



## The Otic Outcrop-Inflammatory Aural Polyp

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### Preface

Aural polyp manifests as a polypoid, non-neoplastic proliferation of granulation tissue admixed with an inflammatory cellular exudate. The polyp arises due to inflammation induced polypoid proliferation predominantly arising within the middle ear mucosa, usually as a consequence of chronic otitis media. Commonly, aural polyp emerges within the middle ear cleft and appears as a reaction to persistent, localized inflammatory mechanisms as encountered with chronic otitis media or associated conditions.

An inflammatory aural polyp confined to external auditory canal may arise from the external auditory canal itself or from the middle ear. Several middle ear lesions can permeate through the tympanic membrane and engender a polypoid mass manifesting within the external auditory canal.

Also, an aural polyp may arise from adjacent anatomical structures such as the parotid gland or temporomandibular joint on account of invasion from secondary disease arising from aforesaid sites. Although predominantly inflammatory, aural polyp may represent with severe disease forms.

### Disease characteristics

Aural polyp demonstrates an equivalent gender predilection. No age of tumour emergence is exempt although the lesion is frequently discerned in children [1,2].

Morphological discernment of aural polyp is concurrent to active middle ear disease and possible emergence of cholesteatoma. An estimated 25% to 60% instances of aural polyp appear concordant to cholesteatoma, a fact which is therapeutically significant in surgical intervention of cholesteatoma [1,2].

Conditions commonly associated with inflammatory aural polyp are chronic otitis media, cholesteatoma or retained tympanostomy tubes. Uncommonly, aural polyp can be induced with mycobacterial infection or Langerhans cell histiocytosis. Diverse granulomatous or neoplastic diseases may engender aural polyp [1,2].

Keratinous debris or fragmented, superficial tissue samples admixed with inflammatory cell exudate obtained from medial segment of stratified squamous epithelial layer coating the external auditory canal may simulate histological features of cholesteatoma and engender a misinterpretation [1,2].

External auditory canal polyps commonly represent aural polyps arising within the middle ear with extension into external auditory canal through a pre-existing defect within the tympanic membrane [1,2].

Majority of inflammatory aural polyps arising in association with chronic otitis media are unilateral and may or may not concur with cholesteatoma [3,4].

Bilateral aural polyps are uncommon and are usually associated with eosinophilic otitis media (EOM) or aspirin-exacerbated respiratory disease (AERD). Exceptionally, bilateral aural polyps occur in concordance with infection with human immunodeficiency virus (HIV) [3,4].

### Clinical elucidation

Aural polyp can commonly manifest with clinical symptoms of hearing loss, ear discharge or aural fullness. Aural polyp is associated with distinctive clinical manifestations such as otorrhea, conductive deafness and a "mass" like sensation. Clinical symptoms

are contingent to site and magnitude of the polyp. Otalgia is uncommon. Secondary inflammatory reaction may occur within the lesion [3,4].

Inflammatory aural polyp may perforate tympanic membrane and appear to emerge from external auditory canal. Longstanding aural polyps can damage bony ossicles of the middle ear. The condition is frequently associated with extensive disease of mastoid air cell system or cholesteatoma of middle ear [3,4].

An aural polyp arising due to squamosal chronic otitis media can be non adherent to external auditory canal and unresponsive to therapy with topical antibiotics or corticosteroids [3,4].

### Histological elucidation

Upon gross examination, a polypoid, pink, tan or reddish, soft, rubbery lesion is exemplified. Macroscopically, the polyp requires a segregation from conditions which clinically simulate an aural polyp. Inflammatory aural polyp arises from injured mucosa of the middle ear and is partially layered with epithelium demonstrating distinctive reactive alterations [5,6].

Morphology of aural polyp is contingent to activity of associated diseases. The polyp may represent with oedematous, hypercellular granulation tissue imbued with abundant capillaries and vascular articulations. Alternatively, minimally cellular polyp with a fibrous tissue core and decimated vascular component may be observed. Aural polyp may or may not demonstrate a definitive epithelial layer [5,6].

Upon microscopy, the polyp is layered by stratified squamous or ciliated, columnar epithelium superimposed upon a polyp configured of loose, fibrotic stroma incorporating inflammatory cells such as lymphocytes, histiocytes, plasma cells or eosinophils. Foci of granulation tissue composed of inflammatory cell exudate admixed with vascular articulations are exemplified. Mott cells or plasma cells imbued with enlarged, eosinophilic immunoglobulin globules can be discerned, intermingled with mast cells [5,6].

Infiltration of neutrophils is variable. Additionally, multinucleated giant cells and cholesterol granulomas can infiltrate the polyp. Foci of tympanosclerosis can be enunciated [5,6].

Polyps arising from middle ear epithelium may manifest cuboidal or reactive, pseudostratified ciliated, columnar epithelium

along with goblet cells or foci of glandular metaplasia [5,6].

Keratinizing stratified squamous epithelium recovered from tissue sampling of lesions of middle ear may necessitate clinical correlation in order to ascertain a cholesteatoma or foci of chronic suppurative otitis media [5,6].

Eosinophils may be disseminated within the lesion although dense aggregates of eosinophils are unusual in inflammatory aural polyp and may signify the occurrence of eosinophilic aural polyp [5,6].

Eosinophilic aural polyp emerges within the middle ear cleft as a non-neoplastic, polypoid lesion composed of fibrous tissue intermingled with granulation tissue. Intervening stroma demonstrates significant accumulation of mucin commingled with innumerable eosinophils [5,6].

The neoplasm may simulate polyps arising from sinonasal tract which is commonly encountered in association with eosinophilic otitis media. Aural polyp requires a segregation from plasmacytoma secreting monoclonal light chains. Tumefaction is constituted of an admixture of mature plasma cells, immature plasma cells and plasmablastic or anaplastic plasma cells. Also, amorphous amyloid deposits can be discerned within extra-osseous neoplasms which appear admixed with scattered, multinucleated tumour giant cells [5,6].

### Investigative assay

Upon physical examination, a friable, polypoid tumefaction originates from mucosa of middle ear cleft or within the mastoid cavity. A persistent aural polyp mandates histological evaluation. Intraoperative histological examination can be adopted in order to assess aberrant clinical and morphological features [7,8].

Besides, adequate appraisal of the tympanic membrane, occurrence of cholesteatoma and proportion of middle ear disease is warranted. Pre-operative tissue sampling of an aural polyp may be from a non representative, peripheral area and the condition may be misdiagnosed. Inadequately discerned aural polyp can be misinterpreted as cholesteatoma, glomus tumour, malignant melanoma, mucosal adenoma, fibrous dysplasia, squamous cell carcinoma, adenoma of the endolymphatic sac, encephalocele, tuberculosis, meningioma, neurilemmoma or capillary haemangioma [7,8].

**Therapeutic options**

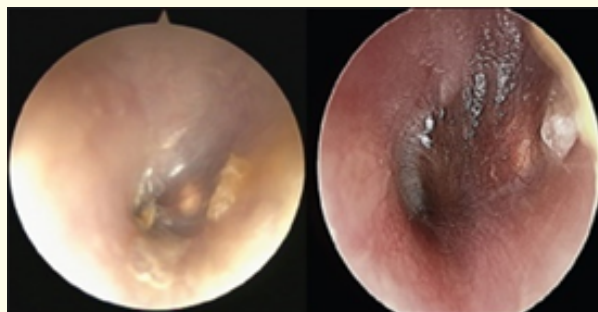
Conservative treatment of an aural poly may be adopted although is contemplated to be insufficient. Comprehensive surgical extermination of the neoplasm is an optimal and recommended therapeutic strategy. If necessitated, exploration of the mastoid may be employed. Indiscriminate extermination of an aural polyp adherent to circumscribing bone or neural structures requires circumvention [7,8].

Infectious/Inflammatory Conditions
Granulomatous inflammation
Acute localized otitis externa (furunculosis)
Tuberculous otitis
Otomycosis
Primary Tumours/Pseudo-tumours/Secondary Tumours
Middle ear adenoma
Neural tumours
Dermal nevus
Meningioma
External auditory canal osteoma
Rhabdomyosarcoma
Squamous cell carcinoma
Langerhan’s cell histiocytosis
Metastatic disease- renal cell carcinoma, malignant melanoma
Malignant salivary gland tumour (primaries or secondaries from parotid)
Synovial or joint pathology arising from temporo-mandibular joint

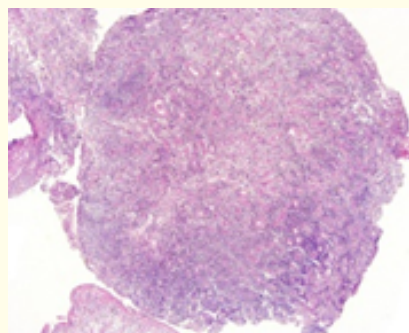
**Table:** Characterization of aural polyp (external/middle ear) [1].



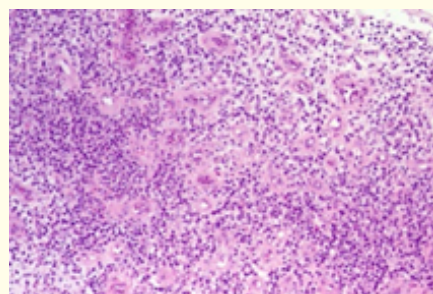
**Figure 1:** Aural polyp on otoscopy demonstrating a smooth, protruberant surface with intact superimposed mucosa [9].



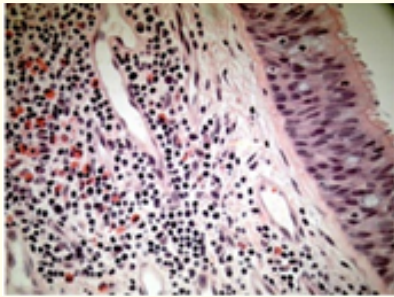
**Figure 2:** Aural polyp depicting an irregular, ulcerated nodule protruding from the external auditory meatus [10].



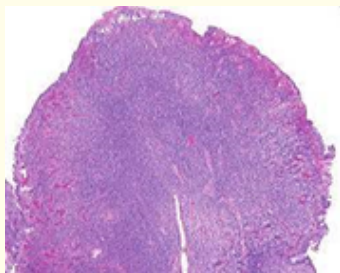
**Figure 3:** Aural polyp enunciating an inflammatory exudate of lymphocytes and macrophages admixed within granulation tissue with vascular structures [11].



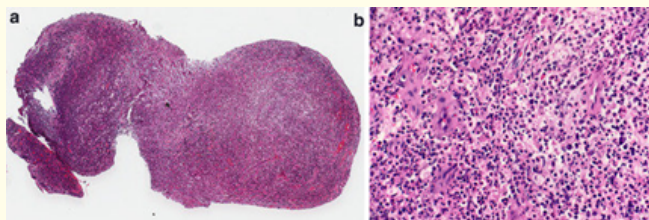
**Figure 4:** Aural polyp exhibiting an intense inflammatory exudate of lymphocytes, histiocytes and neutrophils intermingled with fibro-vascular stroma [12].



**Figure 5:** Aural polyp exemplifying dense inflammatory exudate of neutrophils, lymphocytes and histiocytes commingled with a fibrotic stroma and a superimposed layer of pseudostratified columnar epithelium [13].



**Figure 6:** Aural polyp enunciating a layer of columnar epithelium superimposed upon aggregates of lymphocytes and macrophages intermingled within a dense fibrous tissue stroma [14].



**Figure 7:** Aural polyp in varying magnification delineating a polypoid lesion composed of acute and chronic inflammatory cells as lymphocytes, neutrophils and histiocytes commixed with red cells and vascular articulations [15].

## Bibliography

1. Magliocca KR, et al. "Idiopathic, Infectious and Reactive Lesions of the Ear and Temporal Bone". *Head and Neck Pathology* 12.3 (2018): 328-349.
2. Kalra VK. "Aural Polyp is not Always Due to Chronic Otitis Media (COM): Preoperative Computed Tomographic Scan is Good Pointer for Sinister Lesions". *Indian Journal of Otolaryngology and Head and Neck Surgery* 70.4 (2018): 505-509.
3. Xenellis J, et al. "A histological examination in the cases of initial diagnosis as chronic otitis media with a polypoid mass in the external ear canal". *Auris Nasus Larynx* 38.3 (2011): 325-328.
4. Tay HL and Hussain SS. "The management of aural polyps". *Journal of Laryngology and Otology* 111.3 (1997): 212-214.
5. Johnson M, et al. "Pseudo aneurysm of petrous internal carotid artery presenting as aural polyp". *Indian Journal of Otology* 19.1 (2013): 27-29.
6. Zhu BZ, et al. "A case of allergic fungal otomastoiditis with aural polyps". *Otolaryngology Case Reports* 2 (2017): 4-6.
7. Shew M, et al. "Middle ear aural polyp mimicking glomus tympanicum in a male adolescent". *Otology and Neurotology* 38.7 (2017): e211-e213.
8. Gliklich RE, et al. "The cause of aural polyps in children". *Archives of Otolaryngology - Head and Neck Surgery* 119.6 (1993): 669-671.
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