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A case of sellar epidermoid tumour with haemorrhage

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ABSTRACT

Introduction: Intracranial epidermoid cysts are congenital inclusion tumours. Cerebellopontine angle and parasellar locations are the common locations. This is a report of an intrasellar epidermoid cyst with haemorrhage, which is rare.

Case report: A 70-year-old female presented with bifrontal headache, vertigo, and nasal discharge. Contrast-enhanced Magnetic resonance imaging [MRI] showed heterogeneously enhancing lesion in sella turcica. Internal hemorrhagic foci were seen. Computed tomography [CT] scan showed a slightly hyperdense tumour of sella. Transnasal transsphenoidal excision was done. Hemorrhagic and colloid material came out. Histopathological examination showed cyst lined by stratified squamous epithelium with keratohyalin granules and keratin flakes, suggestive of an epidermoid cyst.

Discussion: Usually epidermoid cyst is hypodense in CT scan. But hyperdensity can occur due to calcification of keratinized debris, increased protein content, and recurrent haemorrhage. Enhancement with gadolinium in MRI is mild and in cyst wall. Haemorrhage and enhancement are probably due to foreign body granulation tissue developing from leakage.

Keywords
sella turcica, epidermoid cyst, haemorrhage, microsurgery, endoscopy

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INTRODUCTION

Intracranial epidermoid cysts are congenital inclusion tumors arising from the remnants of epithelial tissue during the closure of neural tube [1,2]. They constitute 0.8-1.2% of intracranial tumors. Cerebellopontine angle is the most common location. But they can be seen in parasellar, suprasellar, middle fossa, and diploic locations. Intrasellar location is rare. MacCarty et al. reported four cases of sellar epidermoid with suprasellar or parasellar extension [3].

CASE REPORT

A 70-year-old female presented with bifrontal headache, vertigo, and nasal discharge. She had systemic hypertension, diabetes mellitus, and dyslipidemia. Neurological examination was noncontributory. Visual fields were normal. Pupillary reaction was normal. There was mild ataxia on walking.

Contrast enhanced Magnetic resonance imaging [MRI] showed heterogenously enhancing lesion in sella turcica [Fig.1]. Coronal image showed capsular enhancement and thin sellar floor. Internal

hemorrhagic foci were seen. There was no compression on optic chiasm. Computed tomography [CT] scan showed slightly hyperdense tumor of sella [Fig. 2]. Septation was seen in right half of sphenoid sinus.

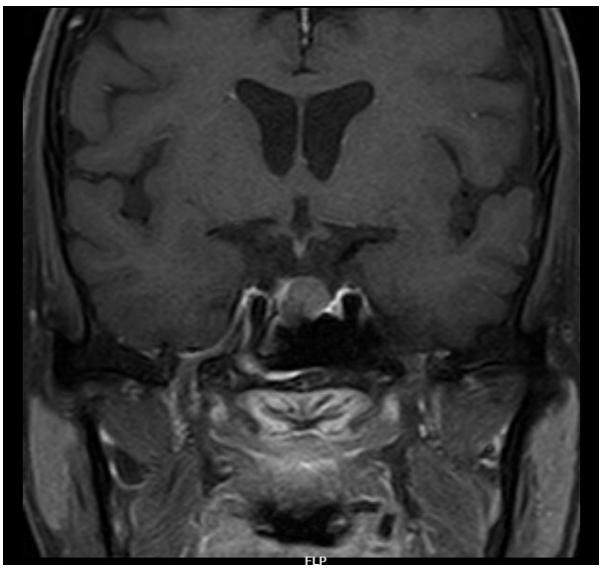

Figure 1. MRI coronalimage showing heterogeneous tumor with capsular enhancement and thin sellarfloor

Figure 2. CT scan showing hyperdense tumor of sella

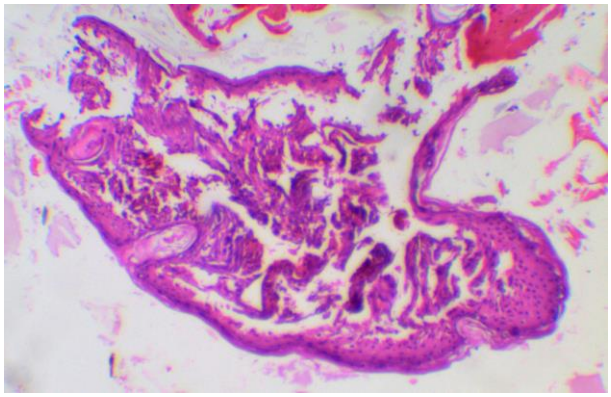

Figure 3. Cyst linedby stratified squamous epithelium and hemorrhage with inflammatory cells

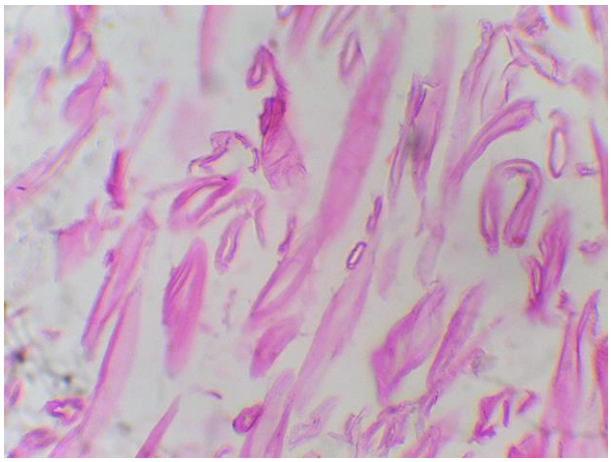

Figure 4. High powerview of keratin flakes

Transnasal transsphenoidal excision was done. Left side was chosen because of sphenoid septation on right side. Left sphenoidal ostium was found following middle turbinate. Ostium was enlarged. Dura was opened and piecemeal decompression was done. Hemorrhagic and colloid material came out. Decompression was done till increased urine output was noticed. Fat pad was used for closing the sphenoid.

She recovered clinically. Hourly urine output was in normal range. Hormonal levels such as thyroid function tests, cortisol, and prolactin were within normal limits. Postoperative CT scan showed gross total removal. Initial squash cytology showed fibrocollagenous fragments, cells with round nuclei and eosinophilic cytoplasm, and red blood cells. This was suggestive of inflammatory tissue with hemorrhage. Histopathological examination showed cyst lined by stratified squamous epithelium with

keratohyaline granules and keratin flakes [Fig. 3, and 4]. Immunohistochemistry was positive for p63, suggestive of squamous differentiation. The features are of an epidermoid cyst.

Discussion

The clinical presentations of sellar epidermoid tumors are frontal headache, bitemporal hemianopia, visual loss, diplopia, amenorrhea, galactorrhea, diabetes insipidus, failure of sexual development, and endocrine disturbances [2,3,4,5]. Presentation with features of pituitary apoplexy also is reported6.

The usual finding in CT scan is a hypodense lesion, due to lipid and cholesterol content [1,2]. But hyperdensity can occur due to calcification of keratinized debris, increased protein content, and recurrent hemorrhage. Epidermoid tumor appears hypo-, iso- or hyper-intense on T1-weighted MRI7. On T2-weighted imaging, it appears hyper-intense. Heterogeneous appearance also is described. Diffusion weighted imaging of MRI shows a restricted pattern as hyperintensity. The cyst appears insinuating into nearby structures. Enhancement with gadolinium is mild and in cyst wall. Differential diagnoses are pituitary adenoma, craniopharyngioma, arachnoid cyst, Rathke's cleft cyst, and dermoid cyst. Pituitary adenomas are usually solid and has homogeneous enhancement8. Craniopharyngioma has calcifications in CT and mixed solid and cystic appearances in MRI7. Arachnoid cyst is isointense to cerebrospinal fluid(CSF) in all sequences. Dermoid cyst resembles fat and appear hyperintense in T1-weighted image. Because of avascular nature, hemorrhage is rare in epidermoid cyst9. Hemorrhage and enhancement are probably due to foreign body granulation tissue developing from leakage.

Surgery is by endonasal transsphenoidal microsurgery or by endoscopic endonasal transsphenoidal approach [2,3,5,6]. Often, the adherence of capsule with neurovascular structures prevented complete removal of the cyst wall. Modification of endoscopic endonasal approach according to the extent of the tumor, can help in gross total removal2. Total removal prevents recurrence with malignant change in future.

On histopathological examination, epidermoid cyst is lined by keratinizing stratified squamous epithelium10. Keratohyaline granules are basophilic granules in the cytoplasm of granular cells. Keratin flakes also can be seen. The cyst is filled with keratin debris, lipid, and water. Immunohistochemical positivity for p63 is useful in confirming squamous differentiation [11]. Dermoid cyst is lined by simple stratified squamous epithelium1. Rathke's cleft cyst is lined by simple cuboidal or columnar epithelium with goblet cells. Carcinoma in situ can occur in residual epidermoid cyst as a sequelae of inflammatory response to recurrent rupture and foreign body reaction [1,2].

The sellar tumors which were reported to present with hemorrhage are pituitary adenomas, craniopharyngiomas, epidermoid cyst, undifferentiated sarcoma, tuberculoma, atypical teratoid/rhabdoid tumor, and primary melanocytic tumor [12,13,14,15,16]. So these differential diagnoses also should be considered in case of a hemorrhagic sellar tumor.

Conclusion

This is a report of an intrasellar epidermoid cyst with hemorrhage, which is rare. CT scan showed hyperdensity due to hemorrhage. There was enhancement with contrast in MRI. Hemorrhage and enhancement occur due to inflammatory tissue. Transsphenoidal microsurgery and endoscopic endonasal approach are the preferred surgical methods. Total resection is necessary to prevent malignant transformation.

References

1. Reddy MP, Jiacheng S, Xunning H, Zhanlong M: Intracranial epidermoid cyst: characteristics, appearance, diagnosis, treatment and prognosis. 2015 Jun; Sci Lett 3:102–110.
2. Nakassa ACI, Chabot JD, Snyderman CH, Wang EW, Gardner PA, Fernandez-Miranda JC. Complete endoscopic resection of a pituitary stalk epidermoid cyst using a combined infrasellar interpituitary and suprasellar endonasal approach: case report. J Neurosurg. 2018 Feb;128(2):437-443.
3. Boggan JE, Davis RL, Zorman G, Wilson CB. Intrasellar epidermoid cyst. Case report. J Neurosurg. 1983 Mar;58(3):411-5.
4. Fawcitt RA, Isherwood I. Radiodiagnosis of intracranial pearly tumours with particular reference to the value of computer tomography. Neuroradiology. 1976 Sep 21;11(5):235-42.
5. Costa F, Felisati G, Maccari A, Bauer D, Lasio G: Epidermoid cyst of the pituitary stalk: case report and

review of the literature. Neurosurg Q. 2013 May; 23:108–111.
6. Tuna H, Torun F, Torun AN, Erdogan A. Intrasellar epidermoid cyst presenting as pituitary apoplexy. J Clin Neurosci. 2008 Oct;15(10):1154-6.
7. Huo CW, Caputo C, Wang YY. Suprasellar keratinous cyst: A case report and review on its radiological features and treatment outcome. Surg Neurol Int. 2018 Jan;9:15.
8. Choi SH, Kwon BJ, Na DG, Kim JH, Han MH, Chang KH. Pituitary adenoma, craniopharyngioma, and Rathke cleft cyst involving both intrasellar and suprasellar regions: differentiation using MRI. Clin Radiol. 2007;62(5):453-462.
9. Chen CY, Wong JS, Hsieh SC, Chu JS, Chan WP. Intracranial epidermoid cyst with hemorrhage: MR imaging findings. AJNR Am J Neuroradiol. 2006 Feb;27(2):427-9.
10. McCormack EP, Cappuzzo JM, Litvack Z, Almira-Suarez MI, Sherman JS. Suprasellar Epidermoid Cyst Originating from the Infundibulum: Case Report and Literature Review. Cureus. 2018 Aug 29;10(8):e3226.
11. Compton LA, Murphy GF, Lian CG. Diagnostic Immunohistochemistry in Cutaneous Neoplasia: An Update. Dermatopathology (Basel). 2015 Apr 8;2(1):15-42.
12. Yousem DM, Arrington JA, Kumar AJ, Bryan RN. Bright lesions on sellar/parasellar T1-weighted scans. Clin Imaging. 1990;14(2):99-105.
13. Ganaha T, Inamasu J, Oheda M, Hasegawa M, Hirose Y, Abe M. Subarachnoid hemorrhage caused by an undifferentiated sarcoma of the sellar region. Surg Neurol Int. 2016;7(Suppl 16):S459-S462. Published 2016 Jul 7.
14. Mittal P, Dua S, Saggar K, Gupta K. Magnetic resonance findings in sellar and suprasellar tuberculoma with hemorrhage. Surg Neurol Int. 2010;1:73. Published 2010 Nov 20. doi:10.4103/2152-7806.72624.
15. Siddiqui M, Thoms D, Samples D, Caron J. Atypical teratoid/rhabdoid tumor presenting with subarachnoid and intraventricular hemorrhage. Surg Neurol Int. 2019;10:139. Published 2019 Jul 5. doi:10.25259/SNI-59-2019.
16. Zhou HJ, Zhan RY, Ma YH, Cao F, Zheng XJ. Primary sellar melanocytic tumor mimicking hemorrhagic pituitary macroadenoma: Case report and literature review. Br J Neurosurg. 2015;29(2):298-302. doi:10.3109/02688697.2014.967752.