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GIANT INTRAVENTRICULAR MENINGIOMA IN CHILDHOOD

ÇOCUKLUK ÇAĞI İNTRAVENTRİKÜLER MENİNJİOMU

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ABSTRACT

In the present article, a 6-years old male patient with intraventricular meningioma is reported. Clinical, radiological and pathological features together with treatment methods are discussed. Intraventricular meningiomas are quite rare pathologies. It should be differentiated from more common lesions like choroid plexus papillomas, subependymomas or astrocytomas. The goal of the treatment is complete surgical resection of the tumor which is directly related to better prognosis. There is no need for radiotherapy or other adjuvant treatments in histopathologically benign meningiomas.

Key words: Childhood, intraventricular, meningioma

INTRODUCTION

Meningiomas are extremely rare tumors in chidhood. However, Intraventricular meningiomas are characteristically different in nature in this age group as childhood meningiomas are commonly larger, being more agressive and malignant, showing male predominance, having higher frequency of cystic changes and multiplicity compared to adult form (1,2,4,5,6,11,12,13).

CASE

A 6-years old male admitted to our clinic with loss of consciousness. His medical reports revealed history of a traffic accident. Patient's parents denied any epileptic seizures. On his neurological examination, Glasgow Coma Score (GCS) was 9 over 15 and no localizing neurological signs could be found. The computed tomography (CT) scan showed iso-hyperdense, well-circumscribed lesion measuring 9x7 cm in size with associated perilesional edema and midline shifts in right lateral ventricle. Post contrast scans demonstrated densely enhancing homogenous lesion without any dural tail or dural attachment (Figure 1). It was thought that the head trauma may aggravate the mass affect of the lesion as demostrated on CT scans. Clinical deterioration in neurological status of the patient was related to both mass effect of the lesion and secondary effects of the head trauma thus the patient was treated surgically in emergent conditions. During the surgery, the tumor was seen to originate from choroid plexus of the right lateral ventricle, localized purely in the intraventricular compartment. The tumor was resected totally (Figure 2). On postoperative follow-up neurological examination, patient was in excellent neurological status. On histological examination, the tumor was diagnosed transitional (mixed) meningioma [World Health Organisation (WHO) 2007]. Mitosis, hypercellularity or necrosis have not been observed. Ki-67 proliferation index was 1-2% (Figure 3).

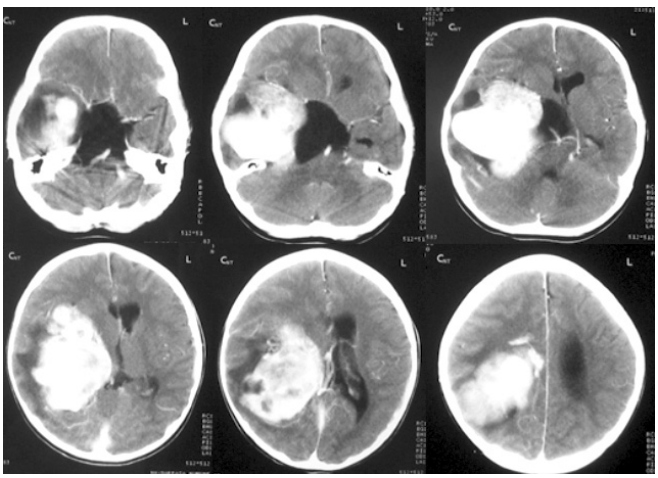

Figure 1. The preoperative CT scan of the patient showing a right intraventricular well-circumscribed lesion, perifocal edema and midline shift. There is a dense contrast enhancement and no dural based attachment.

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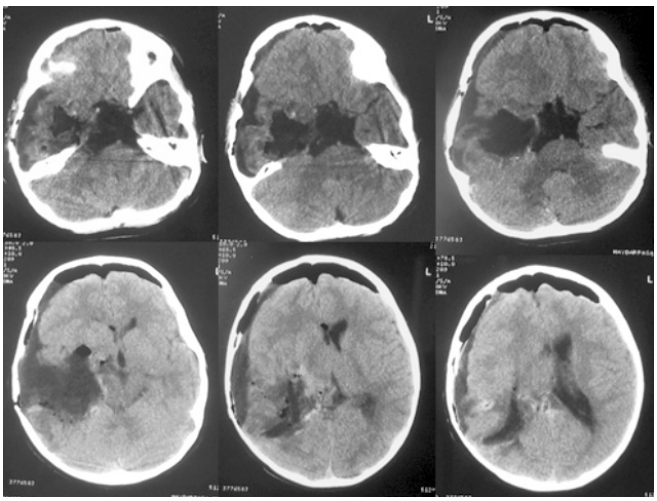

Figure 2. The postoperative CT scan of the patient showing total resection of the tumor.

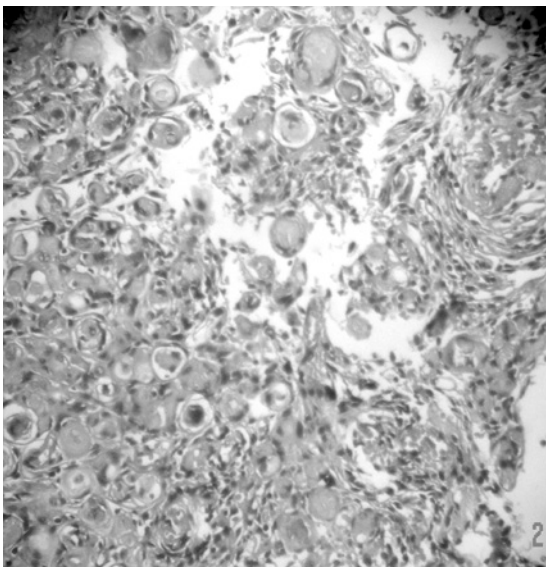

Figure 3. The histopathological appearance of the lesion showing transitional (mixed) meningioma (WHO 2007).

DISCUSSION

Meningiomas are usually associated with dural and leptomeningeal membranes and rarely develops within the ventricles. Intraventricular meningiomas are thought to arise from the arachnoidal cells of the choroid plexus (2,4,7). The meningiomas are rare patologies in chilhood. The average age of pediatric patients is between 8 and 15 years. They account for 0.4-7.7% of all pediatric intracranial neoplasms (1,2,3,4,5,6,7,8,9,11,12,13). However, intraventricular meningiomas in particular are more common (15 to 28%) in children than in adults (0.2 to 4.5%) with respect to localizations. The lateral ventricles are more often involved compared to third or fourth ventricles (1,2,4,5,6,11,12,13).

Intraventricular location of meningiomas in childhood may lead to delay in clinical diagnosis. The majority of children present with signs and/or symptoms of increased intracranial pressure. Headache and vomiting are the most common presenting symptoms. Hemiparesis, seizures and hemianopsia are among the other common findings (2,4,8,12,13).

There is a male predominance in childhood meningiomas (3,4,9,12,13). The radiological findings do not vary between chiidhood and adult intracranial meningiomas. CT and magnetic resonance imaging (MRI) readly yields the diagnosis. The uniformly hyperdense, well-circumscribed lesion with uniform bright enhancement after contrast medium application is typical of meningiomas. Cystic appearance, intraventricular location and the absence of dural attachments are among the frequent findings (1,2,4,6,8,12).

The childhood meningiomas are prone to present as very large lesions (>5 cm). Additionally, there is a greater incidence of malignant or sarcomatous changes ranging from 3 to 38% in pediatric meningiomas (2,3,4,12,13).

In pediatric meningiomas, the treatment method is surgery and the main principle of surgical management is total excision of the tumor. The extent of surgical tumor excision is the most important factor in the prevention of recurrence (12,13). The role of radiation therapy in the treatment of childhood meningiomas is not clearly defined (1,12). However, radiotherapy or other therapeutic modalities are unnecessary if adequate surgical excision can be achieved (1,2,3,10). Some authors have advocated the use of radiotherapy in patients with pathological evidence of sarcomatous changes or malignant tumors. Chemotherapy for meningiomas has had minimal efficacy (12).

Survival rates for children with meningiomas is worse than adults because of the greater incidence of malignant changes, propensity for larger tumors and unusual locations (12). The prognosis of the benign intracranial meningiomas in childhood is good if the tumour can be removed totally (2,3,13). Incomplete surgical excision and focal neurological deficits at presentation yield poor outcome (9).

In our patient, the tumor is diagnosed coincidentaly. The tumor had the characteristic feature that was expected in childhood tumors, as large dimensions, intraventricular location, having no dural attachments. It should be emphasized that primary treatment of the menegiomas are total surgical removal and , as these are benign tumors, when it is achieved there is no need for any other supplemantary treatment.

CONCLUSION

Meningiomas are more common in adults than in children. However, frequency of the intraventricular meningiomas are higher in childhood than in adults. The pediatric type should be distinguished from other ventricular tumors like choroid plexus papillomas, astrocytomas and subependymomas. The prognosis is well if the tumor can be removed totally.

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