Extensive Invasion of Malignant Meningioma on the Scalp Case Report and Review of the Literature

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ÖZET

Skalp Dokusuna Uzanım Gösteren Malign Menengiom: Olgu Sunumu ve Literatürün Gözden Geçirilmesi

Menengiomlar en sık görülen tümörleridir ve çoğu benindir. Bununla birlikte biyolojik davranışları değişken ve lokal agresif olabilir ve uzak metastazlar gösterirler. Sağ olfaktor siniri de etkileyen 12 yaşındaki kız çocuğunda malign menengiom sunduk. Nörolojik muayenesinde 1 ve 2 kraniyal sinirlerinde total paralizi vardı. Radyolojik muayenesinde skalp dokusuna taşmış frontobazal menengioma ile birlikte kemik erozyonu frontobazal bölgede idi. Tümör nazal kanala da uzanım gösteriyordu. Tümör transnazal ve transkraniyal yaklaşımla total olarak skalp dokusuna uzanan tümör dokusu ile birlikte total cerrahi küretaj ile tedavi edildi.

Bu bu operasyondan sonra, radyoterapi ve adjuvan kemoterapi uygulandı. Hasta 3 ay sonra rekurens nedeniyle bifrontal kraniotomi ile nasal kaviteden tümör reopere edildi. Tümör nazal kaviteden ve kraniumdan taşıyordu fakat hasta ikinci operasyondan 5 ay sonra ex oldu. Bu olgu bizim bilgilerimize göre bu şekildeki nazal kaviteden dışarı çıkmasıyla karakterize olmasıyla sunulan ilk pediatrik olgudur. Pediatrik yaşta tümör eğer skalp dokusuna taşmış ise prognozun kötü olacağının bir göstergesidir.

Anahtar Kelimeler: *Malign menengiom. Ciltaltı lezyon, Skalp, Pediyatrik yaş.*

SUMMARY

Meningiomas are common intracranial tumors, the majority of which are considered benign. However, they sometimes show altered biologic behavior, associated with local aggressiveness and late distant metastasis. The authors report the case of a 12-year-old girl with a malignant meningioma of the right olfactory groove. Neurological examination showed right 1 and 2 cranial nerve total paralyisis. Radiologic findings demonstrated of frontobasal intracranial meningioma with surface erosion and extention of the frontal right bone associated with scalp, and with extension to the area of the nasal canal. The tumor had been totally removed by combined surgery (both transcranial and transnasal), an isolated subcutaneous metastasis developed at the right nasoethmoidal area of the scalp.

After removal of this operation, radiotherapy and adjuvant chemotherapy were conducted. The patient has been tumor recurrence for 3 months, later and reoperated via bifrontal craniotomy extented to nasal cavity. The reccurence of tumor was free in the both cranium and extracranium region. But, the patient was died 5 month later after the second operation. To our knowledge, there has not been previously reported same case, both with intracranial lesion and invasion of the scalp in the pediatric age. The prognosis of is poor if the tumor can be done extensive invasion of malignant meningioma on the scalp in the pediatric ages.

Key Words: *Malignant meningioma, Subcutaneous lesion, Scalp, Pediatric age.*

Introduction

Meningiomas account for approximately 20% of all primary tumors in adult, but they seem rare in the childhood (1). Most tumors are sporadic; however, NF2, an inherited disease, is associated with an increased risk for the development of meningiomas (2,3). In contrast to those in adults, childhood meningiomas account for less than 3% of all primary CNS tumors and have been reported to show a slight male predominance (4-7). In contary, malignant meningiomas are rare tumors. Their incidence among meningiomas is reported to be between 2 and 10% (8). The incidence of metastasis formation among malignant meningiomas is 0.1% (8). Different means of metastatic formation have been documented for malignant meningiomas, that is, spreading through blood, lymph, CSF, and medical/surgical treatment. Malignant meningioms may be invased toextracranial region due to rapidly progression. A one case reported which is surgical inoculation on the scalp. An extensive scalp invasion of a malignant meningioma has not been reported in literature.

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CASE REPORT

This 12-year-old girl was admitted to our department, because there was a growing giant mass at the right frontal and nasal regions

Examinatio:. She had a exophtalmus in the right side. First and second cranial nerves were paralysıs. Other ne-

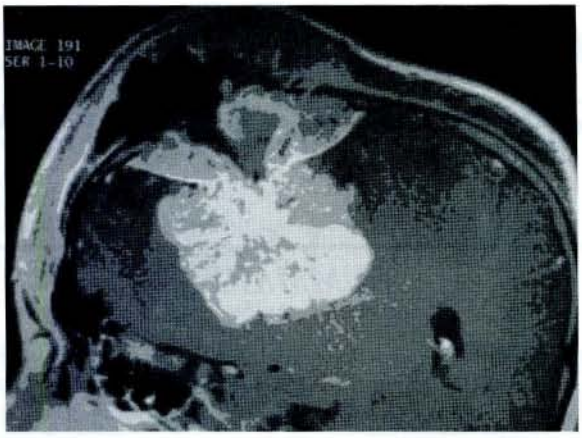

FIG. 1. Gross appearance of the patient's head with the right frontal tumor before surgery. Sag ittal MR images demonstrating an irregular contrast-enhancing mass lesion with invasion of the right frontal cortex and edema.

urological signs were normal. CT and MR imaging revealed a contrast-enhanced tumor at the right frontal skull, which was spreading toward the scalp and the frontal brain cortex because there was a growing mass at the right frontal portion of her head and scalp (Fig. 1). Tumor removal was performed in one step. First the bone that had been infiltrated by tumor was removed along with a safety margin. The intracranial portion of the lesion was then resected along with a narrow safety margin. The tumor was cut in front of its dural attachment and the dura mater was removed with careful dissection of portions of the infiltrated right olfactor groove in the frontal region. Duraplasty had been performed with fascia lata, and cranioplasty had not been performed. Later, the wound was closed. Typical neurosurgical standard precautions for dealing with tumors, such as cotton wool draping, irrigation, and suction, were carefully applied. The patient's recovery from surgery was good and there was no sign of deficit. Following surgery, radiotherapy was immediately begun. After this tumor had been removed and examined, the diagnosis of a malignant meningioma was given. At the follow-up examination performed 3 months after surgery, tumor reurrence had been occured inside both the scalp and extrusion of the right nasal cavity. The patient was operated again with same procedure. Second operation result was also good. But the patient was died 3 months after the second operation.

DISCUSSION

Malignant meningiomas play an important role in pediatric neurosurgery. The authors of several studies have reported that the frequency of pediatric cerebral meningiomas is approximately 1.5% of all intracranial pediatric tumors. Which is in contrast to adults in whom meningiomas constitute approximately 15% of all intracranial tumors. Pediatric meningiomas seem to be more malignant (9, 10, 12, 15-21, 25-27). Primary localization of malignant meningiomas ranges from their typical origin within the leptomeninges to an origin in the temporal bone, and to rather atypical origins, such as the nose, middle ear, jugulocarotid space, retroperitoneal space, and other locations (13-23). Ectopic arachnoid tissue, gene mutation due to cytostatic radiotherapy, and pharmacological therapy can cause these tumors to appear at those atypical primary locations (14). Recurrence of benign and malignant meningiomas, even after so-called total tumor removal, is a well-described problem (15). Metastases of malignant meningiomas may arise from various types of cell dissemination: hematogenic, lymphogenic, and iatrogenic, per continuum, or by means of CSF. If possible, total surgical removal is the treatment of choice for malignant meningiomas. Especially in children, the recurrence rate after surgical removal is low (16). Nevertheless, in surgery for malignant brain tumors, there is always the dilemma of how to prevent unnecessary brain damage while reducing the risk of metastasis (17-23). In contrary to Coke et al cases (26), our case was different to due to early recurrence, and more malignant than literature cases. The tumor was profund invasion. Agressive treatment was not effective in our case.

In conclusion, if the meningioma is included subdermal or scalp tissue, it is very malignant or agressive nature. For thus early surgery and postoperative RT are more important.

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