

## RHINOLOGY AND ANTERIOR SKULL BASE SURGERY

P.J.Wormald

### TOPICS COVERED IN THIS MODULE

- Basic sciences and applied skills associated with Rhinology in particular a high level of competence in endoscopic sinus surgery and endoscopic skull base surgery.

### RATIONALE AND COMPETENCIES

Rhinology accounts for a large component of ORL practice. In particular endoscopic surgery is the contemporary method of managing sino-nasal disease. A large number of disorders, including systemic disease can be present with pathology in the nose.

The graduating trainee will be able to:

- Assess a patient with sino-nasal disease
- Interpret diagnostic tests associated with these conditions
- Recognise the most common Rhinological disorders and identify those amenable to surgical treatment
- Consider all issues relevant to the patient and indicate alternative approaches
- Communicate realistic outcomes of surgery and complications thereof
- Safely carry out common Rhinologic surgical procedures and understand the concepts of advanced endoscopic skull base surgery
- Manage complications
- Acknowledge fully their limitations

### MODULE CONTENT AND OBJECTIVES

There are two components to this module:

1. Basic Sciences
2. Clinical Knowledge, Skills and Judgement

#### 1. Basic Sciences

- Explain in detail the anatomy of the nasal septum, lateral nasal wall and para-nasal sinuses including innervations, blood supply and embryology.
- Explain in detail the endoscopic anatomy of the sphenoid, cavernous sinus, pituitary, clivus and post fossa
- Explain in detail the anatomy of the pterygo-palatine infra-temporal fossae and Eustachian tube from the perspective of an endoscopic approach.
- Describe the anatomy of the frontal recess
- Describe the osteology of the maxilla, ethmoid, inferior concha, septum, sphenoid, nasal bones and palatine bones
- Review the physiology of the:
  - Nasal air flow including tests of nasal function – rhinomanometry
  - Nasal cycle

- Olfaction
- Nasal mucosa and mucociliary flow
- Recognise and describe the aetiology, pathology and treatment:
  - Nasal valve collapse
  - Septal perforation
  - Nasal septal deviation
  - Epistaxis
  - Allergic rhinosinusitis
  - Non-allergic rhinosinusitis
    - Infective
    - Medicamentosa
    - EMRS
    - Atrophic
    - Vasomotor
  - Fungal sinus disease in all its various forms
  - Complications of sinusitis
  - Classification of CRS
  - Aetiology of chronic sinusitis. Understand the probable pathways to disease specifically relating to antigen interaction with the immune system and the stimulation of the various cytokine pathways. Relevance to the following hypothesis are particularly important:
    - Fungal hypothesis
    - Bacterial biofilm hypothesis
    - Superantigen hypothesis
    - Aetiology and pathogenesis of eosinophilic chronic sinusitis
  - Nasal polyposis including associated conditions (eg Sampter's Triad)
  - Primary ciliary dyskinesia
  - Cystic Fibrosis
  - Specific Ig deficiencies
  - Anosmia/hyposmia/cachosmia
  - Facial pain syndromes
  - CSF rhinorrhoea
  - Granulomatous conditions
  - Pyogenic granuloma
  - Nasal fractures
  - Fibrous dysplasia
  - Rhinophyma
  - HHT – Osler Rendu Weber Syndrome
  - Inverting papilloma
  - Juvenile angiofibroma
  - Sino-nasal malignancy
  - Sino-nasal lymphoma/lethal ML granuloma
  - Mucocoeles

- Odontogenic disease as related to nose and sinuses
- Systemic diseases
- Epiphora
- Compare and evaluate the contribution of different diagnostic testing including:
  - CT & MRI imaging
  - Histopathology
  - Assessment of smell
  - Understanding and interpretation of RAST
  - Understanding the interpretation of clinical tests of allergy
  - Measurements of nasal airflow
  - Tests of lacrimal function
  - Tests of mucociliary function

## **2. Clinical Knowledge, Skills and Judgement**

- Evaluate a patient
- Order and accurately interpret diagnostic tests
- Describe the dangers that can be recognised on a CT prior to surgery
- Provide test information to patients in ways that lead to informed decision making
- Demonstrate proficiency in safely carrying out the following surgical procedures:
  - Medical management of sinonasal disease
  - Septoplasty / SMR / septal reconstruction
  - Septal perforation repair
  - Turbinate surgery
  - Surgical treatment of epistaxis
  - FESS – know the operative steps for the following standard procedures:
    - MMA
    - Ethmoidectomy
    - Frontal recess clearance
    - Sphenoidotomy
    - SPA ligation
    - Frontal drillout or modified Lothrop
  - Canine fossa puncture
  - Caldwell Luc approach
  - Frontal trephine
  - Nasal foreign body removal
  - Nasal fracture reduction
  - Nasal haematoma / abscess drainage
  - Orbital abscess drainage
  - Management of sinuses in patients with intra-cranial abscess from sinusitis
  - Describe the limitations of endoscopic techniques relative to the extent of the pathology and be able to identify regions that make endoscopic techniques difficult or unsuitable for particular pathologies

- Endoscopic approaches and techniques for inverting papilloma and angiofibroma
- General principles of endoscopic trans-nasal intracranial surgery
- Discuss the following procedures:
  - Closure of oroantral fistula
  - Endoscopic DCR
  - Orbital decompression/canthotomy and cantholysis
  - CSF leak closure
  - External approach to sinuses
- Manage any complications of the above procedures, in particular FESS
- Plan, implement and manage pre and post-operative care of the Rhinologic surgical patient
- Medico-legal aspects of rhinology

### **SUGGESTED READING**

- Kennedy DW, Bolger W, Zinreich SJ. Diseases of the Sinuses: Diagnosis and Management. BC Decker, Ontario 2000
- Wormald PJ: Endoscopic Sinus Surgery. Anatomy, three-dimensional reconstruction and surgical technique. 2nd edition. Thieme 2007
- A general ENT text for pathology, eg Scott-Brown or Cummings

### **JOURNALS**

- Current Opinion in Otolaryngology Head and Neck Surgery
- Otolaryngologic Clinics of North America
- American Journal Rhinology
- Laryngoscope

### **DELIVERY OF THIS MODULE**

- On line
- FESS Courses – basic and advanced
- Experiences in hospital rotations

### **ASSESSMENT METHODS**

- Fellowship Examination
- FESS course certification
- Supervisors' reports
- Log books