

## Case Report

# A Case of Intracranial Dermoid Cyst Presenting like an Epidermoid Cyst in Ethmoidal Region

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## ABSTRACT

Dermoid cyst is a tumor arises due to embryogenesis impairment. It accounts for less than 0.3 percent of all intracranial masses. A 35 years old man presented with a tonic clonic seizure without any significant past history of seizure. Physical examination and imaging propounded epidermoid cyst as diagnosis. The patient had a craniotomy and cyst was totally removed. Operative findings and histopathological report confirmed the diagnosis of dermoid cyst with olfactory groove origin.

**D**ermoid cyst, a congenital lesion, is classified in a group named "Inclusion tumors", beside more prevalent tumors like epidermoids and hamartomas. Dermoid cyst is the least common one in this group. Various studies propose its prevalence as 0.3 percent. This cyst is usually at the midline or posterior fossa or, with less frequency, at the region of third ventricle<sup>1</sup>. The content of the cyst is shelfish and greasy. Dermoid appendages like sebaceous glands sweat glands, hair and hair folliculi, distinct it from epidermoid cyst<sup>1</sup>.

## Case report

The patient is a 35 years old man, an ambulance driver of a psychological center who presented with a typical generalized tonic clonic seizure, one week prior to his admission. There was not any positive finding in systemic examination. In neurological examination there was loss of olfaction, decreased visual acuity, optic disc effacement on the right side, and irritability for a long time. There was no history of congenital or chronic disease.

Brain CT Scan and MRI were taken from patient. (Figures 1 and 2). Then he underwent operation via right subfrontal approach with probable diagnosis of epidermoid cyst. A shelfish mass was exposed extra axially, occupying a large space, so that the right and, to a lesser extent, the left frontal lobe, were pushed upward. The cyst had filled interhemispheric space anteriorly. After removal of mass, lamina terminalis,

pituirary stalk, optic chiasma, and olfactory nerves were exposed easily.

In some regions of the lesion, there was aggregation of white hair with mean length of 5-10 mm. The mass was embedded between brain structures, but there was not any aggression to brain tissue.

A thin capsule had surrounded the mass which was removed gently as much as possible. In the region of right olfactory groove there was a tight adhesion between the capsule and the dural base and bone, which was removed totally.

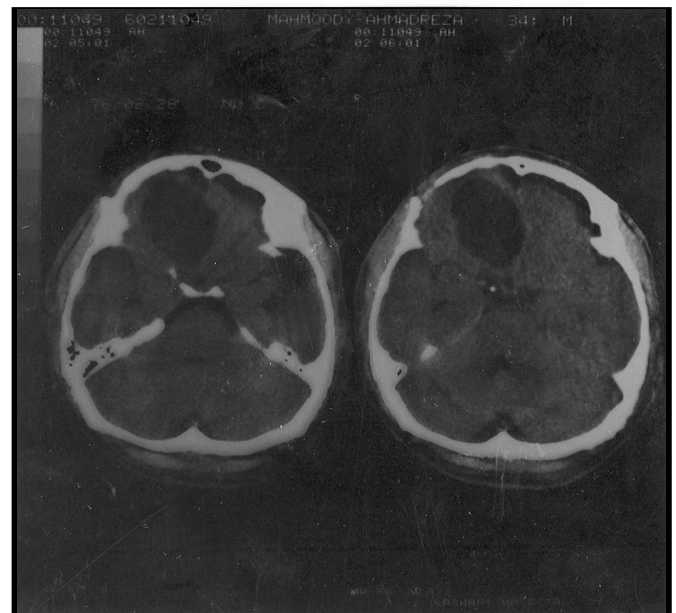


Figure 1. Ethmoidal dermoid cyst: axial view.

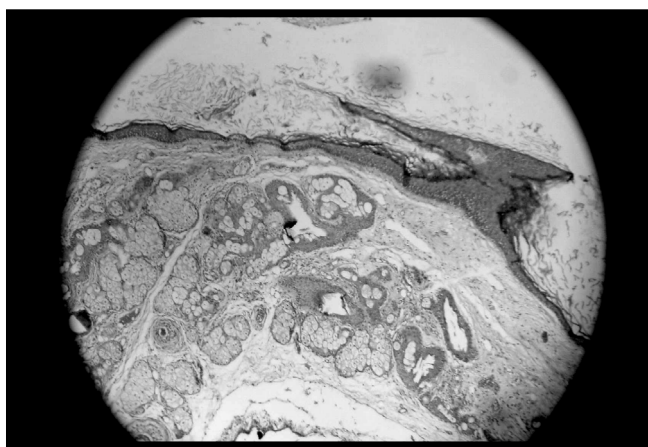
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**Figure 2.** Ethmoidal dermoid cyst: T2-weighted image.

The patient was discharged after three days in good condition, without any neurological problem. His seizure was not controlled completely without medication but, its frequency decreased, and finally, it quite ceased with medical treatment.

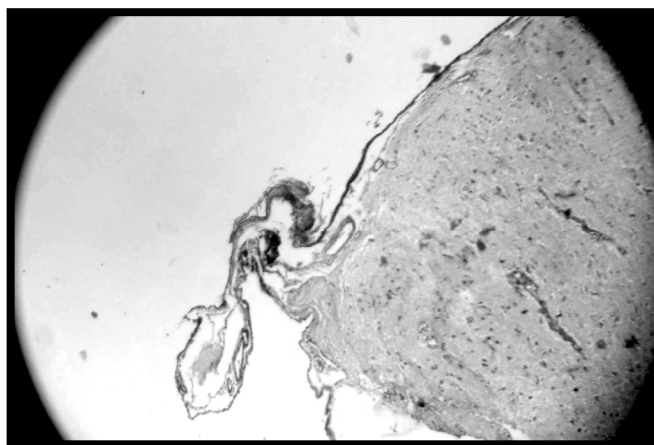
Histopathological study confirmed the diagnosis of a dermoid cyst (figures 3 and 4).



**Figure 3.** Dermoid cyst: Cyst wall is lined by squamous epithelium with sebaceous gland and hair folliculi in its wall.

## Discussion

The origin of dermoid cyst is implantation of abnormal tissue during neural tube closure in the third to fifth weeks of embryonic life. In this patient, the tumor was originated from cribriform plate of the right ethmoid bone, which is a rare place as the origin.



**Figure 4.** The same view as in figure 3 plus adjacent brain tissue.

Usual age of clinical presentation of this cyst is childhood and early adolescence<sup>1</sup>, but the age of this patient is elder than the mean, perhaps because of its unusual location of his cyst. Dermoid and epidermoid cysts are hypodense masses in brain CT Scan, which don't absorb the contrast agent. Brain CT Scan of this patient had the same appearance, but intracranial dermoid cysts have bright (hyperintense) appearance in MRI T1 weighted images, that is related to the fat content of the cyst<sup>1</sup>.

Brown and Morokoff presented a posterior fossa dermoid cyst that was not only hyperdense on CT Scans but also contained a mural nodule with clear evidence of enhancement on MR images<sup>2</sup>.

Epidermoid cysts are classified into two groups: white and black. The first is bright (hyperintense) in both T1 and T2 weighted images but the Second is hypointense in T1 weighted images and hyperintense in T2<sup>1</sup>. MRI of this patient was typically like the images of a black epidermoid cyst. Brown and Fogarty reported a dermoid cyst of molar region with epidermoid cyst presentation<sup>3</sup>.

Some authors consider the MRI with contrast agent (Gadolinium) as the best method for differentiation

between dermoid and epidermoid cysts, in which the capsule of dermoid cyst is enhanced, in contrast with epidermoid cyst. However, some other unusual dermoid cysts have been reported, for example,

Iwamuro described a scalp dermoid cyst containing watery - clear fluid resembling sinus pericranii or pseudo meningocele<sup>4</sup>.

## References

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