Tympanosclerosis
Definition

- **Tympanosclerosis (TS):** calcification and hardening of tissue in the eardrum and middle ear

- Unclear etiology but cause may include:
  - Long-term otitis media
  - Atherosclerosis
  - Insertion of tympanostomy tube
Epidemiology

• 5% among pediatric otolaryngology clinic visits
• In 23%-40% of children who had **glue ear** (a fluid filled middle ear) or prior **tympanostomy tubes**.
• Recent increase in incidence could be due to increased awareness and detection
Classification

- **Myringosclerosis**
  calcification only within the tympanic membrane
  usually less extensive than tympanosclerosis

- **Intratympanic tympanosclerosis**
  when occurring at other location within the middle ear
  including the ossicular chain, middle ear mucosa or
  the mastoid cavity
Signs and Symptoms

- **Myringosclerosis:**
  Generally asymptomatic without hearing loss

- **Tympanosclerosis:**
  Can result in significant hearing loss. However, hearing loss can often be completely reversed or improve with treatment
Common History Findings

- Patients with prior myringotomy and tube placement are at increased risk of TS or MS
- Prolonged otitis media also increases risk for TS
Tympanosclerosis appears as a **chalky white** material within the eardrum substance. Dense sclerosis causes eardrum thickening and may involve the ossicles with impairment of hearing. (play video to see otoscopy findings)
Tympanosclerosis

Note the characteristic chalky white calcification of the tympanic membranes shown above.

http://me.hawkelibrary.com/new/main.php?g2_itemId=1744
Tympanosclerosis (Video)

*Otoscopy Appearance*: Examination of right ear shows a severely retracted ear drum with patches of white indicating the sclerotic areas of tympanosclerosis. The red arrow indicates the superior orientation.
Myringosclerosis

Otoscopic view of perforation of the tympanic membrane (white arrow) and myringosclerosis (yellow arrow).

https://www.youtube.com/watch?v=Gc6qAs8A6Tg
Diagnosis

General

• Clinical Diagnosis with Otoscopy exam
  • White calcified patches on tympanic membrane **Cholesteatoma** can have similar appearance but the white patches are behind the tympanic membrane

• Audiometry
  If hearing loss is suspected
  Conductive hearing loss may indicate tympanosclerosis

• Tympanometry
Diagnosis

Imaging

• Usually not indicated

• Indicated if sclerosis is causing extensive damage to hearing.
Treatment

• Tympanosclerosis usually does not require any treatment as it does not cause significant hearing loss up to ten years after the initial disease onset

• If significant hearing loss is present, hearing aids may be beneficial

• Surgical restoration via tympanoplasty can be considered if hearing loss is significant