Petrous apex cholesterol granuloma treatment

- Our experience in petroclival lesions using a contralateral transmaxillary approach
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- Orbital cholesterol granuloma: Case report and literature review
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- Characteristics and Clinical Management Strategy of Petrous Apex Cholesterol Granulomas

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The treatment of petrous apex cholesterol granuloma typically involves surgical intervention to relieve pressure, drain the cyst, and prevent further complications. The main surgical approaches used to treat petrous apex cholesterol granulomas include:

Endoscopic Transsphenoidal Approach: This minimally invasive surgical technique involves accessing the petrous apex through the nasal passages. The surgeon uses an endoscope to navigate and remove the cholesterol granuloma, thus avoiding the need for extensive skull base surgery. The endoscopic approach has the advantage of better preservation of surrounding structures and can lead to faster recovery compared to traditional open cranial surgery.

Middle Fossa Approach: In cases where the cholesterol granuloma extends more laterally within the petrous apex, a middle fossa approach may be used. This involves making an incision behind the hairline above the ear to access the petrous apex and remove the lesion.

Transmastoid Approach: This approach involves accessing the petrous apex through an incision behind the ear and removing the cholesterol granuloma through the mastoid bone. It is typically used for larger or more complex lesions.

The choice of surgical approach depends on the size and location of the cholesterol granuloma, as well as the surgeon's expertise and experience.

It's essential to treat petrous apex cholesterol granulomas promptly because they can lead to complications, such as compression of surrounding structures, including the inner ear, cranial nerves, and brainstem. If left untreated, they may cause progressive hearing loss, dizziness, facial nerve dysfunction, and other neurological symptoms.

After surgical removal, the patient's recovery and outcome will depend on the extent of the lesion and any pre-existing damage to the surrounding structures. Rehabilitation and follow-up with audiologists and vestibular specialists are often necessary to assess and manage any lingering hearing or balance issues.

Endoscopic Transsphenoidal Approach

- Quantitative Evaluations of Vestibular Function in Patients With Petrous Apex Cholesterol Granulomas Treated With an Endoscopic Transsphenoidal Approach: A Report of Two Cases
- Indications and advantages of endoscopic trans-sphenoid approach for petrous apex lesions: two case reports
- Endoscopic transsphenoidal drainage of a petrous apex cholesterol granuloma using a frontal sinus nasal stent: a case report with long term follow up
- Complete Recovery of Sensorineural Hearing Loss Following Endoscopic Transsphenoidal Surgery for a Petrous Apex Cholesterol Granuloma: Case Report
- Petrous apex cholesterol granuloma: importance of pedicled nasoseptal flap in addition to silicone T-tube for prevention of occlusion of drainage route in transsphenoidal approach--a technical note
- Endoscopic transsphenoidal drainage of an aggressive petrous apex cholesterol granuloma: unusual complications and lessons learnt
- Trans-sphenoid sinus-clivus endoscopic management of petrous apex cholesterol granuloma
- Endoscopic endonasal management of recurrent petrous apex cholesterol granuloma

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The transnasal route is less invasive than a lateral labyrinthine or cochlear approach, and spares cochlear and vestibular function. However, this approach is not without risk. It is important to consider the natural anatomical variance of vasculature when planning surgical intervention for a lesion situated in a technically challenging part of the petrous apex. Additional magnetic resonance venography is recommended to circumnavigate the venous plexus, thereby avoiding an unexpected breach [1)]

The use of a pedicled nasoseptal flap with a silicone tube is useful to prevent CG recurrence, by paranasal cavitization of the cystic cavity [2)].

Two adult patients presented with a lesion in the left petrous apex. Computed tomography showed a homogeneous mass extending anteromedially, and abutting the internal carotid artery and the sphenoid sinus in both patients. Using magnetic resonance imaging, a third recurrence of cholesterol granuloma in case one and cholesteatoma in case two were diagnosed. Both patients underwent trans-sphenoid excision, as the sphenoid sinus was well pneumatised and the lesion was medial to the internal carotid artery.

Nasal endoscopic access to the petrous apex via the trans-sphenoid corridor should be preferred for benign lesions extending anteromedially in cases where lateral access is impeded by the internal carotid artery, the labyrinth and the facial nerve, and anterior trans-sphenoidal access offers a low-morbidity alternative [3)].

A 44-year-old female presented with history of intermittent double vision, dizziness, nausea, and

headaches for 3 years. She developed a partial left CN6 palsy with significant diplopia and episodes of left facial weakness. The worsening symptoms prompted presentation to the ED where MRI and CT scan revealed a left petrous apex lesion (1.8 × 1.7 cm) with hyperintensity on T1 and T2 imaging, suggestive of cholesterol granuloma. She underwent an endoscopic transclival resection of the lesion: drainage of left petrous apex cholesterol granuloma and stent placement from left petrous apex into sphenoid sinus (novel technique). This was done to allow continued communication and drainage of the tumor bed from the petrous apex into the sphenoid sinus with the intent to minimize the risk of recurrence. At the postop visit both 6th nerve palsy and diplopia had resolved. Imaging is stable 2 years after the surgery.

The placement of the stent in this case was done to prevent symptom recurrence. 11% of patients that do not receive a stent will have symptom recurrence within one year. From the historical literature, only 4% of patients who had stent placement developed cyst recurrence or expansion on follow-up imaging. Stent placement has been shown to prevent cyst enlargement within the first few months after surgery. We demonstrate that the endoscopic endonasal transclival approach provided good visualization of the tumor, allowed for an adequate working window for resection, and provided a sufficient approach for stent placement [4)]

A case of petrous apex cholesterol granuloma causing mild sensorineural hearing loss. An endoscopic endonasal transsphenoidal approach was successfully performed to partially resect and aerate the lesion. The auditory function on the affected side was completely restored after surgery. The patient experienced no post-operative complications. CONCLUSIONS This case report highlights the advantages of using an endoscopic transsphenoidal surgical approach in cases of petrous apex cholesterol granuloma, including the potential for this less invasive technique to restore sensorineural hearing loss [5)].

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