

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY
No. 69, ANNA SALAI, GUINDY, CHENNAI – 600 032.

M.D. / M.S.

POST GRADUATE DEGREE COURSES



SYLLABUS AND CURRICULUM

2021 - 2022

M.S. OTORHINOLARYNGOLOGY

THE TAMIL NADU Dr. M.G.R MEDICAL UNIVERSITY, CHENNAI

M.S.OTORHINOLARYNGOLOGY

OTORHINOLARYNGOLOGY has undergone a major transformation in the past decade the branch of surgery which initially comprised ENT head and neck surgery has acquired a totally new field in skull base surgery. There have been many advances in endoscopic surgery of the head and neck also. In tune with the continuing changes and the need for the students to update to the emerging new fields in otorhinolaryngology, the curriculum has been devised to acquire the new status

1 GOAL

The aim of this curriculum is to create a cadre of medical professionals who are well groomed to meet the challenges in the frontier of newer techniques and treatment in the emerging world of medicine and surgery.

- 1.** This curriculum aims at students to keep abreast with latest in ENT subjects
- 2.** Provide comprehensive diagnostic and therapeutic and surgical options and preventive ENT even in rural areas
- 3.** Carry out research activities in emerging fields of ENT
- 4.** To be a complete ENT surgeon by preventing ,diagnosing and treating ENT disease in the community and implement various health care programmes for the society
- 5.** to standardize Otorhinolaryngology teaching at Post Graduate level throughout the country so that it will benefit in achieving uniformity in undergraduate teaching as well and resultantly creating competent ENT Surgeons with appropriate expertise.

2 OBJECTIVES:

❖ Knowledge

The post graduate students have to acquire the knowledge of anatomy physiology and pathological changes in ENT diseases and , identify the manifestations due to diseases and plan the management and care of the patients.

❖ Attitude

Through the training program the student should develop a positive attitude and empathy towards the patient.

❖ Skills

The student should develop skills of comprehending ENT diseases in the society and know their pathophysiology and devise intervention both medically and surgically and also to prevent diseases. They are also required to have good communication skills and treat patient with empathy. In this perspective they are to acquire sufficient knowledge of theoretical practical research avenues for implimaneting preventive programmes in the society

The student should learn the basic methodology of teaching and assessment and develop competence in teaching medical/paramedical students and their assessment.

3 COMPONENT S OF THE POSTGRADUATE CURRICULUM

• THEORETICAL KNOWLEDGE

- a)** Basic sciences: it is required of student to acquire knowledge of anatomy physiology and mechanism of disease progression
- b)** Clinical ENT :knowledge of various ENT diseases and their related systemic connections should be studied

- c) Diagnostic procedures: knowledge of the various methods to identify and conclude regarding ENT diseases should be well studied
- d) Practical cadaveric and surgical skills should be obtained by constant practice and their skills should be evaluated
- e) Research activities should be learnt in such a way that they study the ENT illness both perspectively and elaborately.
- f) Preventive ENT should be learnt with emphasis on hearing and anticancer studies

PRACTICAL AND CLINICAL SKILLS

- ❖ PRACTICAL SKILLS DIAGNOSTIC PROCEDURES
 1. cadaver FESS dissection
 2. temporal bone dissection
 3. larynx dissection
 4. neck dissection
- ❖ THERAPEUTIC PROCEDURES
 - 1) Tracheostomy
 - 2) Nasogastric tube insertion
 - 3) Grommet insertion
 - 4) Nasal packing
 - 5) Antral lavage
- ❖ CLINICAL SKILLS
 1. History taking and physical Examination
 2. Functional assessment of hearing equilibrium, voice, smell, taste, airway for OSAS
 3. Reading Audiogram, OAE, BERA, HIT assessment, speech assessment, rhinomanometry, smell and taste assessment, radiology of ENT
 4. Radiotherapy techniques
 5. Chemotherapy techniques

WRITING THESIS/ RESEARCH ARTICLES

All students will have to carry out a research program and bring out a dissertation (thesis)

Students are encouraged to attend CME's, publish research papers and present posters, or platform presentations at State, National and International conferences.

ATTITUDES INCLUDING COMMUNICATION SKILLS

Student should develop the art of eliciting the maximum information from patients in a given time considering the sensory deficits of the patient and caregivers. Communication skills can be learnt through observation and from formal communication skills training and workshops. Students have to develop patience and empathy in dealing with patients. They have to learn to show sensitivity to their special needs.

TRAINING IN RESEARCH METHODOLOGY MEDICAL ETHICS BIO ETHICS AND MEDICOLEGAL ASPECTS

- Students should compulsorily attend the research Methodology workshop conducted by the University within first six months of the M.S course.
- Students are encouraged to attend workshops/CME's on Bioethics conducted by the University and other reputed Institutions.
- Medical ethics, moral and legal issues, Medical audit are part and parcel of the curriculum and syllabus

4. THEORY SYLLABUS

Applied Basic Sciences SYLLABUS

Anatomy, Physiology, Biochemistry, Pathology and Bacteriology related to
E.N.T. Speciality:

Anatomy:

- Pre-natal and Post-natal development of the ear:
Internal ear
Fistula ante fenestrum
Air spaces and lining membrane The Ossicles
Stapes External Ear
Pneumatisation of the Mastoid Process

- Anatomy of temporal bone:
Squamous
portion
Mastoid
portion
Petrous
portion
Tympanic
portion

- Anatomy of the ear:
External ear
Middle ear
Internal ear

- Anatomy of cranial nerves:
with particular reference to facial and auditory nerves

- Osteology of the cranial bones:
Venous sinuses
The brain

Anatomy of nose and paranasal sinuses:

Prenatal and post – natal The
external nose
The nasal cavity
The paranasal sinuses Nasal
Mucous membrane
Blood supply and nerve supply

Anatomy of the Pharynx and Nose:

Development The
tonsils Functions

Anatomy of the larynx:

- Prenatal and postnatal development of the larynx Difference between child and adult larynx Muscles and cartilages of larynx
 - Anatomy of trachea, bronchi and Oesophagus
 - The long and Broncho-pulmonary segments
 - The Mediastinum
 - The visceral arches, their derivatives developmental defects
- Development of face

Bacteriology Syllabus

1. Elementary Bacteriology pertaining to:
 - *Corynebacterium diphtheriae*
 - Staphylo, Strepto, Pneumo, Pseudomonas, H.influenza
 - Neisseria group
 - Proteus group
 - Vincents and Fusiform Bacillus
2. Fungus: Aspergillus group Mucor, Rhizopus
3. Viruses: Adeno virus, Coxsackie, RSV, E B Virus, HIV, H1N1 virus
4. Rhinosporidiosis

5. Immunology – Surgical Immunology & allergy

6. Biochemistry syllabus:

- Biochemistry of body fluids and C.S.F
- Electrolyte balance and maintenance of PH of Blood
- Biochemical changes in upper airway obstruction and after tracheostomy.
- Biochemistry of labyrinthine fluids and its variations in diseases.

7. Pharmacology syllabus:

- Pharmacology of sympathomimetic and their uses in Otolaryngology
- Local anaesthetics and analgesics : Merits and Demerits
- Chemotherapy of malignant conditions
- Cortico Steroids and its usage in Otolaryngology
- Antibiotics – recent trends
- Topical steroids

8. Pathology Syllabus:

- General Pathology – Inflammations, Necrosis, Gangrene

Repair of wounds.

- Shock – Pathology
- Granulomas including midline granulomas Thrombosis and

Embolism

- Tumors – Aetiology, Classification, Pathology & Histopathology
- Fungal infections
- Bleeding Disorders

Special Pathology:

- Surgical pathology of Mouth, Jaw, Neck Salivary glands and Oesophagus.

9. Ear:

- Pathology of the external ear.
- Histopathology of the drum membrane
- Inflammations of the middle ear
- Inflammation of Mastoid
- Inflammation of the Petrous
- Histopathology of the inner ear: Vestibular Schwannoma
Tuberculosis of ear

- Chronic inflammatory changes in the temporal bone
- Neoplasms of the ear
- Radiographic Anatomy
- Neurological Aspects of vertigo
- Electronystagmography

10. Nose:

- Pathology of the Nose.
- Chronic specific infections of the Nose and accessory sinuses (Pre Nasal).
- Cysts and tumours of the nose and accessory sinuses.

11. Pharynx and Larynx:

- Oral and Pharyngeal pathology as manifestations of constitutional Diseases Pathology of the Nasopharynx larynx. Swellings of the neck.
- Clinical Pathology in its relationship to otolaryngology.

12. Physiology Syllabus:

- Regulation of water balance and composition of body fluids by the kidney. Coagulation of blood.
- Physiology of special senses:
 - Taste.
 - Smell.
 - Heat.
- Physiology of respiration including its mechanism and regulation. Physiology of Deglutition.
- Maintenance of balance of body.
- Physiology of nose and paranasal sinuses.
- Carriage of Oxygen by the blood.
- Carbondioxide transport in the body.

13. Audiology syllabus:

- Physiology of hearing and balance:
- Hearing including physics of sound. Sound production.
- Physics of sound. The vibration. The decibel.
- Sound Stimuli and its Wave motion in a material medium.
- Propagation. Complex sound various and phase difference.
- Sound conduction.

- Vestibular function and balance. Semicircular canals.
- The otolith organs. Otoacoustic Emissions

Neurology:

1. Cranial nerves
2. Intra Cranial tension
3. Intra-Cranial hemorrhage
4. Pituitary Gland- Anatomy, Physiology, Hypo & Hyper pituitarism and new growth
5. Head injury
6. Intracranial Venous System
7. Osteology of Skull Bones, Cervical, Thoracic vertebrae, mandible and Sternum
8. Large Blood vessels in cervical region and thoracic duct Development and thoracic blood vessels

Head & Neck

1. Diseases of Salivary Gland
2. Skull base Surgery/neurological Surgery
3. Cervical Node Dissection
4. Anatomy and physiology of Thyroid Gland, Goiter, Diseases of Thyroid and Carcinoma of thyroid
5. Head and Neck reconstructive Surgery

Throat

1. Intubation of larynx
2. Thyroplasty

Plastic Surgery

1. Cosmetic Surgery of Nose
2. Facial Plastic Surgery
3. Skin Grafts and flaps

Anesthesia of ENT Use
of teaching Aids
Preparation of Slides

NEWER ADVANCES :

- 1) ENDOSCOPIC ANATOMY AND SURGERY OF SKULL BASE
- 2) COCHLEAR IMPLANT REHABILITATION
- 3) SIALENDOSCOPY

5. TEACHING LEARNING METHODS

The following teaching learning methods are recommended. Lectures
Case based discussion
Bed side clinics Teaching
on ward rounds Symposia
Seminars
Journal clubs
Problem based learning
Telemedicine

Didactic lectures are of least importance; small group discussion such as seminars, journal clubs, symposia, reviews and guest lectures should get priority for theoretical knowledge.

Bedside teaching, grand rounds, structured interactive group discussions and clinical demonstrations, Hands on Training in various tests>procedures and ability to interpret various tests and procedures should be the hallmark of clinical/practical learning with appropriate emphasis on e-learning.

Practical Skills

Cadaver Dissection of Ear, Nose and Larynx Diagnostic
Endoscopy
Microscopic Examination
Surgical Techniques

6. STRUCTURED TRAINING PROGRAM

ENT Postings Should include

1. in-patients,
2. out-patients,
3. ICU,
4. trauma,
5. emergency room,

Specialty clinics including

1. Vertigo Clinic,
2. Rhinology Clinic,
3. Otology Clinic,
4. Cancer Clinic,
5. Cadaveric dissection Lab,
6. Audiology and speech therapy.

- Inter-unit rotation in the department should be done for a period of up to one year.
- Rotation in appropriate related subspecialties for a total period not exceeding 06 months.

FIRST YEAR:

E.N.T.	 7 Months
General Surgery	 2 Weeks
Anaesthesia	 2 Weeks
Plastic Surgery	 2 Weeks
Cardio Thoracic Surgery / Pulmonary Medicine	 2 Weeks
Neuro Surgery	 2 Weeks
Oral * Facio Maxillary Surgery	 2 Weeks
Surgical oncology	 2 Weeks
Radiotherapy	 2 Weeks
Chemotherapy	 2 Weeks
Radiology	 2 Weeks

Total	----- 12 Months
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SECOND YEAR:

Audiology and Neurotology	 1 Month
Paediatric Otolaryngology	 1 Month
ENT	10 months

Total	12 Months

During IInd year, the Students are encouraged to undergo special postings for learning new advanced techniques / procedure / skills in institutions of higher repute where the requisite facilities are available without affecting the duties of the parent department.

Clinical meetings: There should be intra- and inter- departmental meetings for discussing the uncommon /interesting cases involving multiple departments.

Each student must be asked to present a specified number of cases for clinical discussion should be entered in a Log Book.
Should present one Research paper which should be published/accepted for publication during the postgraduate period

Patient safety is of paramount importance; therefore, skills are to be learnt initially on the models, later to be performed under supervision followed by performing independently; for this purpose, provision of surgical skills laboratories in the medical colleges is mandatory.

7. Evaluation of the candidates in both theory and practical aspects will help the candidate in improvement of his/her knowledge, skills and attitude.

8. COMPETENCY ASSESSMENT:

- OVERALL:
 - a) Communication / commitment / Contribution / Compassion towards patients and Innovation ()
() - 5 Marks
 - b) Implementation of newly learnt techniques/skills ()
 - Number of cases presented in Clinical Meetings/ Journal clubs/seminars - 5 marks
 - Number of Posters/Papers presented in Conferences/ Publications and Research Projects - 5 marks
 - No. of Medals / Certificates won in the conference / Quiz competitions and other academic meetings with details. - 5 marks
- Total 20 Marks

Postgraduate Students Appraisal Form Pre / Para /Clinical Disciplines

Name of the Department/Unit :

Name of the PG Student :

Period of Training : FROM.....TO.....

Sr. No.	PARTICULARS	Not Satisfactory	Satisfactory	More Than Satisfactory	Remarks
		1 2 3	4 5 6	7 8 9	
1.	Journal based / recent advances learning				
2.	Patient based /Laboratory or Skill based learning				
3.	Self directed learning and teaching				

4.	Departmental and interdepartmental learning activity				
5.	External and Outreach Activities / CMEs				
6.	Thesis / Research work				
7.	Log Book Maintenance				

Publications

Yes/ No

Remarks* _____

*REMARKS: Any significant positive or negative attributes of a postgraduate student to be mentioned. For score less than 4 in any category, remediation must be suggested.
 Individual feedback to postgraduate student is strongly recommended.

SIGNATURE OF ASSESSEE

SIGNATURE OF CONSULTANT

SIGNATURE OF HOD

PG CLINICAL COURSE

VIVA including Competency Assessment - 80 Marks (60 + 20)

Log Book - 20 marks

ASSESSMENT SCHEDULE IS AS FOLLOWS

Year of study	Period				Total Max.20 marks
I year	Upto Dec	10 marks	Upto June	10 marks	20 Marks
II year	Upto Dec	10 marks	Upto June	10 marks	20 Marks
III year	Upto Oct	10 marks	Upto Feb	10 marks	20 Marks
	AVERAGE				20 Marks

9. DISSERTATION AND UNIVERSITY JOURNAL OF MEDICAL SCIENCES

As per the 49th SAB Resolution under Point No. 2 and in the 52nd SAB it was reiterated regarding the topic for dissertation

The topic for the dissertation should be registered and sent to the University after Ethics Committee approval before 31st of December of the first Post Graduate Year. Only one change of topic with proper justification from the Head of the Department is permitted before 31st March of the first Post Graduate Year. The change of dissertation title will not be permitted after 31st March of the First Post Graduate Year. This modification in regulation will be scrupulously followed from the academic year 2015-16 admission onwards.

As per Medical Council of India Post Graduate Medical Education Regulations 2000 (amended upto 10th August 2016) clause 13.9 A Postgraduate student of a Postgraduate degree Course in broad specialties/Super Specialties would be required to present one poster presentation to read one paper at a National/State conference and to present one Research paper which should be published/accepted for publication/sent for publication during the period of his Postgraduate studies so as to make him eligible to appear at the Postgraduate Degree Examination.

As per MCI Clause 14 (4)(a), thesis shall be submitted atleast 6 Months before the Theory and Clinical/Practical Examination.

A candidate shall be allowed to appear for the Theory and Practical/Clinical Examination only after the acceptance of the Thesis by the Examiners.

The periodical evaluation of dissertation/log book should be done by the guide / HOD once in every six months. The HOD should ensure about the submission of dissertation within the stipulated time.

Regarding submission of articles to the University Journal of Medical Sciences for all the PG Degree/Diploma courses, it is mandatory that the students have to submit at-least one research paper. Case Reports are not considered as Research Paper

10. THEORY EXAMINATION

Theory shall consist of four papers of 3 hours each.

Paper I: Basic Sciences related Otolaryngology

Paper II: Principles and Practices of Otolaryngology

Paper III: Recent advances in Otolaryngology and Head Neck surgery.

Paper IV: General Surgical Principles and Head-Neck Surgery.

Question paper Pattern:

Paper I :	Write notes on	
i.	Anatomy	4 x 5 = 20
ii.	Physiology	4 x 5 = 20
iii.	Biochemistry	3 x 5 = 15
iv.	Pharmacology	3 x 5 = 15
v.	Pathology	3 x 5 = 15
vi.	Microbiology	3 x 5 = 15
	Total =	100 marks

Paper II, III & IV :		
i.	Elaborate on :	2 x 15 = 30
ii.	Write notes on	10 x 7 = 70
	Total =	100 marks

11. CLINICAL EXAMINATION

LONG CASE - (1 X 80 MARKS)	80 MARKS
SHORT CASE - (2 X 35 MARKS EACH)	70 MARKS
WARD ROUNDS (5 CASES X 5MARKS EACH)	25 MARKS
OSCE (5 STATIONS X 5 MARKS EACH)	25 MARKS
TOTAL	200 MARKS (A)
VIVA VOCE	80 MARKS (B)
LOG BOOK	20 MARKS (C)
AGGREGATE (CLINICAL + VIVA) TOTAL	300 MARKS (A+B+C)
MINIMUM REQUIRED FOR PASS (50%) DISSERTATION	150 MARKS
	APPROVED / NOT
	APPROVED

12. LOG BOOK

The post graduate students shall maintain a record(log)book of the work carried out by them and the training program undergone during the period of training.

Periodic review of Log book and Dissertation have to be done in the Department by guide/HOD once in every 6 months

13. VIVA; VIVA including Competency Assessment- 80 Marks (60 + 20)
Unstructured Viva

14. OSCE (Objective Structural Clinical Examination)

Based on Objective Structured Exam Stations:

S.No.	Stations	Marks
1.	Pathology	05
2.	Microbiology	05
3.	Specimen – Dry – 5	05
4.	Speciment – Wet – 5	05
5.	Operative Surgery	05
6.	Instruments – 5	05
7.	X-ray – 5 / Laptop video	05
8.	CT/MRI – 5	05
9.	Audiogram	05
10.	Recent advances in ent (BERA/OAE/VEMP/CHAMP/IMPEDENCE)	05

		50

15. RECOMMENDED LIST OF TEXT BOOKS AND JOURNALS

1. Scott Brown's Otolaryngology – Five Volumes
2. Endoscopic sinus surgery by PJ Womald / MV Kirtane
3. Ballenger – Diseases of the Nose, Throat, Ear, Head and Neck
4. Mawson's Diseases of the Ear.
5. Glasscock and Shambaugh – Surgery of the Ear.
6. Learning Ear Surgery by Temporal Bone Dissection by Dr. K.K. Ramalingam and Dr. B. Sreeramoorthy
7. Year Book of Otolaryngolgy, Head and Neck Surgery Edited by Michael M. Paperella and Byron J. Bailey.
8. Tumours of the Head and Neck – Clinical and Pathological Considerations by John. G. Batsakis.
9. Rob and Smith – Operartive Surgery – Three volumesRecent Advances in Otolaryngology.
10. Jacksons Textbook of Broncho – Oesophagology
11. Radiology of Head and Neck by Valvassori

- 12.** Diseases of the facial nerve by Mark May
- 13.** Otology Neurology by D. Brachmann
- 14.** *Handbook of Clinical Audiology* by Jack Katz
- 15.** Stell & Maran's *Textbook of Head and Neck Surgery and Oncology*
- 16.** *Essentials of Functional Sinus Surgery* by Heinz Stammberger MD
- 17.** *Color Atlas of Head & Neck Surgery* by Jatin P Shah
- 18.** Cummings *Otolaryngology - Head and Neck Surgery*

** Note : The editions are as applicable and the latest editions shall be the part of the syllabi.

REFERENCES:

Lore's Atlas of Head and Neck Surgery

Microsurgery of the skull base by Ugo Fisch and Douglas Matto. Text Book of Operative Surgery by Lee.

16. JOURNALS

- 1.** Indian Journal of Otolaryngology
- 2.** Journal of Otology
- 3.** Laryngoscope
- 4.** Otolaryngology Clinics of North American
- 5.** Annals of Otology, Rhinology and Laryngology
- 6.** Acta Otolaryngologica
- 7.** Archives of Otolaryngology, Head and Neck Surgery
- 8.** International Journal of Paediatric Otolaryngology
- 9.** Otolaryngology Clinics of North America

(03-05 international Journals and 02 national (all indexed) journals)
