Case Report and Review of the Literature: Cholesterol Granuloma Masquerading as a Recurring Craniopharyngioma in a 66-Year-Old Male

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Introduction

- Craniopharyngiomas and cholesterol granulomas are rare CNS lesions requiring thorough evaluation and histopathological confirmation.
- Craniopharyngiomas originate from Rathke's pouch and are benign, cystic tumors in the sellar/suprasellar region, most common in ages 5-14 and 50-74.[1, 2]
- Craniopharyngiomas can impact quality of life by affecting the pituitary gland, optic chiasm, and hypothalamus.[3]
- Cholesterol granulomas, usually in the petrous apex, can mimic craniopharyngiomas and result from impaired drainage and chronic inflammation.
- Atypical skull base cholesterol granulomas are rare and can lead to misdiagnosis, emphasizing the need for histopathological confirmation.

Methods

- Retrospective review of the patient's clinical course included symptoms, imaging, surgical intervention, and postoperative outcomes.
- A literature review using PubMed compared cholesterol granulomas and craniopharyngiomas, focusing on imaging, histopathology, surgical management, and recurrence.
- The surgical approach was evaluated with emphasis on the endoscopic endonasal technique and management of intraoperative complications like CSF leaks.
- Postoperative recovery and follow-up imaging were reviewed to assess surgical outcomes and recurrence risk.

Literature Review

- Craniopharyngiomas are benign but locally aggressive tumors arising from Rathke's pouch in the sellar/suprasellar region, making management challenging due to their proximity to vital neurovascular structures.[4]
- Craniopharyngiomas have a bimodal age distribution, occurring most frequently in children (5-14 years) and adults (50-74 years).[2]
- Common symptoms include headaches (55-86%), endocrine dysfunction (66-90%), and visual failure (37-68%). MRI is the preferred imaging modality, with craniopharyngiomas typically appearing as partly cystic, calcified masses in the sellar/suprasellar region.[5, 6]
- The endoscopic endonasal approach has gained popularity over traditional craniotomy, achieving higher gross total resection rates and better endocrine outcomes in both pediatric and adult patients.[7]

Conclusions

- Histopathology is essential for distinguishing cholesterol granulomas from craniopharyngiomas.
- Endoscopic endonasal surgery is effective for resection and CSF leak management.
- Multidisciplinary collaboration optimizes care for complex CNS lesions.

Discussion

- Cholesterol granulomas can mimic craniopharyngiomas, leading to misdiagnosis.
- Atypical skull base locations complicate diagnosis, requiring a broad differential.
- Endoscopic endonasal surgery improves visualization and reduces morbidity.
- Cholesterol granulomas may lack characteristic imaging features in atypical locations, increasing diagnostic uncertainty.
- Careful long-term follow-up is necessary to monitor for recurrence and assess treatment success.

Case Presentation

- A 66-year-old male with a history of presumed craniopharyngioma was referred for evaluation of a recurrent suprasellar mass after initial resection in 2023.
- MRI (Figures 1 and 2) showed a cystic suprasellar lesion extending into the anterior third ventricle, consistent with a presumed recurrent craniopharyngioma.
- The patient underwent endoscopic endonasal resection, with intraoperative cerebrospinal fluid (CSF) leak repaired using an AlloDerm graft and nasoseptal flap. Histopathology revealed a cholesterol granuloma, not a recurrent craniopharyngioma, highlighting the importance of tissue diagnosis in CNS lesions.

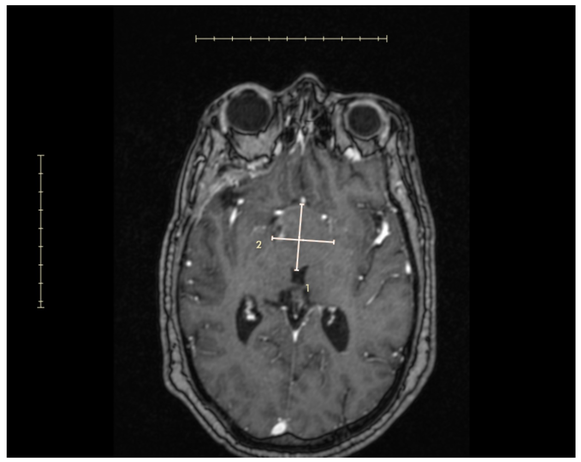

Figure 1: Axial brain MRI depicting cholesterol granuloma

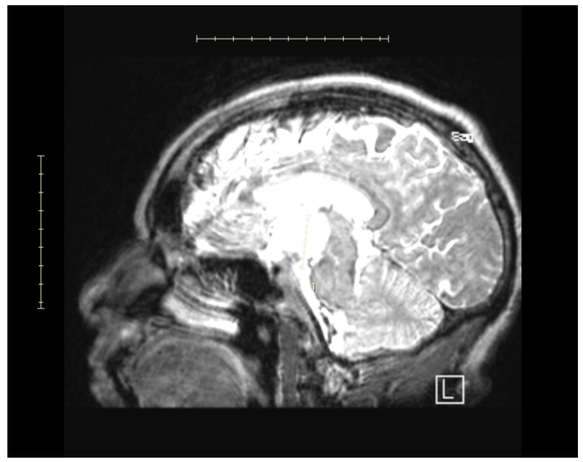

Figure 2: Sagittal brain MRI depicting cholesterol granuloma

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