



Iatrogenic Cholesteatoma of the Squamous Portion of the Temporal Bone After Tympanoplasty

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Introduction:

Cholesteatoma is a congenital or acquired destructive lesion of the temporal bone. Cholesteatomas consist of squamous epithelium trapped within the skull base that slowly grow and erode surrounding structures[1]. The annual incidence of cholesteatoma is reported as 3 per 100,000 in children and 9.2 per 100,000 in adults with a male predominance of 1.4:1. [2] The incidence of iatrogenic cholesteatoma is unknown due to the difficulty in distinguishing this from new or recurrent disease. Most iatrogenic cholesteatomas form in the middle ear space. Cholesteatoma of the lateral temporal bone and squamous temporal bone are exceptionally rare [3]

Case Description:

- 16-year-old male with history of tympanoplasty by an outside surgeon six years prior with postauricular hypertrophic scarring presenting with fluctuant swelling and erythema posterosuperior to the left mastoid.
- Underwent incision and drainage of a presumed abscess but had persistent drainage of caseous debris days after the procedure.
- Normal audiogram.



Image 1: Presentation of cholesteatoma in ED

Imaging:

- Computed tomography of the temporal bones obtained after persistence of drainage demonstrated an expansile soft tissue lesion with bony erosion of the skull base and lateral temporal bone consistent with iatrogenic cholesteatoma of the squamous portion of the temporal bone.

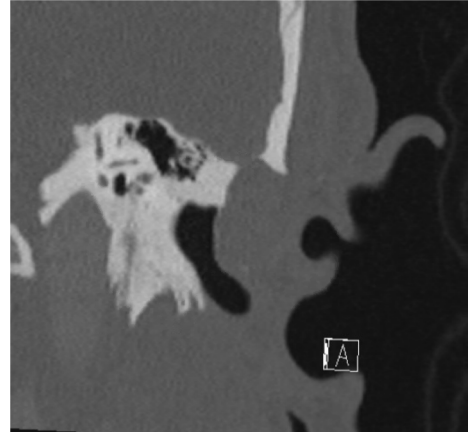


Image 2: Coronal CT temporal bone

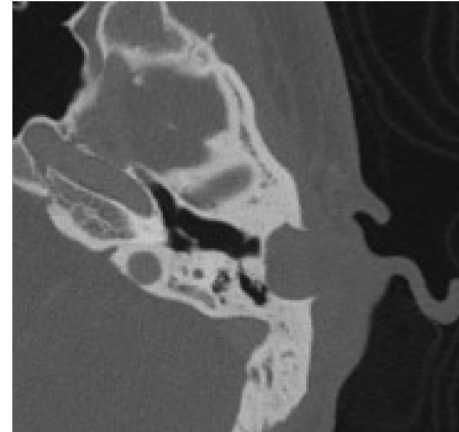


Image 3: Axial CT temporal bone

Surgical Findings:

Two focuses of cholesteatoma:

- Lateral soft tissues
 - Multiloculated and very superficial requiring some skin resection
 - Draining sinus tract
- Superior mastoid/squamous temporal bone
 - Eroded through posterior EAC wall
 - 1 cm tegmen defect
 - No involvement of antrum or middle ear. Thick bone noted between involved mastoid, and antrum

Reconstruction:

- Defect in tegmen and posterior canal wall repaired with temporalis muscle and facia graft.

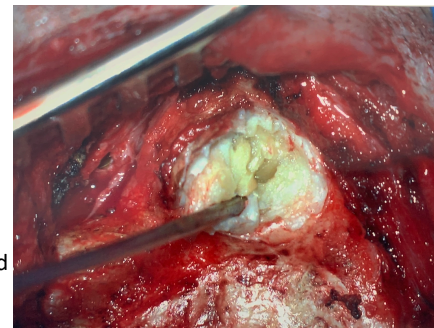


Image 4: squamous/mastoid disease focus after removal lateral capsule

Discussion:

Iatrogenic cholesteatoma is an avoidable complication that may not be appreciated for years after otologic intervention, and can lead to significant patient morbidity if unrecognized. Prevention of iatrogenic cholesteatoma can be achieved by:

- Meticulous closure with good skin flap eversion of the post auricular incision and careful replacement of the vascular strip after tympanoplasty,
- Frequent cleansing of instrumentation prior to and during closure with surgical sponge (not gloves).
- Thorough irrigation of wound prior to closure.
- Close follow up and early intervention for recurrence

Iatrogenic cholesteatoma should be included as part of the differential diagnosis when patients with history of otologic surgery present with periauricular, middle ear, or external auditory canal lesions.

References:

1. Kazahaya K, Potsic WP. Congenital cholesteatoma. *Curr Opin Otolaryngol Head Neck Surg.* 2004 Oct;12(5):398-403. doi: 10.1097/01.moo.0000136875.41630.d6. PMID: 15377951.
2. Baráth K, Huber AM, Stämpfli P, Varga Z, Kollias S. Neuroimaging of cholesteatomas. *AJNR Am J Neuroradiol.* 2011 Feb;32(2):221-9. doi: 10.3174/ajnr.A2052. Epub 2010 Apr 1. PMID: 20360335; PMCID: PMC7965719.
3. Mantilla DP, Krstulovic C, Fernández MM, Garrigues HP. An Iatrogenic Cholesteatoma of the Squamous Part of the Temporal Bone. *J Int Adv Otol.* 2016 Dec;12(3):356-357. doi: 10.5152/iao.2016.2611. Epub 2016 Nov 28. PMID: 28031158.

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