Cholesterol granuloma

Cholesterol granuloma is a benign mass that commonly involves the petrous apex but rarely affects other structures, such as the mastoid cavity.

see Petrous apex cholesterol granuloma.

Etiology

Chronic middle ear infection or idiopathic hemotympanum.

Chronic inflammatory cells surrounding cholesterol crystals (? from breakdown of RBC membranes).

Pathology

It is diagnosed histologically by the presence of giant cells.

Brown (from hemosiderin).

Fibroblastic proliferation, hemosiderin-laden macrophages, cholesterol clefts, giant cell reaction

Clinical features

Usually involve vestibular or cochlear dysfunction.

Differential diagnosis

Epidermoid cysts are sometimes mistakenly equated with cholesterol granulomas [1], possibly because of the similarity between the terms cholesteatoma and cholesterol granuloma. However, these are distinct lesions [2]. Cholesterol granulomas usually occur following chronic inflammation (usually in pneumatized portions of the temporal bone: petrous apex, mastoid air cells, middle ear space).

Treatment

Subtotal resection followed by drainage & restoration of pneumatization [3].

Its management is individualized based on some factors such as the size and location of the lesion

Case reports

Albakheet et al. from Riyadh reported 2 cases:

The first case was a 33-year-old man who presented to the outpatient clinic with a two-year history of right-sided pulsatile tinnitus, hearing loss, and vertigo. Upon investigations, a large, destructive mass in the tympanomastoid region was found and managed surgically. The other case was for a 41-year-old man who presented to the emergency department with loss of consciousness. Urgent CT was done and revealed an aggressive hypodense posterior fossa mass destroying the right temporal bone that was managed surgically.

In this report, we describe two patients with familial hypercholesterolemia who developed bilateral cholesterol granuloma that were managed surgically.

These cases are reported because of their rare location and presentation since few cases of bilateral cholesterol granuloma have been reported in the literature [4].

Five patients were followed after operations to remove pure cholesterol granulomas of the petroclival bone, and 3 additional patients were followed after operations to remove tumors with combined histopathological features of both an epidermoid cyst and cholesterol granuloma. Four patients with some component of a cholesterol granuloma had concurrent middle ear infections, and 4 did not. Intracranial subtotal excision and drainage of these lesions was the initial operative management in 7 patients, 5 of whom have required multiple operations for symptomatic tumor recurrence. Therefore, we conclude that subtotal excisional procedures for tumors with histopathological features of cholesterol granulomas are not usually successful in establishing long-term cures. Total excision, as recommended for epidermoid cysts, tumors frequently confused with cholesterol granulomas when occupying the petroclival region, may be warranted for these tumors as well. We postulate that when a congenital epidermoid cyst occurs in the petroclival bone, it may incite a local inflammatory reaction, producing lesions which have the histological features of both epidermoid cysts and cholesterol granulomas [5].

Sellar cholesterol granulomas

Cholesterol granulomas in the sella are rare and can mimic the appearance of craniopharyngioma or Rathke's cleft cysts. Information regarding the clinical presentation, imaging characteristics, and clinical course of sellar cholesterol granulomas can help clinicians to differentiate these lesions from other sellar cystic lesions.

Hernández-Estrada et al. presented three cases of sellar cholesterol granulomas. A literature review was performed for all cases of sellar cholesterol granulomas with individual patient data reported.

We identified 24 previously reported cases in addition to our three cases. Mean age was 36.6 years (range 5-68). There were 16 (59%) females. The most common (74%) presenting symptom was endocrinological deficits, typically either isolated diabetes insipidus (DI) or panhypopituitarism. Location was intrasellar in 3 (11%), suprasellar in 6 (22%), and intrasellar/suprasellar in 18 (67%) patients. Lesions were most commonly (83%) T1 hyperintense. Gross total resection was achieved in 16 (64%) and subtotal resection in 9 (36%) patients. Of the seventeen (63%) patients presenting with

varying degrees of bitemporal hemianopsia, all had improvement in vision postoperatively. It is worth noting that no cases of preoperative hypopituitarism or DI improved postoperatively. Even though gross total resection was only achieved in 64%, there was only one recurrence reported.

Sellar cholesterol granulomas are characterized by T1 hyperintensity, younger age, and more frequent and severe endocrinological deficits on presentation. Our review demonstrates high rates of improvement of visual deficits, but poor rates of endocrine function recovery. Recurrence is uncommon even in cases of subtotal resection [6].

References

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