

# POST-DOCTORAL FELLOWSHIP PROGRAMME IN RHINOLOGY

DURATION OF THE COURSE : 2 YEARS

## Aim of the Course

To provide a broad experience in surgical and evaluative Rhinology.

## Background:

Rhinology is an area of ENT that involves the study of diseases of the nose and paranasal sinuses as well as adjacent areas like the anterior skull base and nasopharynx. Currently, the basic M.S. degree does not provide a doctor who wishes to specialize in the management of rhinological diseases sufficient experience in independently handling the entire gamut of cases. Specialised training is required in the evaluation and surgical management of both simple and complex rhinological diseases using modern techniques. The past two decades have witnessed tremendous advances in the field of Rhinology. The advances in endoscopic sinus surgery aided by introduction of newer technologies like image guidance system, powered instrumentation and angled scopes and improvised angled instruments have enabled easier access to difficult-to-reach areas which previously required complex open procedures with much more morbidity. Advances in the evaluation and management of sinonasal allergy, vascular tumours of the nasopharynx and benign and malignant sinonasal neoplasms have greatly improved patient outcomes.

## Goals of the fellowship

### Goal 1

*To develop proficiency in performing a comprehensive evaluation, including office-based nasal endoscopy, of the patient who presents with rhinologic complaints.*

In the outpatient setting, the fellow will first observe consultants perform initial and follow-up evaluations. Subsequently, the fellow will perform progressively greater parts of these evaluations. Emphasis will be placed upon office-based nasal endoscopy, including correlation of endoscopic findings with patient symptoms, past surgical history and CT scan images. Strategies for gathering an appropriate clinical history from complex patients who have undergone multiple procedures and treatments will be developed.

### Goal 2

*To develop ability to diagnose and manage patients with hard-to-treat, refractory diseases of the paranasal sinuses.*

The fellow will demonstrate proficiency in synthesizing history and physical examination, nasal endoscopy, CT scans, MR scans, and other laboratory data to create a clinical impression and diagnosis list, which together shall support a comprehensive, multi-modality treatment strategy. The fellow will attend to all Rhinology ward consultations from other departments.

### **Goal 3**

*To recognize and manage complications of inflammatory diseases of the paranasal sinuses as well as complications of paranasal sinus surgery.*

The fellow will gain experience in evaluating and treating patients who suffer complications due to inflammatory diseases of the paranasal sinuses as well as patients who suffer surgical complications.

### **Goal 4**

*To gain knowledge about the indications and contra-indications for various surgical procedures as well as the specific techniques themselves.*

The fellow will develop proficiency in all the standard endoscopic and open rhinological procedures. Subsequently, the fellow will be made familiar with advanced rhinological procedures. During the course, he/she will understand the risks and benefits of each advanced rhinologic procedure as well as alternative treatments. Emphasis will be placed upon minimally invasive, endoscopic approaches. The nuances of safe revision sinus surgery will be emphasized.

### **Goal 5**

*To assist the performance of advanced surgical techniques for the management/treatment of paranasal sinus and skull base disorders/diseases.*

By observing, assisting, and reading about such procedures, the fellow will gain knowledge about the most advanced, endoscopic approaches for a wide range of paranasal sinuses and skull base disorders/diseases (including chronic rhino sinusitis, recurrent sinonasal polyposis, CSF leak, and anterior cranial base neoplasms). Additionally, the fellow will develop skills for endoscopic approaches to the orbit, including optic nerve and orbital decompression, dacryocystorhinostomy and also sphenopalatine and internal maxillary artery cauterizations/ligations for epistaxis.

### **Goal 6**

*To acquire core knowledge in rhinologic diseases including anatomy, histopathology, microbiology and radiology of common and rare rhinological diseases*

The fellow will be encouraged to perform cadaveric dissections in the Anatomy department. The fellow will become familiar with diagnosis and interpretation of common radiological investigations like plain and contrast enhanced CT and MRI scans as well as advanced radiology like angiography, embolisation and PET scanning of lesions of the nose and paranasal sinus. The fellow will coordinate Pathology and Microbiology conferences where cases seen in the department are discussed on a regular basis.

### **Goal 7**

*To understand the role of Ig-E mediated pathophysiology (i.e., allergy) in rhinologic diseases.*

The fellow will participate in the evaluation and care of patients with sinonasal allergy. The fellow will observe tests like skin allergen testing and olfaction testing in the Rhinology lab.

### **Goal 8**

*To learn strategies for the multi-disciplinary evaluation of rhinologic diseases*

The fellow will help coordinate multi-disciplinary evaluations, including consultations with Neurosurgery, Neurology, Ophthalmology, Radiology, Radiotherapy, Pulmonary Medicine and Plastic Surgery as appropriate. The fellow will attend Tumour Board meetings where decisions on management of patients with sinonasal tumours will be made.

### **Goal 9**

*To undertake teaching sessions for postgraduates and undergraduates*

The fellow will participate in all teaching programmes, particularly those involving undergraduates and postgraduates. The fellow will be involved with assisting in conducting CME programmes.

### **Goal 10**

*To present at least one abstract at a conference and write at least one manuscript that is submitted to a major journal for publication.*

The fellow will be given ample guidance and opportunity to perform one or more institutional review board funded and approved clinical research projects and write them up for publication.

## **Eligibility criteria**

Candidates having (i) qualified for the M.S. Degree in ENT from an Indian University recognized by the Medical Council of India are eligible to apply. Two (2) candidates will be selected every year.

**Knowledge and skills to be acquired by the students on completion of the course**

- A. Clinical and operative skills
- B. Research
- C. Teaching

**A. CLINICAL AND OPERATIVE SKILLS**

**Fellow patient care responsibilities:**

- See and evaluate rhinology patients in the Rhinology clinics.
- Supervise the preparation process for patients requiring rhinologic surgery.
- Participate in rhinology cases in the operating room.
- Round on in-hospital rhinology patients twice daily.
- Participate in the care of emergency rhinology patients.

**Fellow will be perform and assist a broad range of rhinology surgeries including:**

1. Endoscopic septoplasty
2. Primary and revision functional endoscopic sinus surgery (FESS)
3. Frontal sinus surgery
4. Orbital and optic nerve decompressions
5. Endoscopic dacryocystorhinostomy
6. Endoscopic closure of CSF leaks
7. Septorhinoplasty
8. Turbinoplasty and turbinate diathermy
9. Sphenopalatine & internal maxillary artery cauterizations/ligations for the control of epistaxis
10. Endoscopic juvenile nasopharyngeal angiofibroma resection
11. Choanal atresia correction
12. Oroantral fistula closure
13. Partial and total maxillectomy
14. Orbital exenteration
15. Lateral rhinotomy
16. Midfacial degloving
17. Le Fort I osteotomy
18. Transpalatal approaches
19. Frontal sinus trephination
20. Caldwell-Luc surgery

**B. RESEARCH SKILLS**

The trainee would be expected to

- Actively be involved in on-going research activities
- Complete a prospective research project during the 2 year training period
- Publish the work in a peer-reviewed journal.
- Present a paper presentation in a conference.
- Utilise departmental and institutional library facilities

Through participation in an existing Research Methodology course, the candidate is expected to gain insight into the methodology of clinical research including the design and planning of studies, analysis of data, simple statistical methods and finally the nuances of logical presentation of the data in a scientific communication.

### **C. TEACHING SKILLS**

The trainee would be expected to gain teaching experience through taking regular classes for undergraduates and postgraduates and nursing and AHS students.

#### **Rhinology fellow is also expected to:**

- Provide mentorship to residents training in primary FESS and general otolaryngology cases
- Actively participate in the department's academic sessions, grand rounds and journal clubs

## **DETAILED SYLLABUS**

### **Basic Sciences**

#### **Nose and Paranasal Sinuses**

- Anatomy and Embryology.
- Physiology including physiology of Smell
- Pathophysiology of the nasal sinuses in flight and diving.
- Nasal Septum.
- Evaluation of the nasal airway (Rhinomanometry)

#### **Skull base**

- Surgical anatomy
- Clinical neuroanatomy

#### **Imaging and Radiology**

##### *Image taking and interpretation of*

- X-rays
- CT
- MRI
- Contrast studies with respect to ENT
- Angiography
- Basic immunology
- Microbiology as related to ENT

- Staphylo, Strepto, Pneumo etc
- Fungus: Aspergillus , Rhizopus, Mucor, Rhinosporidiosis etc.
- Wound healing principle
- Intensive care in ENT patients
- Anesthesia in ENT
- Biomaterials used in ENT
- Medical negligence in otolaryngology
- Principle of chemotherapy
- Principle of radiotherapy
- Principle and use of nuclear medicine
- Principles of laser surgery

#### *Pharmacology as related to ENT*

- Pharmacology of sympathomimetic drugs and their uses
- Local anesthetics and analgesics
- Chemotherapy of malignant conditions
- Corticosteroids and its usage in rhinology
- Antihistamines
- Antibiotics – recent trends
- Antifungals

### **Disorders: Their Medical/Surgical Management**

- **Nose and paranasal sinuses**
- Congenital anomalies in nose
- Craniofacial anomalies
- Conditions of external nose
- Deviated septum and septoplasty
- Abnormalities of smell
- Mechanism and treatment of allergic rhinitis
- Food allergy and rhinitis
- Infective rhinitis and sinusitis
- Complications of sinusitis
- Intrinsic rhinitis
- Nasal polyps
- CSF rhinorrhoea
- Fracture of facial skeleton
- Rhinoplasty
- Epistaxis
- Snoring and sleep apnea
- Non healing granulomas of nose
- Facial pain and headache
- Aspects of dental surgery for ENT
- Trans sphenoidal hypophysectomy
- The orbit with relation with nose

- Cysts, granulomas and tumours of jaws, nose and sinuses
- Fungal sinusitis
- Neoplasm of nasal cavity
- Neoplasm of PNS
- Foreign body in nose
- Dental development ,orthodontics, cleft lip and palate
- Pediatrics anesthesia

## Practical

### History taking pertaining to rhinology and examination like:

- anterior and posterior rhinoscopy
- examination of Eustachian tube
- functional examination of nose
- trans illumination test
- examination of cranial nerves
- examination of cervical lymph nodes
- nasal endoscopy

### Therapeutic skills

#### Anterior/posterior nasal packing

- Foreign body removal from nose
- Cauterisation of little's area
- Airway management
- Nasogastric feeding
- Endotracheal intubation
- Cardiopulmonary resuscitation
- Administration of oxygen
- Venepuncture and establishment of vascular access
- Administration of fluids, blood, blood components, parenteral nutrition
- Common dressings
- Abscess drainage
- Basic principles of rehabilitation.

1. Diagnostic Nasal Endoscopy
2. Middle Meatal Antrostomy
3. Posterior ethmoidectomy
4. Sphenoidectomy
5. Adenoidectomy
6. Trans Sphenoid Pituitary Surgery
7. Endoscopic DCR
8. Endoscopic orbital decompression
9. Endoscopic optic nerve decompression
10. CSF leak closure
11. Endoscopic Medial maxillectomy

12. Chonal atresia repair
13. Endoscopic JNA excision
14. Endoscopic sphenopalatine artery ligation
15. Endoscopic Septoplasty

Course duration: 2 years (24 months)

Suggested schedule of postings:

- |                                             |           |
|---------------------------------------------|-----------|
| 1. ENT department                           | 18 months |
| 2. Pulmonary medicine                       | 1 month   |
| 3. Radiotherapy                             | 15 days   |
| 4. Radiology                                | 1 months  |
| 5. Microbiology                             | 15 days   |
| 6. Pathology                                | 15 days   |
| 7. Research methodology ( <i>didactic</i> ) | 7 days    |
| 8. Research ( <i>project</i> )              | 2 months  |
| 9. Preparation of project report            | 7 days    |

**II. No of candidates intake per year**

2

**III. Anticipated competencies a candidate with acquire**

At the end of training the trainee is expected to be competent in:

1. Diagnosis and management of common rhinological conditions
2. Evaluative and management protocol for allergy
3. Diagnostic nasal and sinus endoscopy
4. Treatment of sinonasal malignancies
5. Basic and advanced endoscopic sinus surgery
6. Basic skills in diagnosis and treatment of sinonasal emergencies
7. Evaluation and counseling of patients with olfactory disturbances

**TEXT BOOKS**

- |                                                         |      |                       |
|---------------------------------------------------------|------|-----------------------|
| 1. Functional Endoscopic Sinus Surgery                  | 1991 | Stammberger           |
| 2. Essentials of functional Endoscopic sinus surgery    | 1993 | Stammberger. Hawke    |
| 3. Allergy and Immunology (An otolaryngologic approach) | 2002 | John H. Krouse        |
| 4. Rhinoplasty (The art and the science) Vol.1          | 1997 | Tardy, Jr.            |
| 5. Rhinoplasty (The art and the science) Vol.4          | 1997 | Tardy, Jr.            |
| 6. Powered Endoscopic sinus surgery                     | 1997 | Krouse,Christmas, Jr. |

- |                                                                                                                              |      |                                 |
|------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------|
| 7. Endoscopic Paranasal sinus surgery 3 <sup>rd</sup> Edition                                                                | 2004 | Rice/Schaefer                   |
| 8. Endoscopic sinus surgery 2 <sup>nd</sup> Edition<br>(Anatomy, Three – Dimensional Reconstruction, and surgical Technique) | 2007 | Wormald                         |
| 9. Otolaryngology Vol.3                                                                                                      |      | Coates Schenck Miller           |
| 10. The comparative anatomy and physiology<br>Negus of the Nose and paranasal sinuses                                        | 1958 |                                 |
| 11. Nasal and Sinus surgery                                                                                                  | 2001 | Marks                           |
| 12. Rhinologic and sleep apnea surgical Techniques                                                                           |      | Metin Onerci                    |
| 13. Rhinologic and Sleep Apnea surgical Techniques                                                                           | 2007 | Kountakis Onerci.               |
| 14. Rhinologic and sleep apnea surgical treatment                                                                            |      | Infakies                        |
| 15. Allergy and Asthma (A Tropical view)                                                                                     | 2001 | Wiqar A<br>Shaikh               |
| 16. Scott - Brown's Diseases of the Ear, Nose and Throat<br>3rd Edition Vol.3                                                | 1971 | John Ballantyne,<br>John Groves |
| 17. Scott - Brown's Diseases of the Ear, Nose and Throat<br>4th Edition Vol.3                                                | 1979 | John Ballantyne<br>John Groves  |
| 18. Rhinology (Scott - Brown's Otolaryngology) 5th Edition                                                                   |      | Mackay Bull                     |
| 19. Rhinology (Scott - Brown's Otolaryngology) 6th Edition                                                                   |      | Scott                           |
| 20. Investigative Rhinology                                                                                                  | 2004 | Scadding Lund                   |
| 21. Advanced Endoscopic sinus surgery<br>M.D                                                                                 | 1995 | Stankiewicz.,                   |
| 22. Atlas of Rhinoscopy                                                                                                      | 2000 | Yanagisawa. M.D                 |
| 23. Surgical Management of sleep apnea and snoring                                                                           | 2005 | Jerris, Goode                   |
| 24. The Nasal cavity and paranasal sinuses                                                                                   | 2001 | Navarro                         |
| 25. The principles and practice of Rhinology                                                                                 | 1987 | Goldmam                         |
| 26. Chronic Rhino sinusitis                                                                                                  | 2001 | Sood                            |
| 27. Beautiful Nose (The Inside story)                                                                                        |      |                                 |
| 28. Cummings otolaryngology head & neck surgery 4 <sup>th</sup> edition                                                      |      | Haughey                         |

## JOURNALS

1. Journal of Laryngology and otology
2. Laryngoscope
3. Otolaryngologic Clinics of North America
4. Annals of Otolaryngology, Rhinology and Laryngology
5. Otolaryngology Head and Neck surgery
6. Acta Otolaryngologica
7. Archives of Otolaryngology, Head and Neck Surgery
8. Head Neck

9. International Journal of Pediatric Otolaryngology
10. ENT journal
11. Indian Journal of Otolaryngology