

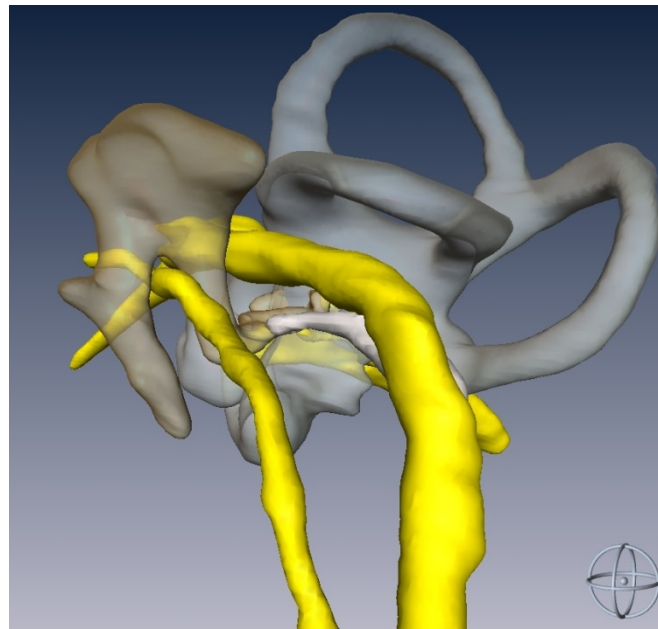
# Facial Nerve Dysfunction and Chronic Otitis

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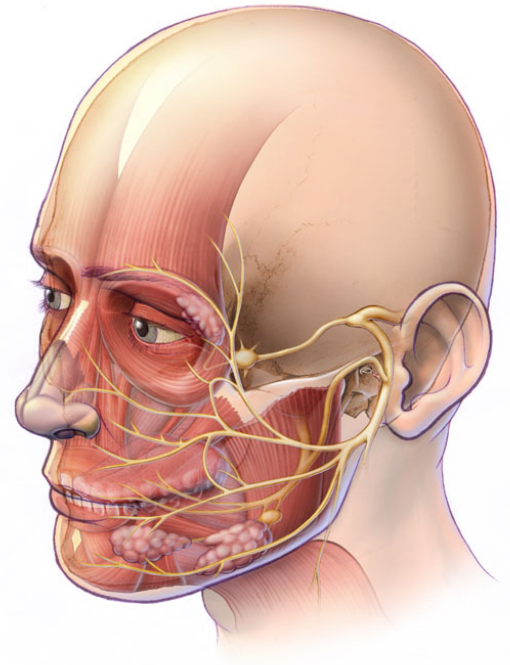
- Review facial nerve anatomy
- Appreciate causes of infra-nuclear dysfunction
- Appreciate how Otolaryngology can assist
- Review complicated otitis

## Objectives

## Segments

- Supra-nuclear
- Nuclear/Pontine
  1. Motor nucleus
  2. Trigeminal nucleus
  3. Superior salivatory nucleus
  4. Tractus solitarius
- Infra-nuclear
  - CPA
  - Fallopiian
  - Extra-osseous/Extra-temporal

## Anatomy



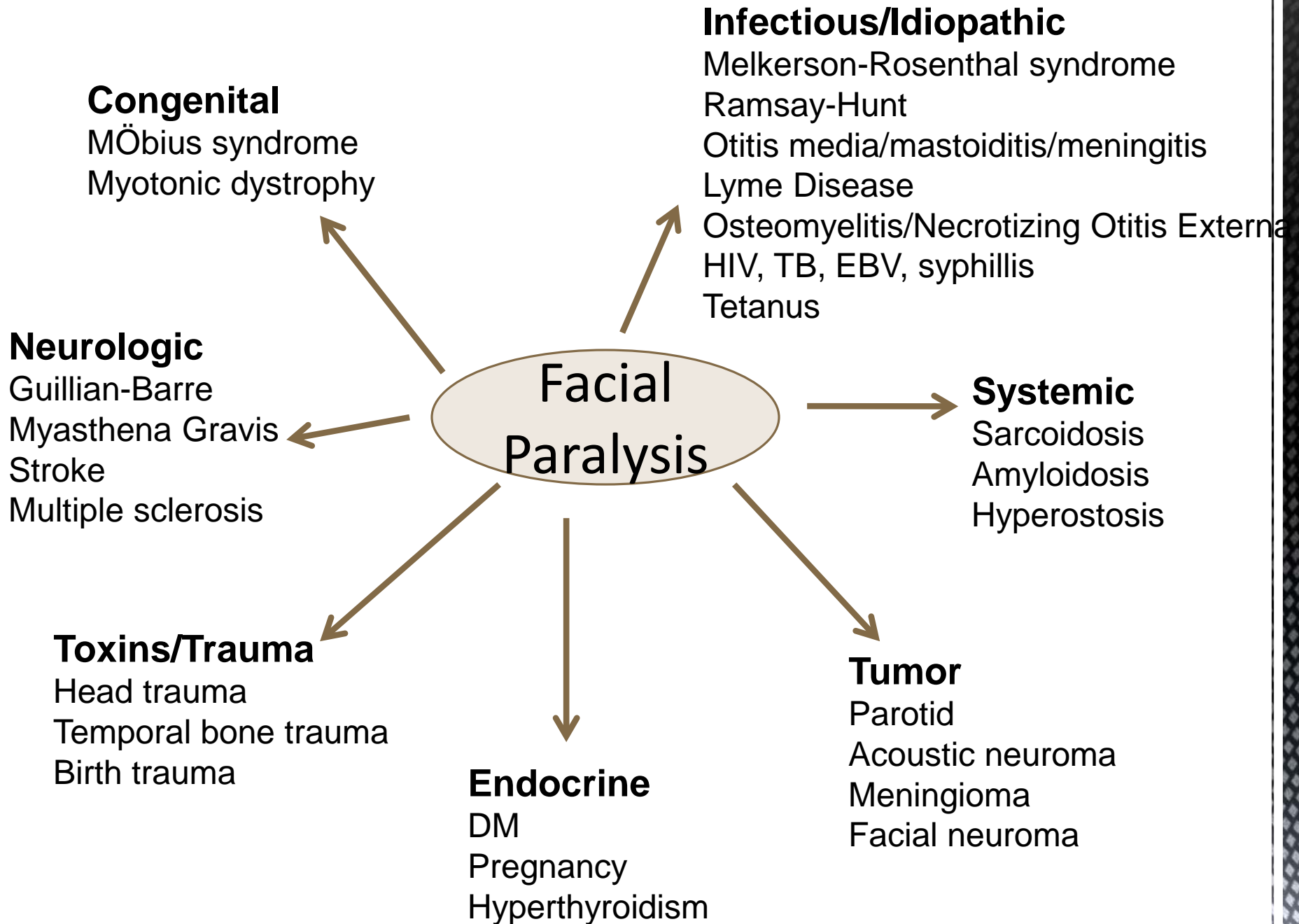
## History

- Sudden vs. Gradual
- Duration
- Recurrent
- Associated symptoms
- Medical History
- Previous Surgeries

## Approach

## Exam

- Complete / Incomplete
- Segmental / Uniform involvement
- Neurologic Evaluation
- Otologic Exam
- Parotid Exam



# House Brackmann Classification

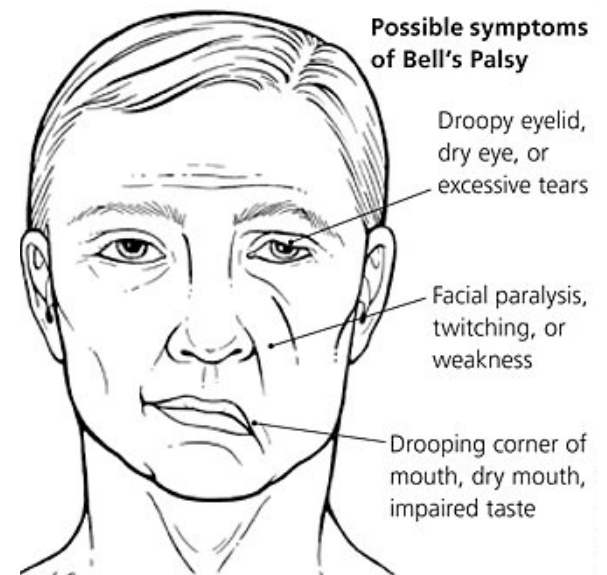
<b>Grade</b>	<b>Description</b>
1	Normal Function
2	Mild dysfunction, Complete eye closure, Normal at rest
3	Moderate dysfunction, Complete eye closure, Asymmetry at rest
4	Moderate dysfunction, Incomplete eye closure, Obvious asymmetry
5	Severe dysfunction, Only a twitch of motor movement
6	Total paralysis

- Complete
- Extreme of Age
- Specific Etiologies
  - Ramsay Hunt syndrome
  - Vestibular Schwannoma
  - Osteomyelitis
- Associated Conditions
  - Immunocompromise
- Degeneration on electrophysiologic testing

Poor Prognostic  
Features

- Exposure keratitis
- Synkinesis
- Contractures
- Crocodile tears
- Psychological & social problems
  - Depression
  - Flat affect

## Morbidity





Loss of blink (5-7sec)

- Cleansing
- Tear Dispersement
- Corneal reflex

Resting

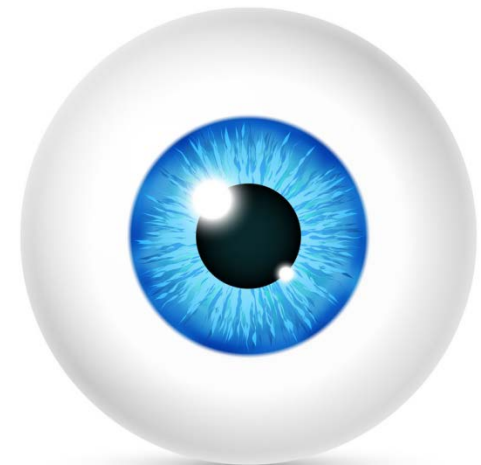
- Tape / No patch
- Moisture chamber
- Moisturizer/Lacri-Lube

Artificial Tears q1h

Sunglasses when outside

Assessment with pain or chemosis

Protect the Eye



- 2/10,000 per annum
- Common in pregnancy
- Any Age - Less at Extremes
- 6% of cases are recurrent
- HSV infection
  - Endoneurial fluid 11/14 patients at decompression
- Possible polyneuropathy

## Idiopathic Facial Nerve Paresis



## Site of Lesion

- Meatal foramen (0.68mm)

## Recovery

### Paralyzed

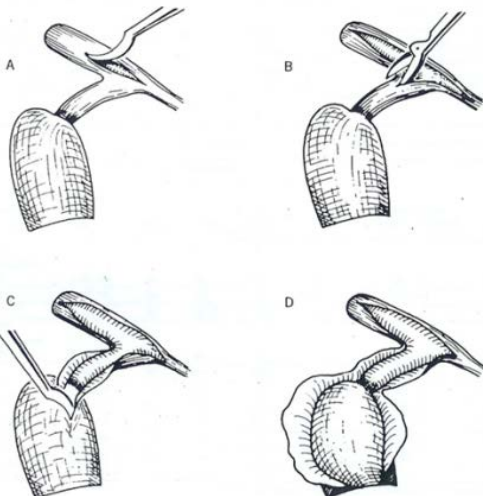
85% HB grade I/II

15% HB grade III-IV

### Paretic

95% HB grade I

# Idiopathic Facial Nerve Paresis



## Blunt Trauma

- Perigeniculate region
- Associated symptoms
  - Otologic / Vestibular
- Incomplete – Medical
- Complete & Delayed - Medical
- Immediate & Complete – Surgery
  - 270 ° decompression
  - Incise nerve sheath

Traumatic Injury

## Iatrogenic Trauma

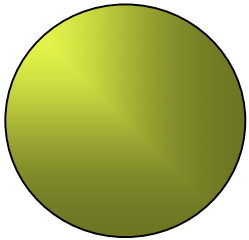
- Mastoid Surgery
- Lateral Skullbase
- Parotid Surgery
- Cosmetic Surgery

## Management

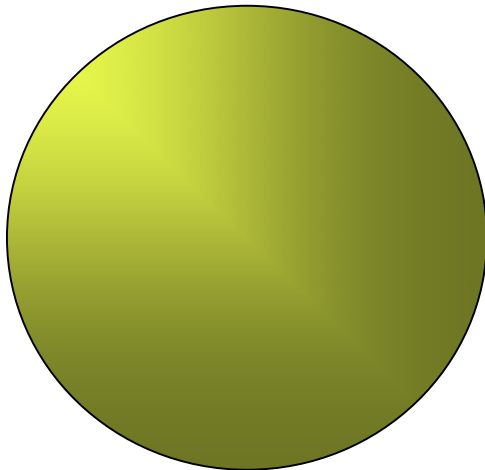
- Incomplete – Medical
- Complete & Immediate
  - Identify site of injury
  - Decompress / Primary / Graft

## Traumatic Injury

1 cm = 0.5 cc



2 cm = 4.2 cc



Skull Base Tumors

Distortion with  
Tumor Growth

- 15% of acute facial palsy
- Vesicular lesions
- Reactivation of latent herpes
- Associated symptoms
  - Polyneuropathy (V, VIII, IX & X)
  - Immunocompromise
- Facial palsy is severe
  - 50% recover to HB II
- Management
  - Eye care
  - Steroids / Antiviral medication
  - Pain management

## Herpes Zoster Oticus (Ramsay Hunt Syndrome)

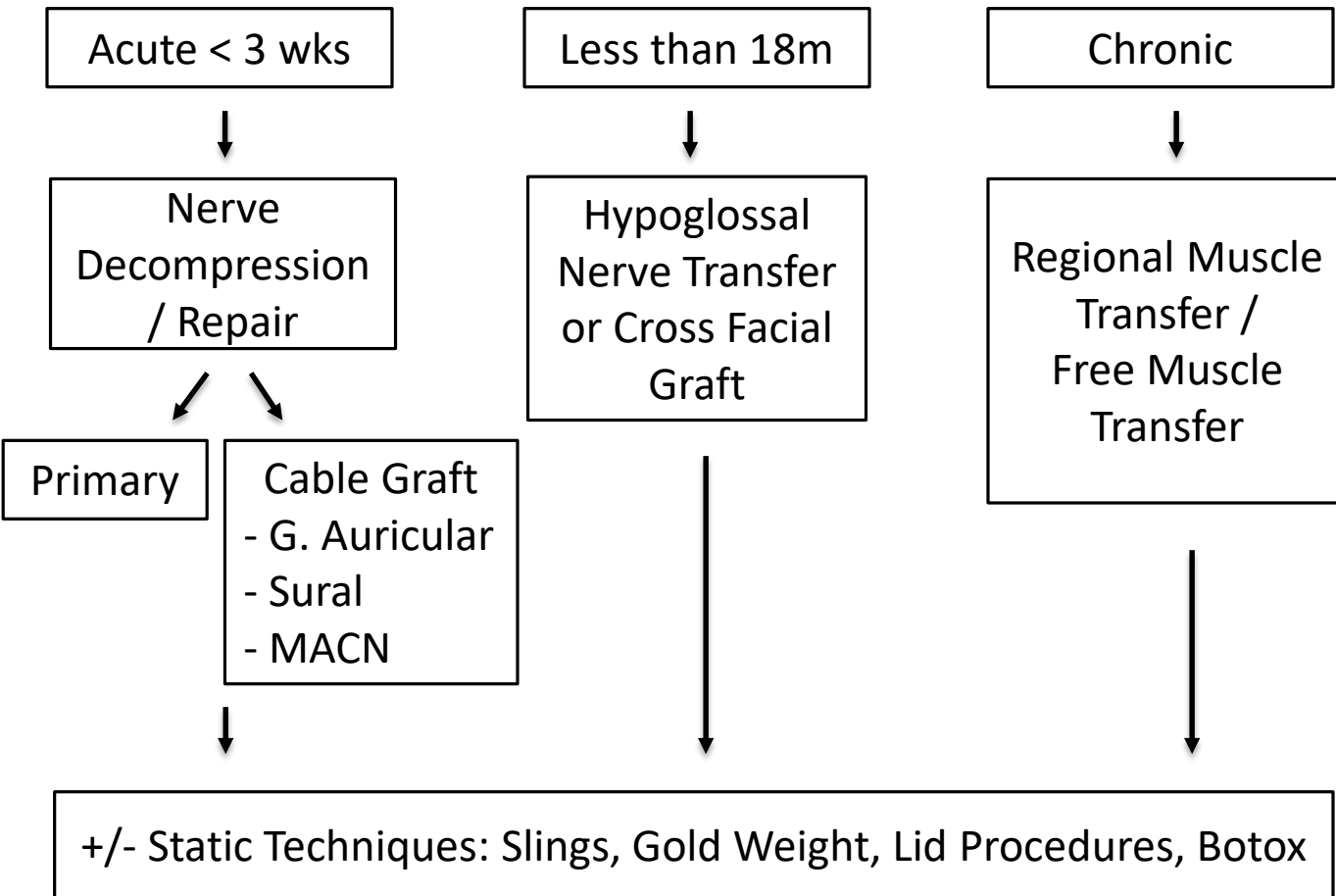
- Tick borne spirochete
- Reservoir
  - White tailed deer & white footed mouse
- 10% with facial nerve paralysis
  - Classically 2<sup>nd</sup> or 3<sup>rd</sup> stage
- 90% resolve by 12 months

## Lyme Disease/Borrelia Burgdorferi

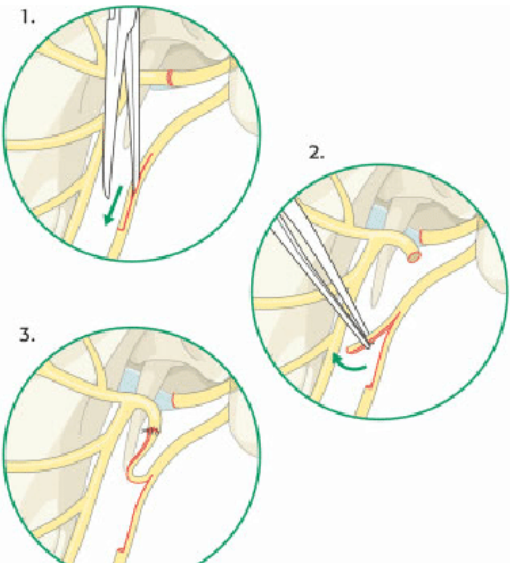
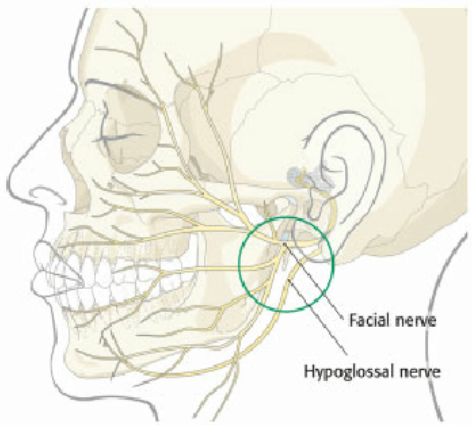




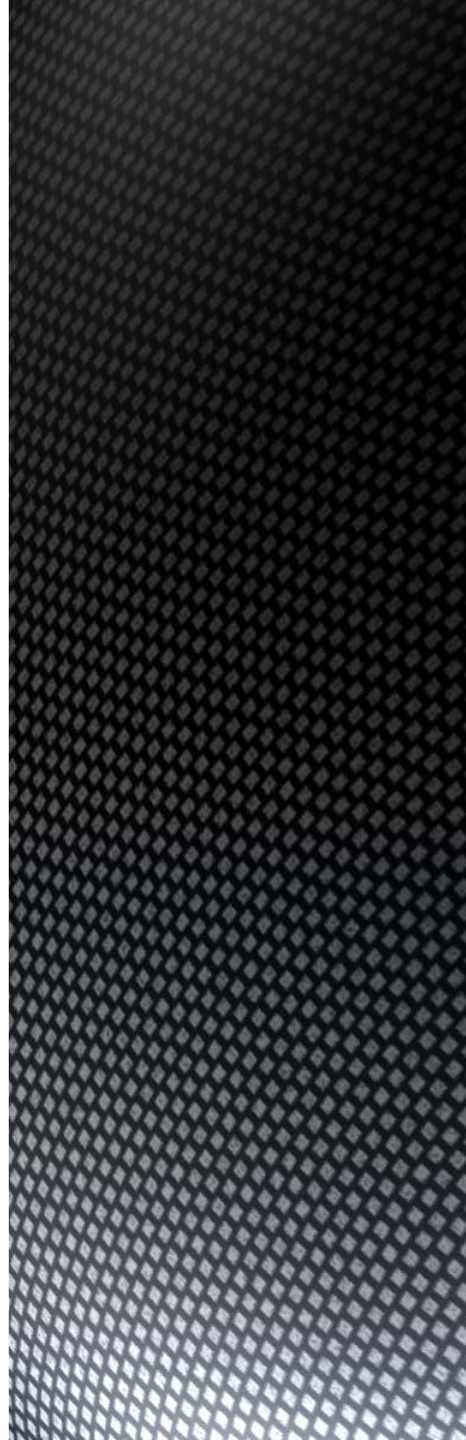
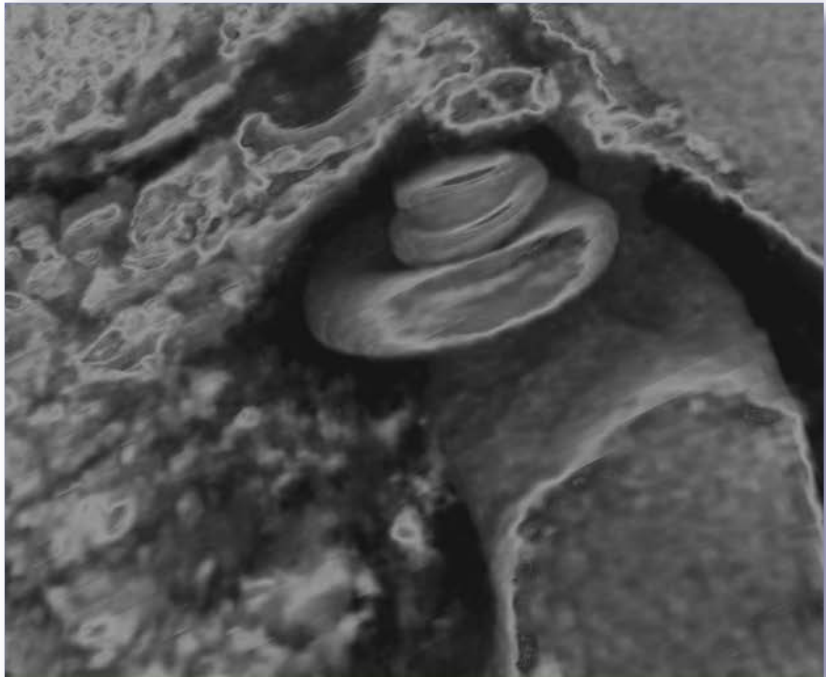
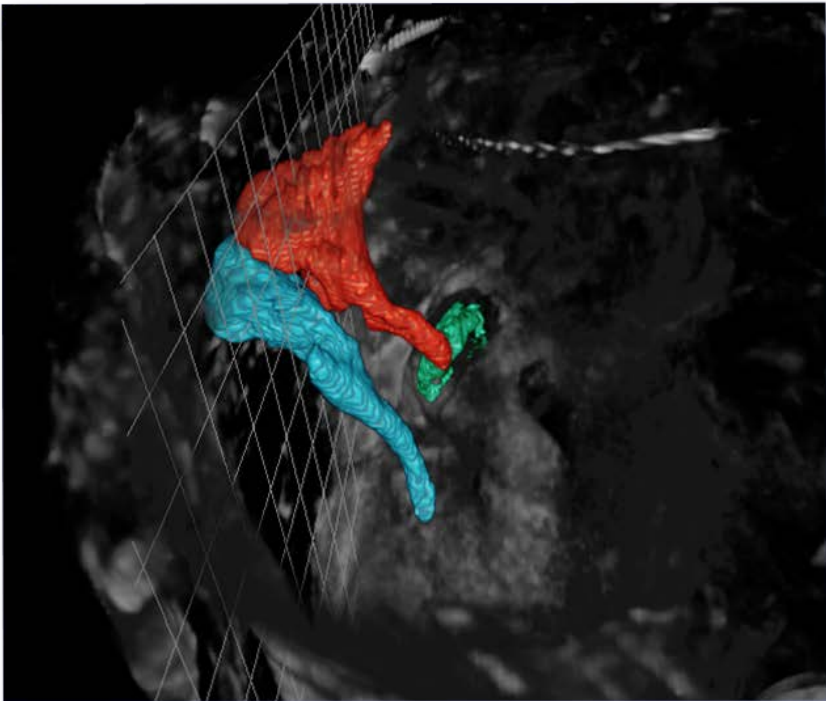
# Facial Reanimation



# Facial Reanimation



# Chronic Otitis



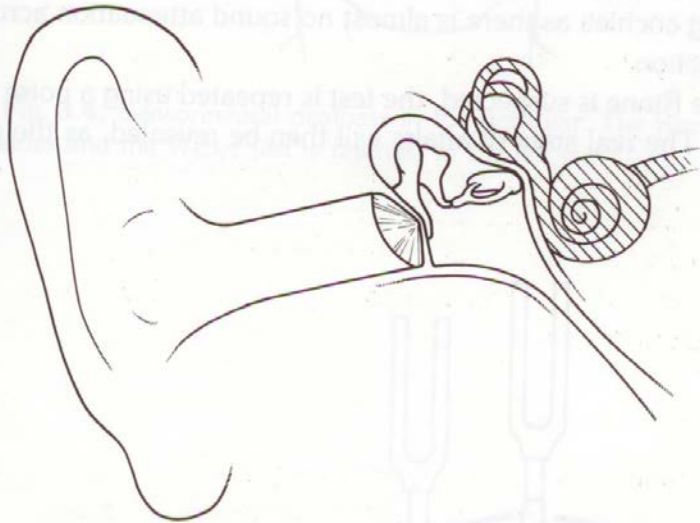
3% of the population is hearing impaired

- 10% of people over 50 years
- 1,000,000 Canadians with a hearing related disability
- Lost GDP in the billions

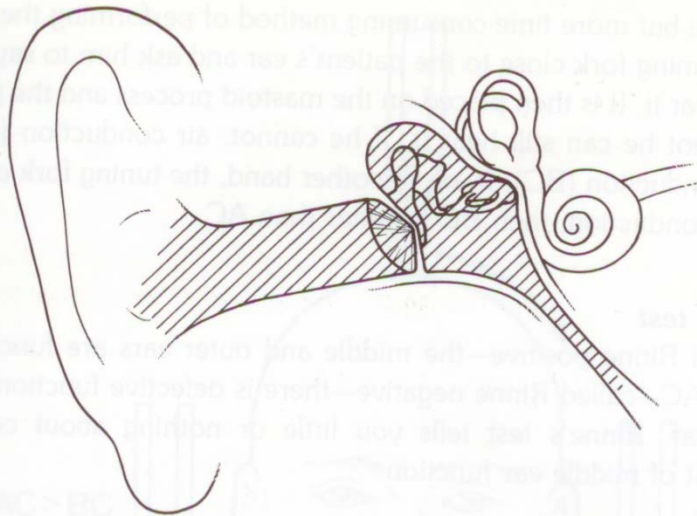
Epidemiology



# Sensorineural HL



# Conductive HL



Types of Hearing Loss

## Physiologic functions of the ET

- Ventilation or pressure regulation of the middle ear
- Protection of the middle ear from sound pressures
- Clearance of middle ear secretions

## Eustachian Tube Dysfunction



Inflammatory

Physiologic

Traumatic

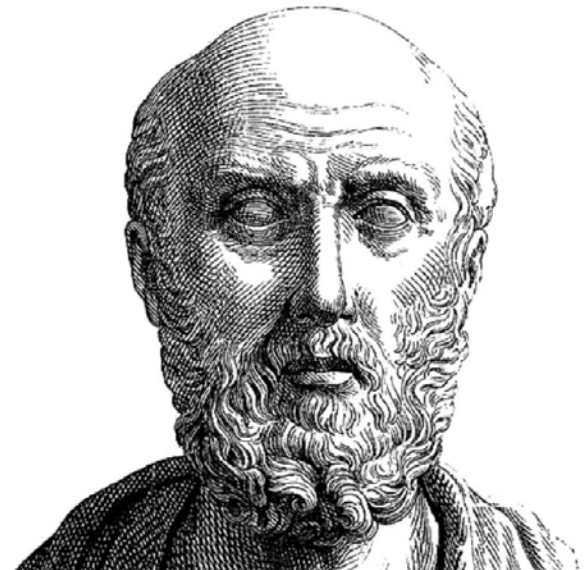
Infectious

“Acute pain in the ear with continued fever is to be dreaded”

Prior to antibiotics

- $\frac{1}{4}$  of patients with acute otitis media developed osteomyelitis, abscess or thrombophlebitis

Chronic Otitis



## Intra Temporal

(1/3 with synchronous complications)

- Mastoiditis
- Facial Nerve Injury
- Labyrinthitis +/- ossification  
(Serous or Suppurative)
- Gradenigo's Syndrome  
(otorrhea, abducens and trigeminal involvement)

Complications of  
Otitis



## Extra Temporal Intracranial

- Meningitis
- Brain abscess  
(parenchyma, epidural)
- Sinus thrombosis
- Otic Hydrocephalus

## Extra Temporal Extracranial

- Abscess

## Complications of Otitis

# Topical Antimicrobials

# Sudden Hearing Loss