Bilateral Inverted Papilloma of the Middle Ear with Intracranial Involvement and Malignant Transformation

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ABSTRACT

Inverted (Schneiderian) papilloma (IP) is a benign but locally aggressive tumor that is typically located in the sinonasal tract. Middle ear involvement and intracranial extension are rare.

We present a patient with a history of a completely resected right nasal cavity IP that returned seven months later with hearing loss, bilateral aural fullness, and right-sided facial weakness.

His work-up revealed middle ear IP and the patient underwent bilateral mastoidectomies. On both sides, the disease caused erosion of the tegmen and was adherent to the underlying dura. There was dehiscence of the carotid canal wall on the left. On the right, the tumor was discovered to have recurred three months after initial resection, resulting in complete facial nerve paralysis and trigeminal paresthesias.

A right temporal bone resection was undertaken along with neurosurgery. IP was discovered to have invaded through the dura of the temporal lobe, incise the internal carotid artery and infiltrate the trigeminal nerve. The facial and vestibulocochlear nerves were sacrificed on the right. Pathology of the right temporal bone revealed malignant transformation to squamous carcinoma. The patient was referred to radiation oncology for post-operative therapy.

To our knowledge, this is the first case of bilateral IP of the middle ear with intracranial involvement and malignant transformation. Discussion points include: 1) management of middle ear IP, 2) carotid canal wall dehiscence in erosive middle ear disease, 3) aggressive surgical excision in locally destructive middle ear tumors, and 4) role of radiation therapy in malignant transformation of IP.

INTERESTING CASE

52 yo AAM presented with R nasal obstruction.

- IP on biopsy -> endoscopic medial maxillectomy

- Seven months later he presented with bilateral aural fullness and hearing loss
  - Myringotomies attempted, but polypoid mass seen in R middle ear
  - Path confirmed IP
  - Nasal cavities and Eustachian tubes were free of disease

- Subsequently developed R HB grade 2 facial nerve paresis
- CT demonstrated bilateral mastoid opacification with erosion of the right tegmen tympanum

- On the left side, there was tissue herniating through the tympanic membrane
- Path confirmed inverted papilloma and a left sided surgery was scheduled

CLINICAL PEARL

- Erosive middle ear disease requires the surgeon to have a keen suspicion for carotid canal wall dehiscence, as preoperative imaging may not reveal exposed artery and iatrogenic injury can be catastrophic.
- Visual pulsation is commonly absent in cases of exposed arterial segments and use of an endonasal Doppler probe allows for precise intraoperative identification.

REFERENCES


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