

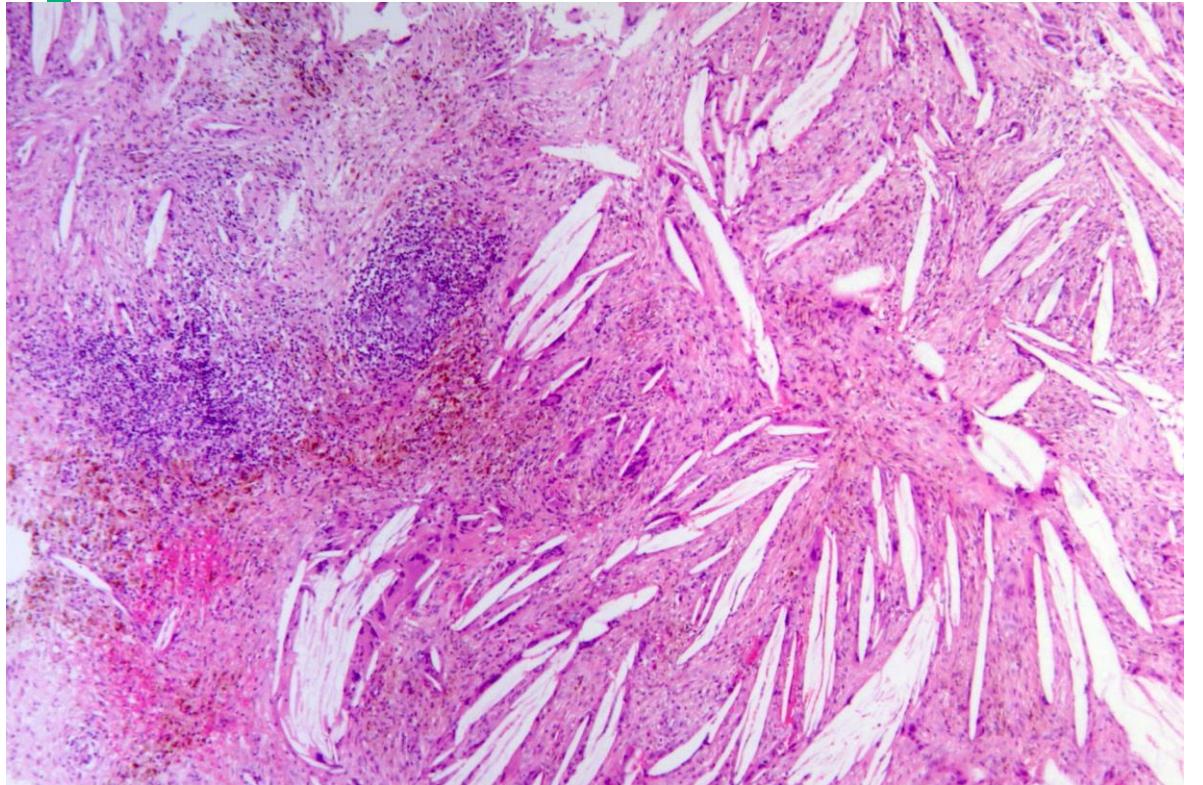


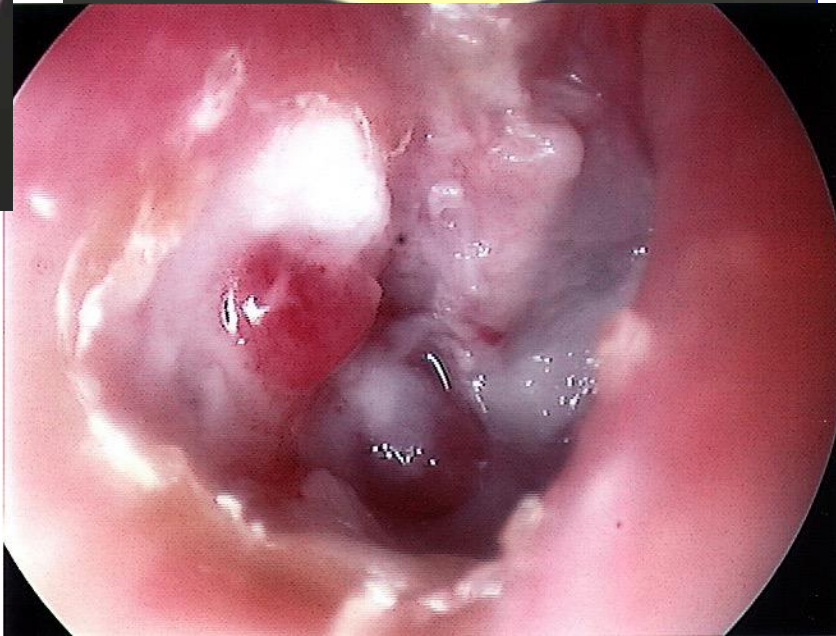
# Evolution of Treatment of Cholesteatoma

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Head of Otolaryngology, Neurotology and Skull Base Surgery

## Background

- 1683, Duverney first described a temporal bone tumor probably corresponding to a cholesteatoma
- Keratoma
- Matrix with squamous debris

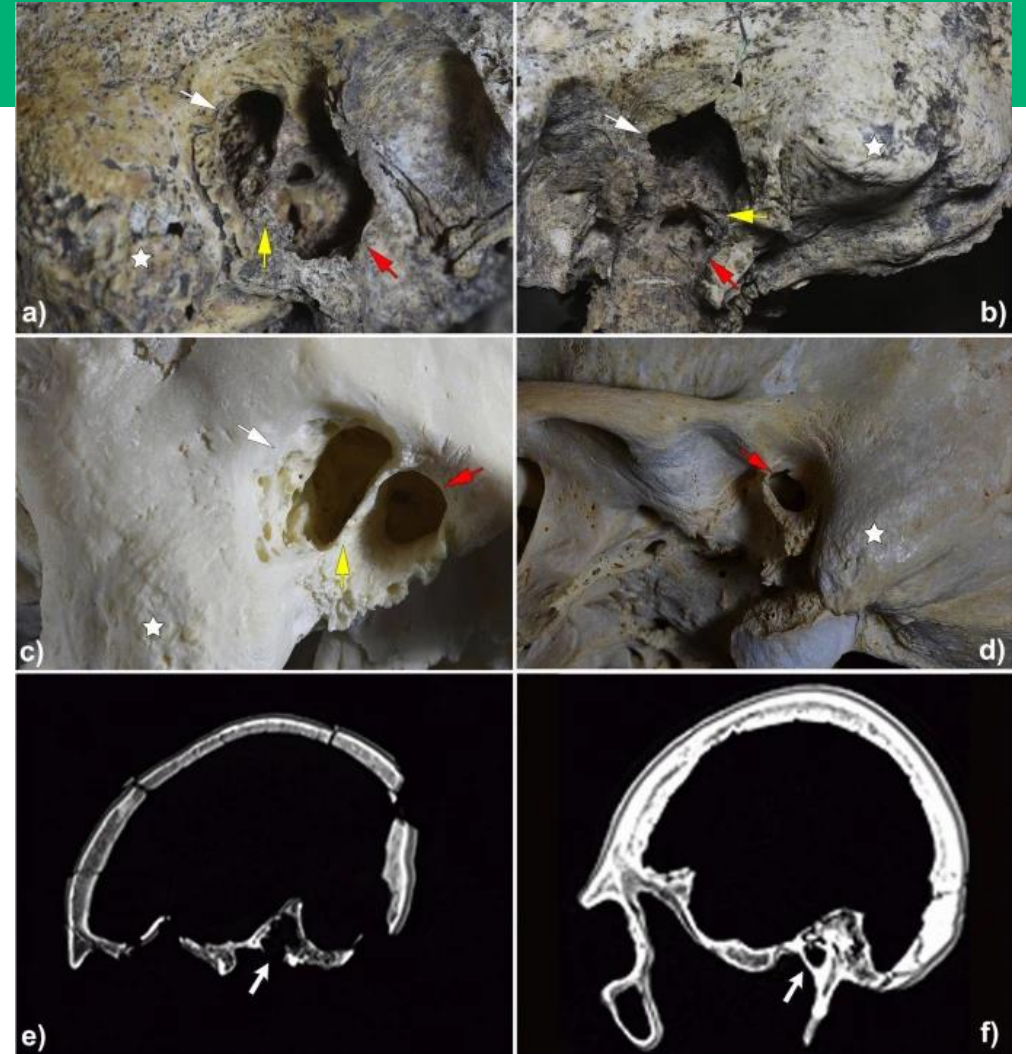






# Neolithic Times (4000-5000BC)

- 1<sup>st</sup> Evidence of Mastoid Surgery
- Partially Healed gouge marks



# Middle Ages/Renaissance

- Drainage of Infection
- Beginnings of Anatomic Knowledge
- First Descriptions of Cholesteatoma

Lucas van Leyden, 1494–1533; The Surgeon, 1524.





# Eighteenth Century

## Mastoidotomy

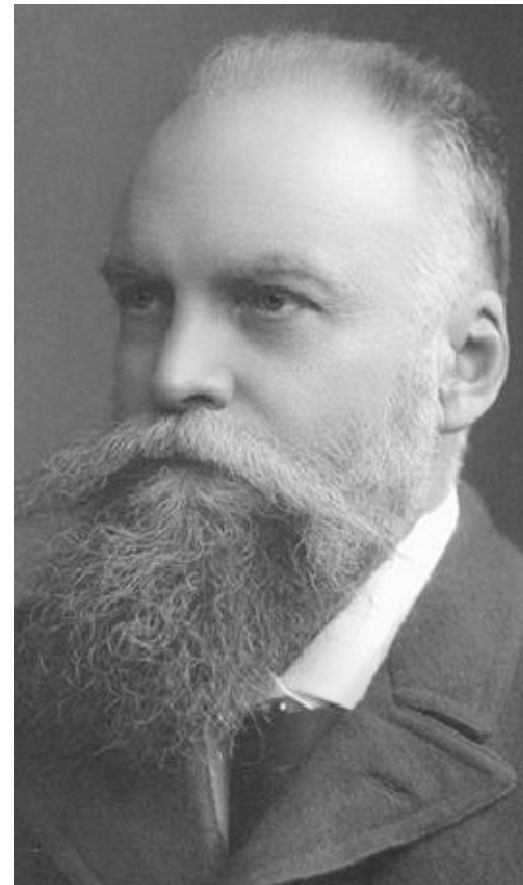
- Jean Louis Petit (1674–1750)
- French Surgeon
- 1<sup>st</sup> Formal Description of Opening the Mastoid
- Emergence of otology as a distinct medical specialty
- Evolution of surgical tools and techniques



# Nineteenth Century

## Chisels and Gouges

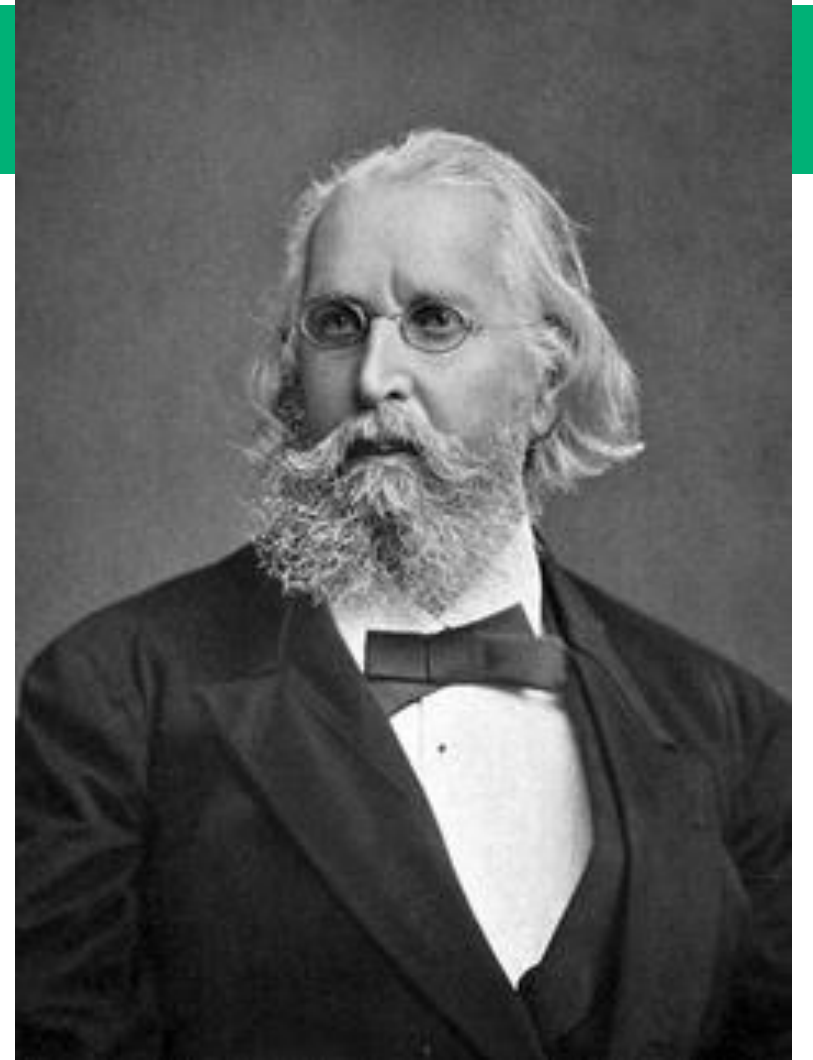
- Improvements in Standard Techniques
- Herman Schwartze
  - First Description of mastoidectomy to treat cholesteatoma 1873
  - Recommended Hammer and Chisel to drain antrum
  - Would create post-auricular fistula



# Nineteenth Century

## Anton Baron von Troelsch

- 1861 Cured a 16 yo with cholesteatoma
- was the first to explain the possible epidermal origin of the disease
- Müller coined the term cholesteatoma

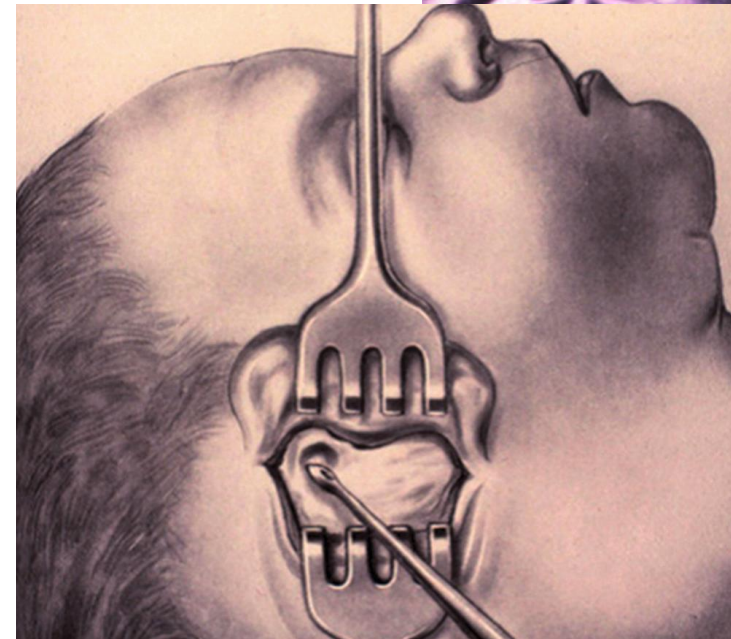
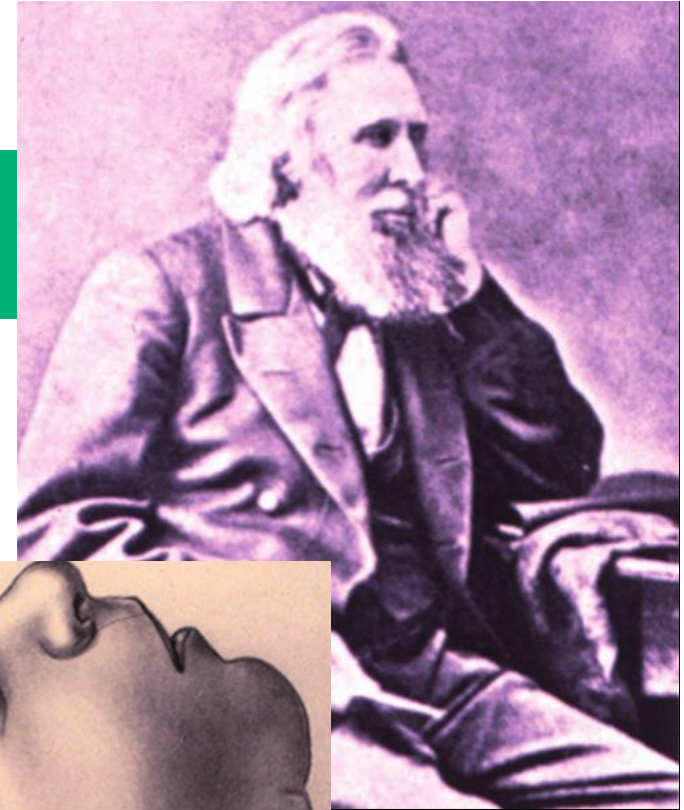




# Nineteenth Century

William Wilde, MD (1851-1876)

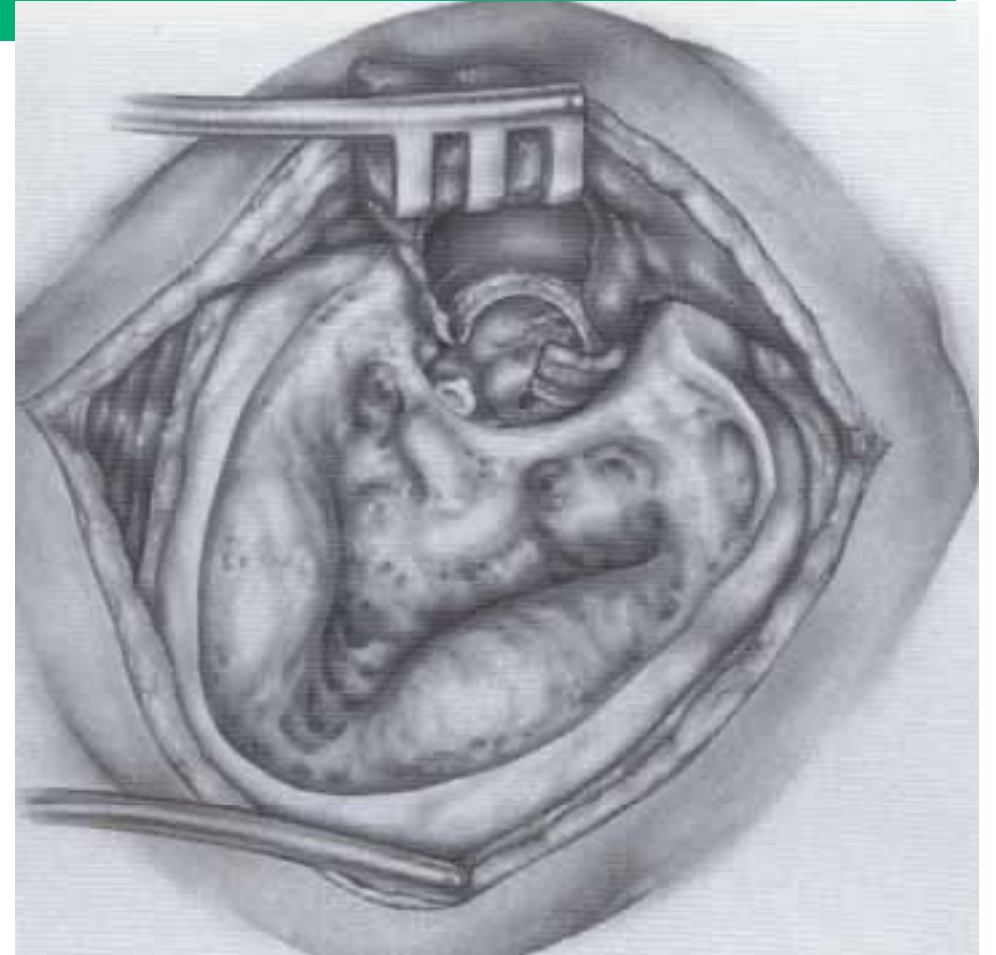
- Described Post-auricular incision
- Funded a small hospital to treat chronic ear disease and complications
- Established Link between Otitis Media and Meningitis



# Nineteenth Century

## Radical Mastoidectomy 1888

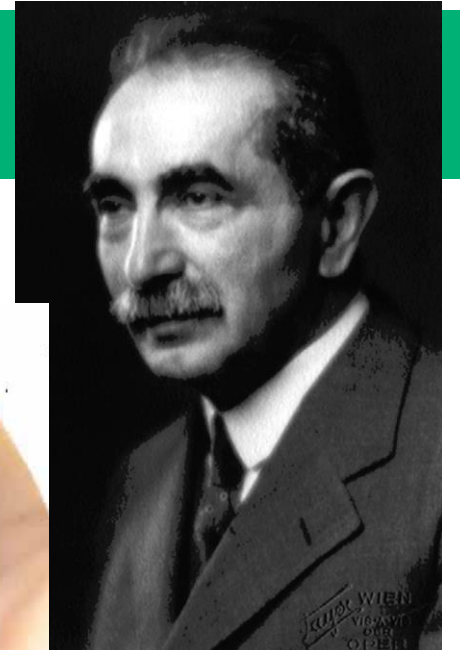
- Ernst Kuster and Ernst von Bergmann
- "the tympanic cavity was filled with granulations and the membrane as well as the ossicles were partially or totally destroyed, I try to go deeper. Then, guided by my eye, I could remove all the disease with the aid of a sharp spoon "
- High Rate of Facial Nerve Paralysis



# 20<sup>th</sup> Century

## Bondy Mastoidectomy 1910

- Gustave Bondy (1870–1954), Austrian surgeon (University of Vienna),
- Popularized the modified radical mastoidectomy in which some or all of the middle ear structures were preserved in order to attempt to preserve hearing.
- Developed his criteria based on the evaluation of postoperative results assessed by his associate Erich Ruttin, who performed 1000 radical mastoidectomies in 1910
- Preserved middle ear structures





# 20<sup>th</sup> Century

## Period of Otologic Innovation

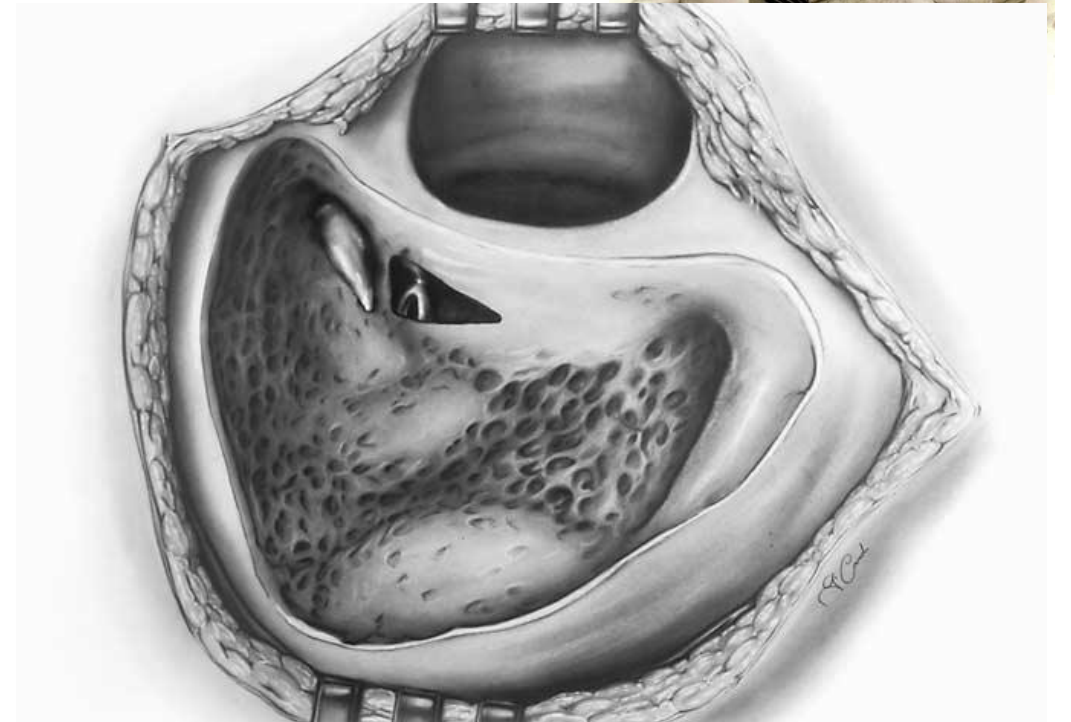
- Operating Microscope
  - Horst Ludwig Wullstein (1906–1987)
- Surgical Drill
  - Howard House (1908 –2003)
- Diagnostic Imaging
- Facial Nerve Monitoring
- Antimicrobial Therapy



# 20<sup>th</sup> Century

## Intact Canal Wall

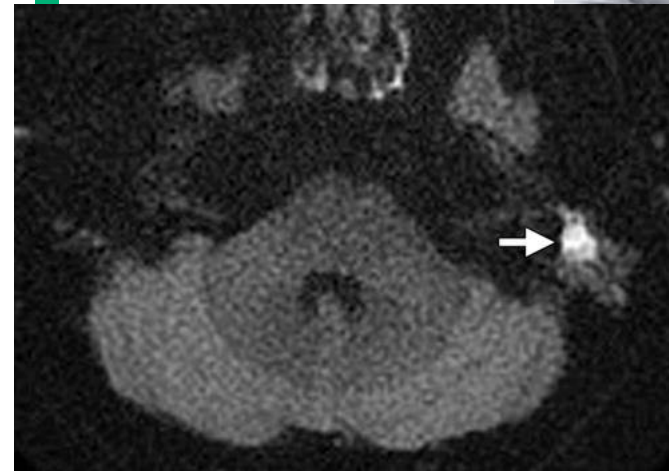
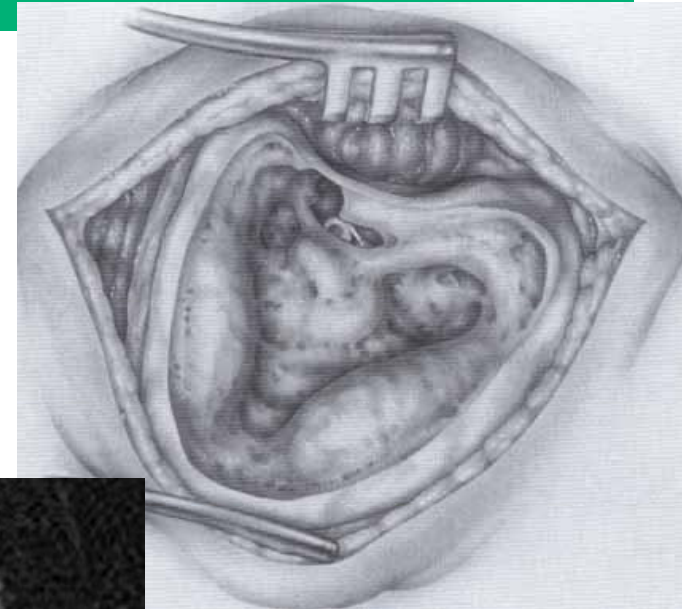
- Posterior tympanotomy (facial recess)
  - Access to ME from mastoid
  - Allowed for ossicular reconstruction
- Led to the modern tympano-mastoidectomy
- Second half of century showed refinements in surgical technique



# 21st Century

## Reduced Number of Radical Mastoidectomies

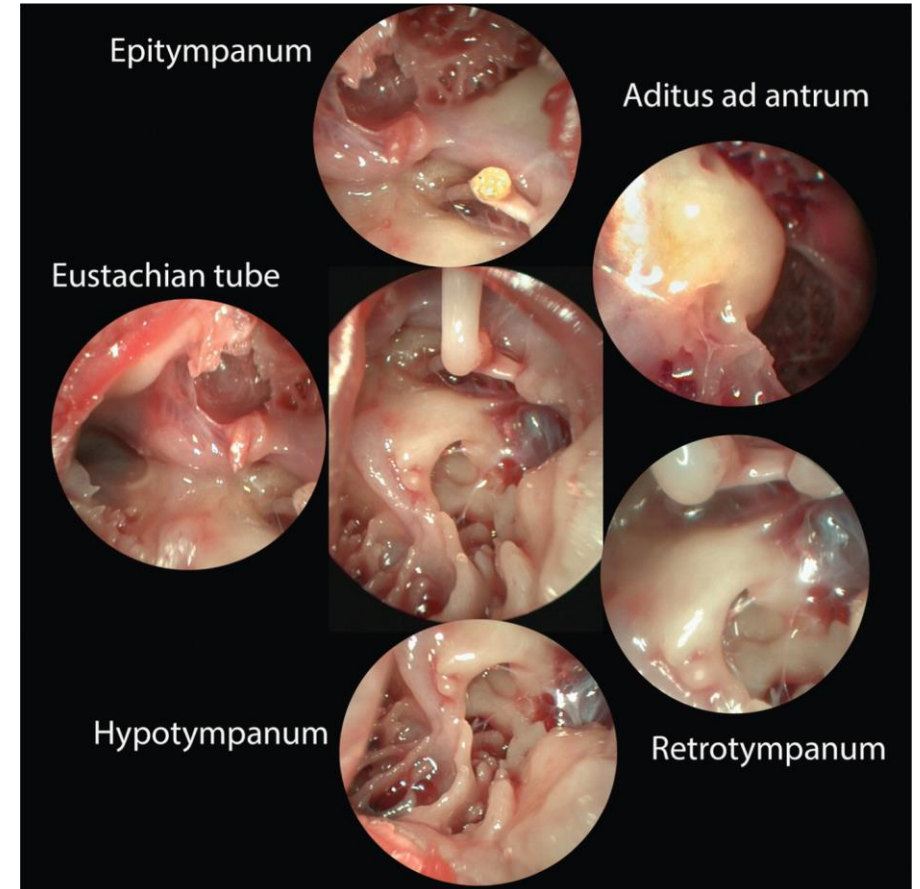
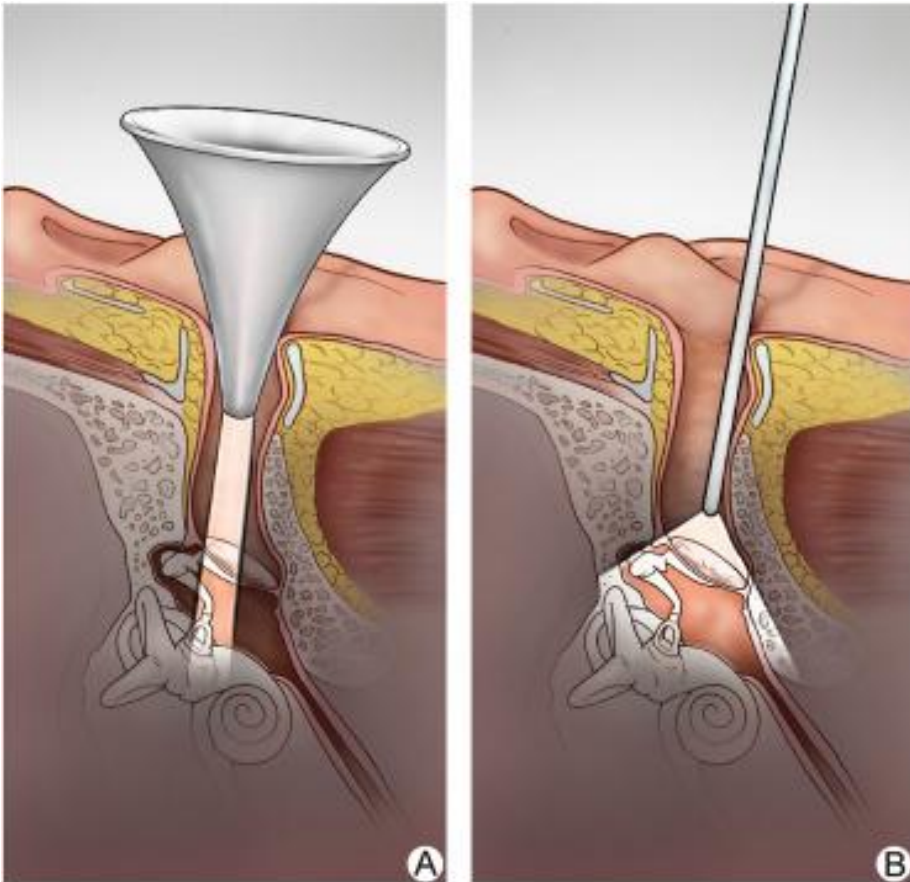
- Ear Canal Reconstruction
  - Cartilage
  - Bone
- Intact Wall Mastoid Obliteration
  - Reduced recurrence
- MRI Monitoring
  - Diffusion Weighted Imaging





# 21<sup>st</sup> Century

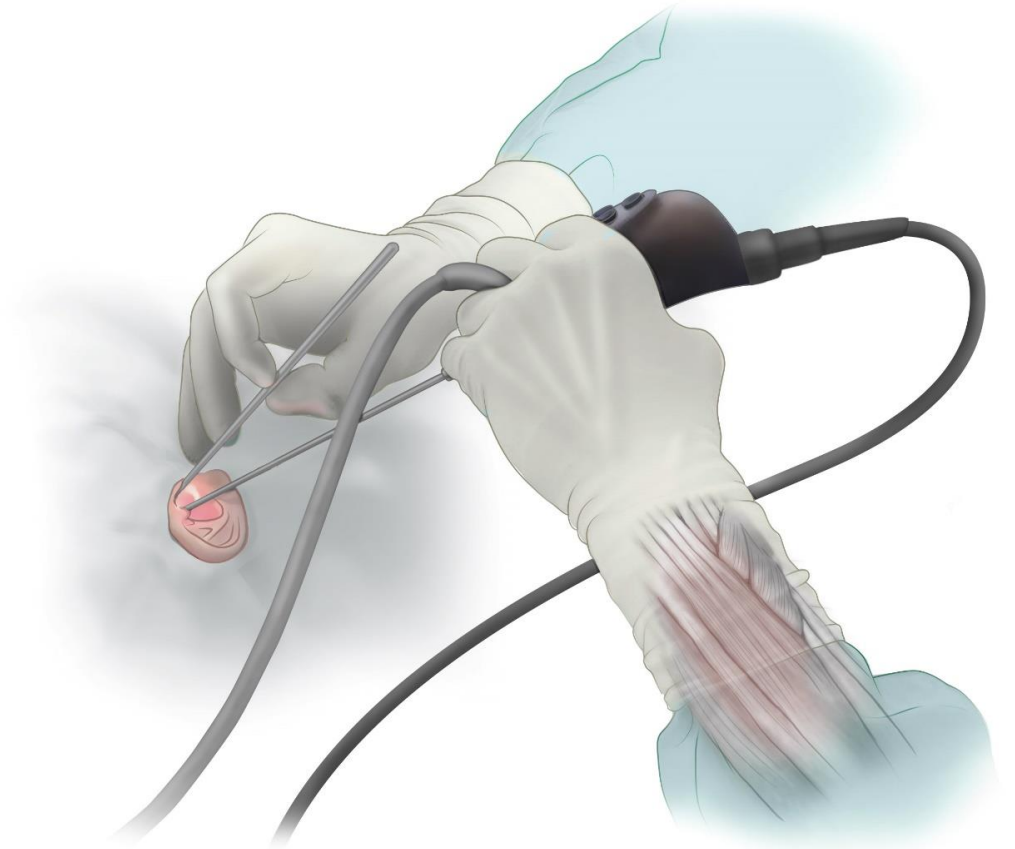
## Endoscopic Ear Surgery



# 21<sup>st</sup> Century

## Endoscopic Ear Surgery

- Pros:
  - Clear Picture
  - Less Invasive
  - Better Visualization Around Corners
  - Reduced Post-op Pain
  - Less pain
- Cons:
  - Difficult Ergonomics
  - 'Single-Handed' Surgery





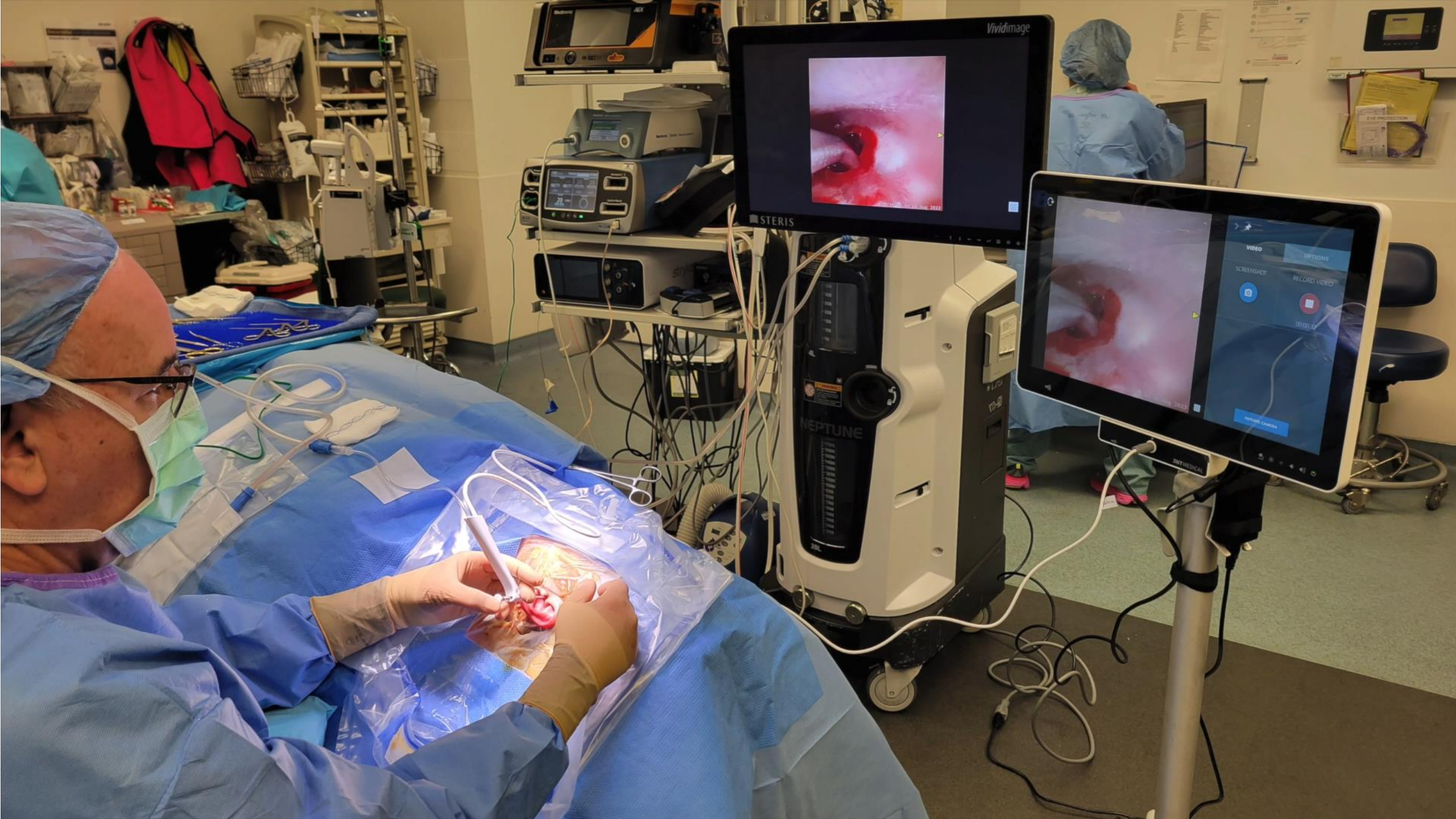
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## New Endoscopic Devices

- Distal Chip
- 2.2mm
- Integrated and movable suction



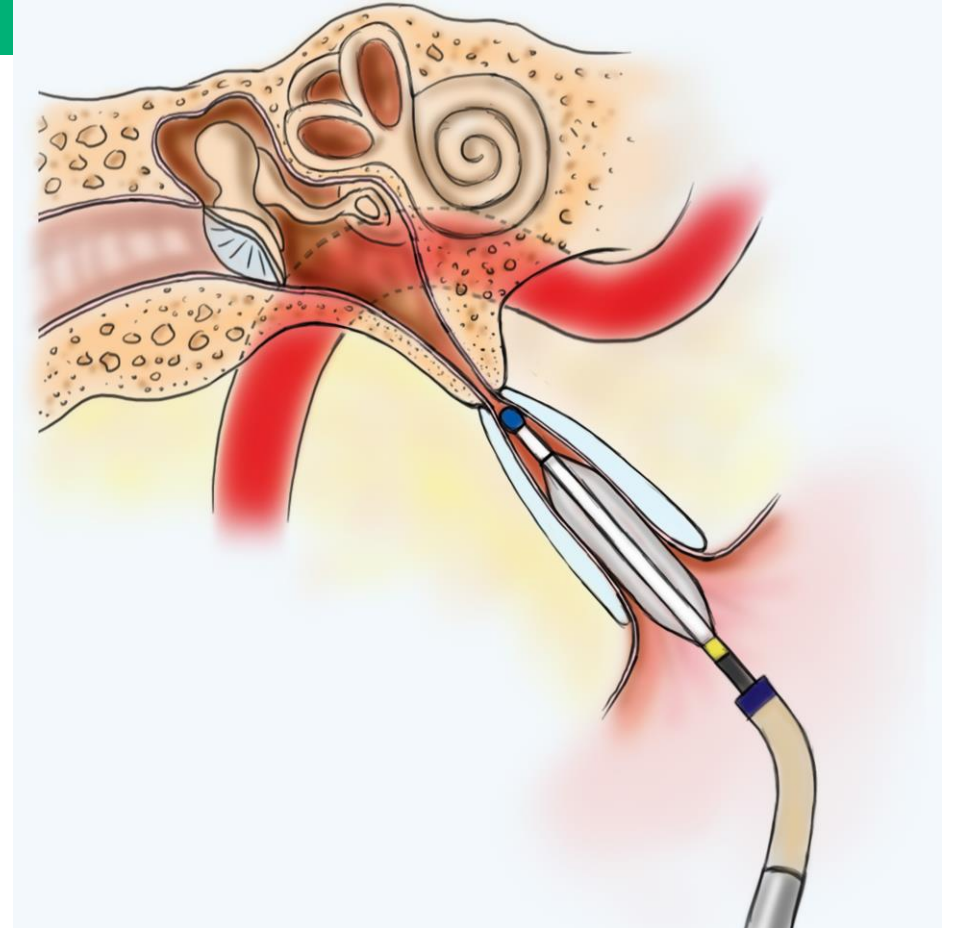




# 21<sup>st</sup> Century

## Surgery combined with ET Dilation

- Appropriate Cases
- Atelectatic Drum
- Retraction Cholesteatoma





# 21st Century

## Scarless Cholesteatoma Resection

- Transcanal Endoscopic Reconstruction
- Antrotomy with Tragal Cartilage Graft Reconstruction
- Simultaneous Eustachian Tube Dilation
- Post-auricular Mastoidectomy Limited to Extensive Disease



Thanks

