Hoarseness

preferably termed

DYSPHONIA

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Sound production

- Air supply
- Vibrating source
Voice production

- Air supply
- Vibrating source
- Modulating system / resonance chambers
Voice production

• Air supply - lungs

• Vibrating source - vocal cords

• Modulating system / resonance chambers - pharynx, tongue, mouth, lips, chest, pharynx, sinuses, oral cavity
Voice production

- Fundamental frequency
- Harmonics (overtones) add "colour"
- Unique sound produced - "laryngeal imprint"
Voice production

• “Pure” sound made rounder and richer by addition of harmonics and vibrato in the trained voice
Dysphonia is the result of *noise* formed by turbulent airflow in the larynx...
...as well as by irregularities of the normally periodic vibrations of the vocal cords.
It is graded:

very slight - slight - moderate - severe
With increasing dysphonia, the harmonic portion of a vocal sound decreases in pitch...
and the “noise” component dominates...
resulting in the abnormal sound perceived as hoarseness.
N.B. hoarseness which persists for more than 2-3 weeks should always be "referred" to exclude malignancy
Normal larynx
Aetiology

• Congenital
• Traumatic
• Inflammatory
• Neoplastic
• Functional
Congenital

• Laryngomalacia (75%)

  - a “rough” cry associated with stridor which is worse when feeding and begins within a few weeks of birth
Congenital

• Neurological (10%)
  - unilateral or bilateral recurrent nerve palsies (idiopathic or birth trauma)
Congenital

- Other
  - laryngocoele
    (blind sac of the laryngeal ventricle)
  - haemangioma
    (site determines severity of dysphonia)
Traumatic

• Laryngeal
  - acute vocal abuse - extreme overuse at sporting events, clubs, gyms and in politicians, lecturers, teachers, etc.

  - chronic abuse - screamer’s or singer’s nodules
Vocal cord nodules
Traumatic

- Laryngeal
  - intubation - shortly after removal of the tube, dysphonia, coughing and haemoptysis occur
  Follows repeated or incorrect intubation, IPPV, oversized ET tube, glottic cuff
  - 2 to 8 weeks later, usually from intubation granulomata
Intubation granulomata
Traumatic

- Laryngeal

  - external trauma - blunt or penetrating injuries cause haematoma, oedema and arytenoid dislocation.

  Found in MVA’s, contact sport, assault
Traumatic

- Laryngeal
  - inhalational - steam, industrial fumes, smoke and tobacco.
  - foreign bodies - impact in the larynx, causing oedema

Cause oedema
Traumatic

- Recurrent laryngeal nerve
  - unilateral - breathy voice due to air loss. Improves later as other cord compensates
  - bilateral - initially airway problem and may result in aphonia. Usually aspiration and dyspnoea on exertion
Traumatic

• Recurrent laryngeal nerve - causes
  - Surgery
  - Blunt or sharp trauma
  - Ca bronchus / oesophagus
  - Pulmonary TB
  - Aortic arch aneurysm
Inflammatory

- Acute laryngitis
dysphonia . . . aphonia
- associated pain and cough
- viral or bacterial (or allergy)
- cords red and swollen
Inflammatory

• Chronic laryngitis
  - deepening / roughening of voice
  - irritants - cigarette smoke
    - air pollution
    - allergens
  - cords red and thickened
Reflux
Neoplastic - benign

• Vocal cord polyps
  - voice normal if polyp pedicled
  - polyp arises on the free edge of the cord following inflammation & abuse in men (30 to 50)
Vocal cord polyp
Neoplastic - benign

- Reinke’s oedema
  - gelatinous oedema in Reinke’s space
  - vocal overuse and smoking

- Papillomata
  - similar to viral wart
  - often recurrent and widespread

- Mucus retention cysts
Papillomata
N.B. hoarseness which persists for more than 2-3 weeks should always be "referred" to exclude malignancy.
Dysphonia 2

“Functional”
Functional dysphonia

More accurately:

non-mechanical disorders
Functional dysphonia

- Neurological / neurogenic
- Myogenic
- Articulation
- “Functional” / psychogenic
Neurological / neurogenic

- Cortical and subcortical disorders as well as lesions of:
  - Vagus (X)
  - Glossopharyngeal (IX)
  - Hypoglossal (XII)

- Abnormalities of vocal cord movement

- Cords take up different position during function
Psychogenic

• “hypercontraction” of the laryngeal musculature is a response to stress
Psychogenic

• depending upon which muscle or muscle group predominates, the glottis assumes different phonatory positions
Management

- extremely difficult
- much “secondary gain” for the sufferer
- resistance to being cured
Management

• N.B. there are so many organic causes of dysphonia that the psychogenic diagnosis must be one of exclusion
Management

- Once the diagnosis has been made, treatment is a team effort:
  - otolaryngologist
  - speech therapist
  - psychologist / psychiatrist
Management

- The most important, initially, is the speech therapist who will teach:
  - correct use (avoidance of vocal abuse)
  - vocal “hygiene”
  - relaxation and stress reduction
Neoplastic - malignant

- Leucoplakia
- Dysplasia
- Ca-in-situ

early and premalignant conditions that often present as dysphonia
Neoplastic - malignant

- Laryngeal squamous carcinoma
  - 45% Ca of head and neck
  - “hoarseness” first symptom if glottis affected, early symptom in other regions
  - heavy smokers (and drinkers)
Squamous Ca of larynx
Neoplastic - malignant

• Unusual forms of Ca
  - verrucous
  - adeno-
  - fibrosarc-
  - chondrosarc-

rare but must be considered