
2. Eustachian Tube Tests. (Valsalva)

Each student should present minimum 3 cases (Ear, Nose & Throat) in the clinical postings.

Long case:

1. Chronic suppurative otitis media mucosal disease
2. Chronic adenotonsillitis
3. Deviated nasal septum with sinusitis
4. Nasal polypi

Short cases:

1. Bilateral Ethmoidal polypi
2. Antrochoanal polyp
3. Atrophic rhinitis
4. Rhinosporidiosis
5. Facial palsy
6. Thyroglossal cyst

7. Tongue tie
8. Preauricular sinus
9. Deviated nasal septum

Observation in OPD:

1. Foreign Body removal in Ear, nose & throat.
2. Diagnostic Nasal Endoscopy.
3. Videolaryngoscopy.
4. Anterior nasal packing.
5. Cautery for Epistaxis.
6. Caloric Tests.
7. Positional Tests and Epley's manoeuvre.
8. Pure tone Audiogram and Tympanometry and OtoAcoustic Emissions.

Observation in the Ward:

1. Ward rounds and case discussion.
2. Tracheostomy care.
3. Mastoid dressing.
4. Post- laryngectomy rehabilitation.
5. Nasal Douching.

Observation in the OT:

Observe the following surgeries.

Must Observe:

1. Adenoidectomy and tonsillectomy.
2. Septal Correction. (SMR & Septoplasty.)
3. Myringotomy and Grommet insertion.
4. Myringoplasty.
5. Cortical Mastoidectomy and Tympanoplasty.
6. Endoscopic Nasal Polypectomy.
7. Functional Endoscopic Sinus Surgery.
8. Tongue tie release.
9. Tracheostomy.

Desirable to observe:

1. Modified Radical Mastoidectomy and Tympanoplasty.
2. Stapedectomy.
3. Micro-laryngeal Surgeries.
4. Pre-auricular sinus excision.
5. Thyroglossal cyst excision – Sistrunk Procedure.
6. Young 's operation.

Nice to observe:

1. Thyroidectomy.
2. Total Laryngectomy.
3. Total Maxillectomy.

Reference learning resources

1. Diseases of ear, nose and throat-Dhingra current edition
2. Short practice of Otolaryngology-Prof. KK Ramalingam
3. Logan Turner-Otolaryngology
4. Diseases of ear, nose throat- Mohan Bansal
5. Textbook of ear nose and throat –SS Tuli
6. Textbook of ear, nose and throat and head and neck surgery- Hazarika
7. Scott Brown Otolaryngology, 7th edition

Theory examination

- | | |
|------------------|-------------------------|
| 1. Essay | 1 x 10 marks = 10 marks |
| 2. Brief Answers | 5 x 4 marks = 20 marks |
| 3. Short Notes | 5 x 2 marks = 10 marks |

Total marks = 40 marks

Practical Examination

- | | | |
|---------------|------------|----------|
| Long case: 1 | 30 minutes | 15 marks |
| Short case: 2 | 30 minutes | 10 marks |

OSCE: 5 stations one mark each 5 marks (3 minutes per station : total 15 minutes.)

Total 30 marks

- Viva : 10 marks (Radiology, Instruments, Specimen, Operative surgery)
Internal Assessment : 20 marks (Theory 10, Practical 5 + Log Book 5)

VIVA:

1. Radiology including X-ray and CT images, contrast radiology on various ENT disorders.
2. Common instruments used in otolaryngology:

OPD instruments
Tonsillectomy and adenoidectomy instruments
Mastoidectomy instruments
Tracheostomy instruments
Septal surgery instruments
FESS instruments
Rigid Bronchoscope
Rigid Oesophagoscope

Direct laryngoscope

3. Specimens: Laryngectomy specimen, Maxillectomy specimen & Thyroidectomy specimen.
4. Operative Surgery: Common ENT Surgeries.

OSCE:

Observer station (ENT Clinical Examination, Tuning Fork Tests, Neck Swelling etc...), Recent advances, Investigation chart (Audiograms), Osteology, Microbiology & Pathology slides

1. Microbiology slides (streptococci, staphylococci, pneumococci, mycobacterium tuberculi)
2. Pathology slides: Inverted papilloma, squamous cell carcinoma, rhinosporidiosis, Juvenile nasopharyngeal angiofibroma
3. Osteology: Temporal bone, Base of Skull.

FORMATIVE ASSESSMENT

Should be submitted at the end of the posting.

Clinical posting	Written test	Practical Test
Fourth Semester	Two: <ol style="list-style-type: none"> 1. Surgical Anatomy of ear nose & throat. 2. Basic ENT clinical examination. 	One: Case Presentation
Sixth Semester	Three: Common Diseases and Their Management in: <ol style="list-style-type: none"> 1. Nose 2. Throat 3. Ear. 	One: include Presentation of 1 Long case & 2 Short cases + OSCE.

Theory: (Pre-final Postings)

Unit –I: Diseases of the Nose & Paranasal Sinuses and their management.

Unit – II: Diseases of the Throat & Neck and their management.

Unit – III: Diseases of the Ear and their management.

Unit - IV: Model Theory Examination of entire syllabus including recent advances.

INTERNAL ASSESSMENT TEST

Practical examination should be held at the end of the final posting. 1 long case and 2 short cases including OSCE.

Theory exam (Unit IV) should be based on integrated lectures and short lectures and held at the end of the teaching schedule.

OSCE and viva should be held at the end of each clinical posting

MEDICAL ETHICS

The formal medical ethics class should be attended by all MBBS students as per general curriculum. The introductory class in ENT should address medical ethics and code of conduct in the classrooms and clinics.

INTEGRATED TEACHING

As per “C”

RECORD / LOG BOOK

This should be followed as recommended by the University. This will ensure uniformity among various colleges and hence better to standardise.

CRRI Orientation

Common CRRI orientation programme at the beginning of the CRRI posting where ENT is specifically addressed to 1. Examine and diagnose common ENT problems 2. To assist and carry out minor surgical procedures like ear syringing, dressing, nasal packing etc, 3. To assist emergency ENT surgeries such as Tracheostomy, endoscopies and removal of foreign bodies.

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