MATURE TERATOMA ARISING FROM THE ANTERIOR FOSSA IN AN ADULT

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ABSTRACT

Germ cell tumors may be classified as germinomas, which represent approximately two thirds of all intracranial germ cell tumors, and non germinomas, which include embryonal carcinomas, choriocarcinomas and teratomas. Teratoma may be mature(benign) or immature(malignant). Mature teratomas located in the anterior fossa are extremely rare and have benign characters. Nongerminomatous germ cell tumors, especially teratomas and choriocarcinomas, tend to occur in younger children. Mature teratoma in adults is very rare. In this paper we report a twenty-eight years old patient with mature teratoma in anterior fossa and pneumocephaly.

Key Words: *Teratoma, anterior cranial fossa, adult, pneumocephaly.* ***Nobel Med 2011; 7(3): 114-116***

ERİŞKİNDE ANTERİOR FOSSA KAYNAKLI MATÜR TERATOM

ÖZET

Germ hücreli tümörler, intrakranial germ hücreli tümörlerin 2/3'ünü oluşturan germinomlar ve non germ hücreli tümörler (embriyonal karsinoma, koriokarsinoma ve teratoma) olarak sınıflandırılmaktadır. Teratom immatür (malign) ya da matür (selim) olabilir. Matür teratomlar nadiren anterior fossada yerleşirler. Nongerminomatöz tümörler, özellikle de teratomlar ve koriokarsinomalar çocuklarda görülür ve yetişkinlerde nadirdir. Burada 28 yaşında anterior fossada matür teratom ve pnömosefalisi olan bir olgu sunulmuştur.

Anahtar Kelimeler: Teratoma, anterior kranial fossa, yetişkin, pnömosefali. **Nobel Med 2011; 7(3): 114-116**

INTRODUCTION

Germ cell tumors may be classified as germinomas, which represent approximately two thirds off all intracranial germ cell tumors; and non germinomas, which include embryonal carcinomas, choriocarcinomas and teratomas. Teratomas are congenital tumors that are composed of tissues derived from all three embryonic germ cell layers[1] and represent 0.5% of all intracranial tumors.[2] Teratoma may be mature(benign) or immature(malignant).[1] In most cases, these tumors are located spesifically in the sellar and pineal areas. There is no intraventricular air reported in the literature with teratomas. Mature teratomas in anterior fossa located are extremely rare and they have benign characters. Nongerminomatous germ cell tumors, especially teratomas and choriocarcinomas, tend to occur younger children.[3,4]

In Tapper and Lack's study, clinical and pathologic features of 254 teratomas from 245 patients are reviewed. Tumors were reported to arise from the following anatomic sites: sacrococcygs, ovaries, head and neck, retroperitoneum, mediastinum, testes, central nervous system, liver and abdominal wall.[4-6]

We report a case of mature teratoma from anterior fossa and pneumocephaly in an adult patient.

CASE

A twenty-eight year old, male patient presented with severe headache, fainting and vomitting. Neurological and systemic examinations were normal. In the initial evaluation with x-ray, computerized tomography (CT), magnetic resonance imaging (MRI) and three dimensional imaging, a teratoma in the anterior fossa was demonstrated. The plain skull x-ray revealed pneumocephali as well as calcification within the mass (Figure1). In the cerebral CT, a 4x2.5x2 cm hiperdense mass on the anterior fossa and air in the ventricules were seen (Figure 2). The MRI presented slight hyperintense mass on T1 weighted images and air in the ventricule (Figure 3). 3 Dimensional imaging study showed the relationship between the mass and anterior fossa (Figure 4). Laboratory examination demonstrated no abnormal results. The tumor markers were within normal levels in the serum. Bifrontal craniotomy was perfomed and the tumor was removed completely with no dural defect. The patient did well, and there were no postoperative neurologic deficits. Tumor was as hard as a bone.

In postoperative CT control, there was no mass or hematoma. Histopathologic examination confirmed a mature teratoma. The specimen contained foci of mature bone, peripheral nerve, and central nervous tissue. On postoperative seventh day, the patient was discharged from hospital. There was no postoperative complications.

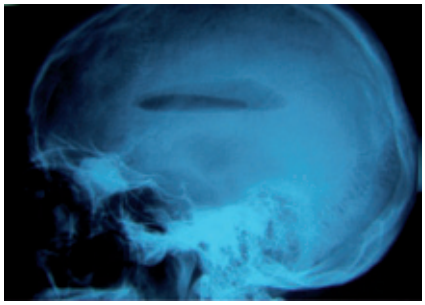

Figure 1. Plain skull x-rays showed, Pneumocephali and calcification within the mass.

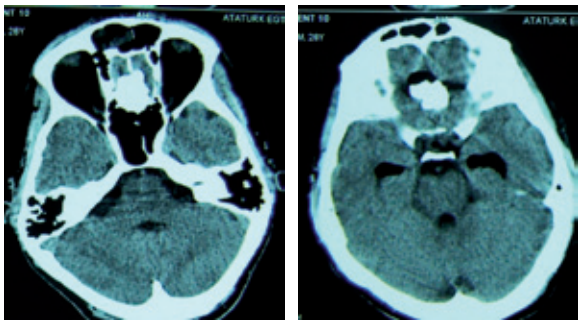

Figure 2. Cerebral CT showed; a 4x2.5x2 cm hiperdense mass on the anterior fossa

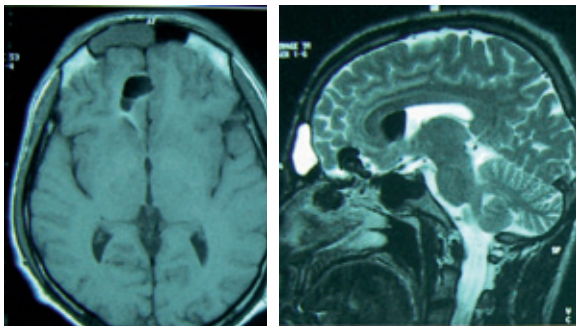

Figure 3. MRI findings: slight hyperintense on T1 weighted images and air in the ventricule.

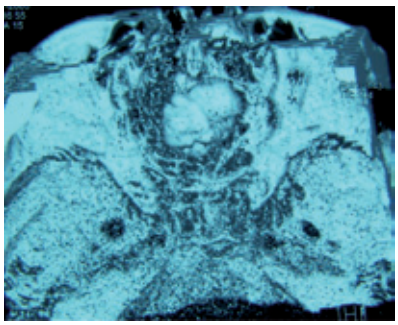

Figure 4. Three Dimension imaging in the anterior fossa.

DISCUSSION

Teratomas can be classified as mature and immature teratomas depending upon differentiation of tissues within in the tumor.[4] In our case; histopathologic examination confirmed a mature teratoma.Teratomas in→

the anterior fossa are rare in the adult population.There is a strong female predominance in those reported.[7,8] Like other teratomatous tumours, malignant changes tend to occur with increasing age. Total removal of these tumours results in cure.[9]

Yang et al. reported that the combined modality treatment (including chemotherapy combined with surgery and/or radiotherapy) is highly effective in treating germ cell tumors patients.[10] Mature teratomas are benign and usually radioresistant.[11] Berhouma et al. reported a huge mature teratoma of the pineal region in a 10-year-old patient. The tumor was completely resected. No adjuvant treatment was given. During a two-year follow up, the tumor did not show any recurrence.[12] Our case did not receive adjuvant therapy and performed well after the surgery on the follow-ups with no neurological defects. Total resection, should be the treatment of choice in intracranial teratomas.

In our case, plain skull x-rays showed pneumocephaly as pneumoventriculogram. We have not met such a case in the literature. This paper is a description of a unique approach to resection of a teratoma located in the anterior fossa with pneumocephaly in a twenty-eight years old patient.

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REFERENCES

1. Dirks PB, Rutka JT, Becker LE, Hoffman EJ. Intracranial Germ Cell Tumors: Classification, Diagnosis and Management. Chap 115, Part X, Volume IV, Youmans, 2000, Neurological surgery (CD Edition)
2. Tobias S, Valarezo J, Meir K et al. Giant cavernous sinus teratoma: a clinical example of a rare entity: case report. Neurosurgery 2001; 48: 1367-1370.
3. Jennings MT, Gelman R, Hochberg F: Intracranial germ-cell tumors: Natural history and pathogenesis. J. Neurosurg 1985; 63: 155-167.
4. Merchut MP, Biller J, Ghobrial M et al. Adult intrasellar teratoid tumor. J Clin Neuroophthalmol 1986; 6: 175-180.
5. Tapper D, Lack EE: Teratomas in infancy and childhood. A 54-year experience at the Children's Hospital Medical Center. Ann Surg 1983; 398-410.
6. Nishioka H, Ito H, Haraoka J et al. Immature teratoma originating from the pituitary gland: case report. Neurosurgery. 1999; 44: 644-648.
7. Grosfeld JL, Billmire DF. Teratomas in infancy and childhood. Curr Probl Cancer 1985; 9: 1-53.
8. Isaacs H. Tumors, In: Potter's Pathology of the Fetus and Infant. Gilbert-Barness E, Ed., Vol. II, ed 3, St. Louis, Mosby-Year Book Inc. 1997: 1242-1258
9. Selçuki M, Attar A, Yüceer N, et al. Mature teratoma of the lateral ventricle: report of two cases. Acta Neurochir (Wien) 1998; 140: 171-174.
10. Yang QY, Sun XF, Huang HQ, et al. Treatment outcome of primary central nervous system germ cell tumors after combined therapy: a report of 23 cases. Ai Zheng 2008; 27: 438-441.
11. Matsutani M, Sano K, Takakura K, et al. Primary intracranial germ cell tumors: a clinical analysis of 153 histologically verified cases. J Neurosurg 1997; 86: 446-455.
12. Berhouma M, Jemel H, Ksira I et al. Transcortical approach to a huge pineal mature teratoma. Pediatr Neurosurg 2008; 44: 52-54.