

Syllabus for Post Doctoral Fellowship in Implant Otology



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1. Title: Post Doctoral Fellowship Course in Implant Otology

2. Course Details:

This is an intensive higher surgical fellowship program targeted at young ENT consultants, with the focus on providing comprehensive training in all aspects of the highly specialized & rapidly growing field of Implant Otology.

Duration: One academic year

No. of intake per year: Two candidates / year

Location: Department of Ear Implants & Neurotology,
Madras ENT Research Foundation, Chennai.

3. Eligibility: Candidates with MS (ENT) degree given by a medical university recognized by the MCI &/or a Diplomate of the National Board of Examinations - DNB (ENT) given by the NBE, New Delhi. Candidates must have registered their PG qualification with the MCI / State Medical Council. Candidates must provide a certificate of good standing from the institution of their post graduate study.

4. Introduction & Background:

The fellowship course is specifically designed for young ENT Consultants & Senior Registrars, who after completing their post-graduation in ENT have developed an abiding interest & aptitude for pursuing a career in Implant Otology. This course will offer them an opportunity to obtain hands-on experience in all aspects of Implant Otology, with intensive training from highly qualified & well experienced professionals at a premier ear implant institute in India.

Training encompasses the diverse aspects of Implant Otology, including comprehensive pre-operative clinical work up of patients, training in surgical techniques for implantation, Intra-operative & Post-operative Implant Audiology & methods in Auditory Verbal Habilitation. Higher Surgical training will be provided in all the various implantation procedures like Cochlear Implantation, Auditory Brainstem Implantation, Bone Anchored Hearing Aids, Middle Ear Implants & Totally Implantable Hearing Devices.

5. Course Objectives:

The core objectives of this fellowship program is to train the candidates in all aspects of Implant Otology including,

- updating knowledge on Ear Implants & related basic sciences
- honing & fine-tuning clinical acumen & surgical skills
- trouble-shooting & managing difficult scenarios
- training in data collection & clinical audit for research publications

At the culmination of this fellowship program, the candidate will be adequately trained to begin an individual implant otology practice.

6. Course Format & Training Schedule:

The fellowship program is divided into 3 sessions,

Session 1 (Duration = 3 months):– Out-patient clinical exposure at the Implant Otology clinic for working up of patients, who will need Implantable hearing devices. The out-patient training includes direct

interaction with patients for arriving at a clinical diagnosis, learning pre-operative work up protocols including knowledge of interpretation of high resolution temporal bone imaging & advanced objective audiological test battery which includes Otoacoustic Emissions, Brainstem Evoked Response Audiometry & Auditory Steady State Responses. Special training is given in the Vestibular Laboratory with Video Oculography & Vestibular Evoked Myogenic Potential testing done for patients with neurotology disorders. A detailed session is also dedicated to provide experience in pre-operative counseling of patients for various implants & explain the possible outcomes.

Session 2 (Duration = 6 months):– Supervised microsurgical dissection on dry & wet temporal bone specimens, in the temporal bone lab for learning implantation skills prior to OR exposure. Higher surgical training in OR for various Implantation procedures like – Cochlear Implants, Auditory brainstem implants, TIHA, BAHA & middle ear implants. Focus is on training in the various techniques of ear

implantation, with exposure to intra-operative electrophysiology. Per-operative management of the patient is an integral part of this session.

Session 3 (Duration = 3 months):– Exposure to post-operative audiological procedures like Switch-On, Mapping & programming the implanted devices will be given at the Advanced Electrophysiological Lab. Hands-on training in different methods of auditory-verbal habilitation at the Hearing Habilitation Centre, MERF-Institute of Speech & Hearing (MERF-ISH).

Logbook:-

The fellow is expected to maintain a log book with serial record of his training experience including documentation of clinical cases which he has been involved with during the time of the program, and submit the logbook at the time of completion of the course exam to the University. Each candidate is required to document a minimum of 10 implant cases in detail in the logbook.

7. Course Syllabus:

Unit I - Basic Sciences

- Embryology of the Auditory System
- Neurotology & skull base anatomy
- Micro-anatomy of the Cochlea & its neural connections
- Physiology of Auditory & Vestibular System
- Pathology & Immunology of the Ear
- Bio-films in relation to Ear Implants
- Osseo-integration Principle
- Syndromic & Non-syndromic Hearing Loss
- Genetic & Hereditary factors in Hearing Loss
- Stem cells & growth factors in Hearing Restoration
- Asepsis & Anti-sepsis protocols in Implant OR
- Recent Advances & Future Directions in Implant Otology

Unit II - Evaluation of the Auditory System

- Tests for Cochlear & Retro-cochlear function
- Radio-Imaging of the Auditory System
- Electrophysiological assessment of hearing
- Auditory Evoked Responses & Psychophysics
- Neurological assessment in relevance to Auditory System

Unit III - Clinical Aspects of Implant Otology

- Candidacy for Implantation
- Current Protocols in Implantation
- Design & Structure of Implants – CI / ABI / TIHA / BAHA / MEI
- Bio-materials in Implant Otology
- Surgical Principles in Implantation of the Ear
- Hearing preservation concepts & techniques in implantation
- Antibiotics in surgical prophylaxis
- Recent Advances in Ear Implants
- Binaural Implantation & its benefits
- Hybrid Implants / Electro-acoustic Hearing
- Pharmacotherapeutics used in Neurotology practice

Unit IV - Post Implantation Assessment

- Programming protocols & Mapping Technology
- Software Programs for assessing Implant function
- Behavioural Response Audiometry / Implant aided Audiometry
- Electrophysiological tests - Uses & limitations
- Speech Processing Strategies in Cochlear Implantation
- Auditory Verbal Habilitation
- Outcomes with Implantation
- Long term effects of Implantation
- Quality of life measurement
- Psycho-social factors influencing hearing development
- Challenges unique to the Indian Scenario