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Article

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Rapid recurrence of a malignant meningioma: case report

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Abstract: This short report presents a case that developed rapid recurrence of a malignant meningioma. The meningioma was located on the right temporal lobe and total removal (Simpson grade-II) was performed. Radiotherapy was not given and the lesion recurred within four months. The MIB-1 (Ki-67) index was 30 % and the tumor fulfilled all the criteria of anaplasia. After the second surgery, patient was transferred to the Radiation Oncology for radiotherapy. Should we questioned the extent of surgery? Neurosurgeons should be careful and close follow-up the patients with malignant meningioma.

Key words: Anaplasia, Malignant meningioma, Recurrence, Surgery, Radiotherapy

Introduction

Meningiomas are among the most common extra-axial central nervous system (CNS) tumors, ac-counting almost 30 % of all CNS tumors (5). The majority are histologically benign which were graded as grade-I by World Health Organization (WHO). In 2007, WHO introduced some criteria and grade-II (atypical) and grade-III (anaplastic or malignant) variants have been introduced into the current literature (3).

Among the three groups, malignant meningiomas are very rare, accounting 1-3 % and show aggres-sive behavior and high recurrence rate (5).

In this short report, we want to present a case of a malignant meningioma which had rapid recurrence.

Case Report

This 69-year-old female was admitted to a local hospital with severe headache. Magnetic resonance imaging (MRI) of the head revealed a mass with hypointense on T1- and iso-hyperintense on T2-weighted images on the right temporal lobe. The lesion measures 33 mm diameter and showed massive edema. On the contrasted images, the lesion showed heterogeneous enhancement with irregular margins (Figure 1). Then the patient was consulted to us and our neurological examination was normal. The patient underwent surgery in which the lesion was totally removed and the dura of origin was coagulated (Simpson Grade-II).

Early postoperative MRI confirmed total removal (Figure 2) and histopathological

diagnosis was malignant meningioma (WHO Grade-III). On the histopathological report, the lesion fulfilled the criteria for anaplasia with high mitotic activity and necrosis. Immunostaining showed strong positive staining for vimentin and partially positive staining for epithelial membrane antigen (EMA). Proliferation index for Ki-67 was found to be 30 % and no rhabdoid or papillary features was re-ported. The postoperative period of the patient was uneventful and discharged from the hospital without any neurological deficit. Although the radiotherapy was advised, the patient refused to have it because of its side effects. Thus we decided to close follow-up either with clinically or radiologically.

Four months after the surgery, the patient again complained of severe headache accompanying with nausea and vomiting. CT scan of the head in the local hospital revealed a mass on the right temporal lobe with 7 mm midline shift causing midbrain compression (Figure 3). Then the patient was transferred to our clinic. The neurological examination was normal and MRI showed a recurrence which had increased in size on the right temporal lobe. Reoperation was performed in which total removal again was achieved (Figure 4). The postoperative period was uneventful and the patient was sent to the Radiation Oncology for radiotherapy. Second histological study including immunohistochemical staining revealed that Ki-67 has increased to 70 % and malignant characteristics of sarcoma.

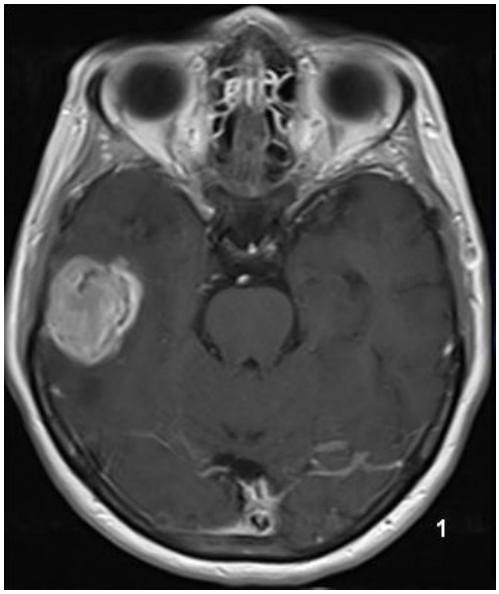

Figure 1 - A contrasted image shows heterogeneously with irregular margin on the right temporal lobe

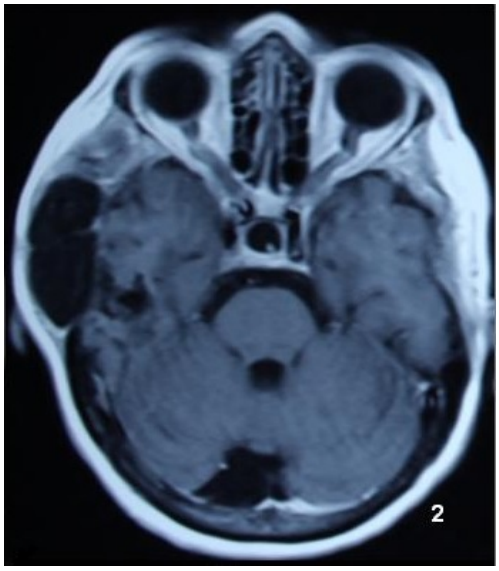

Figure 2 - Early postoperative contrasted image showed total removal and no contrast enhancement

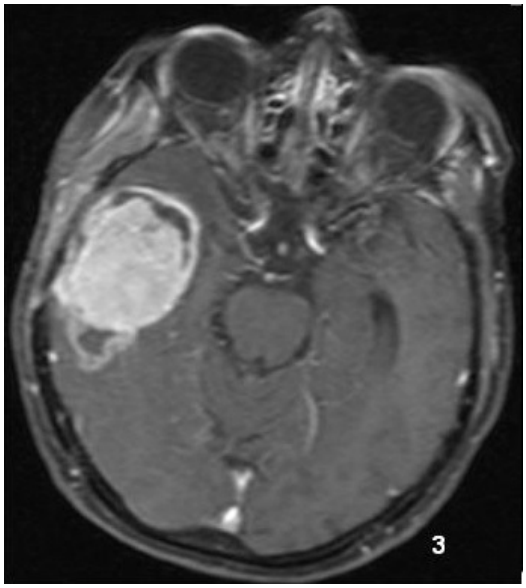

Figure 3 - Four months after surgery, T1-weighted image revealed a heterogeneously con-trasted with irregular border recurrence which had increased in size compared to the previ-ous mass

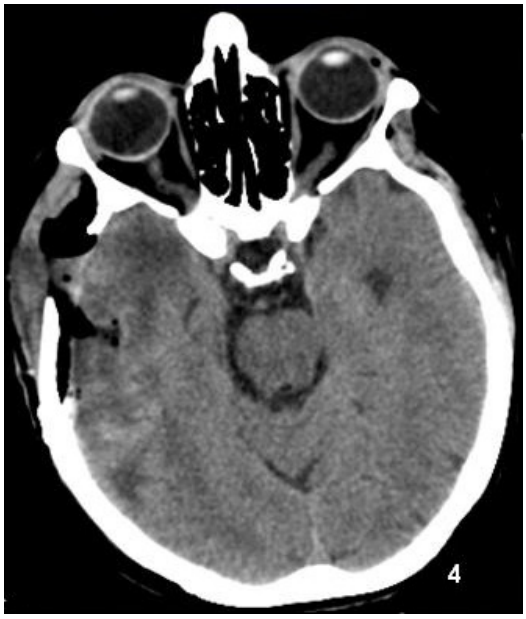

Figure 4 - Early CT scan of the head confirmed the total removal

Discussion

Malignant meningiomas are very rare clinical entity and satisfactory results from the treatment including surgery and radiotherapy in general are not possible. Despite total surgical removal (Simpson Grade-I) and following radiotherapy, recurrence at 5 years has been reported to be very high, accounting for almost 80 % (1). The median time to recurrence is 1 to 3 years and survival is less than 2 years (1, 5).

In the current literature, reports with respect to rapid recurrence in malignant meningiomas are very scarce and only two case reports have been encountered. Petridis, et al. (4) reported a case of a 71-year-old man who operated on a malignant meningioma. The tumor was removed totally (Simpson Grade-I) and radiotherapy was given. The proliferating index (MIB-1) was found as 60%. However; eight months after surgery, the authors found recurrence with multiple meningiomas which were spread all over the brain. The authors tried to make a connection between the rapid recurrence and the radiation therapy although they underlined that whether the occurrence of the new tumors was due to radiation cannot be proved. Another case was reported by Kawahara, et al. (2) who operated on a 62-year-old patient with malignant meningioma. They performed Simpson grade-III surgery due to the attachment of the tumor to the middle cerebral artery. Forty-three days following the first surgery, follow-up revealed a tumor recurrence which was bigger than that of primary tumor size. The MIB-1 index was

found to be 70 % and after second surgery the patient was treated with radiotherapy. The very short time to recurrence was according to the authors due to the high MIB-1 index which was found to be correlated with the rapid tumor growth. In their case sub-total removal might be the cause of recurrence but the authors underlined that the extent of surgery is not correlated with the onset of recurrence.

Our case fulfilled the anaplastic criteria determined by WHO but MIB-1(Ki-67) was not high. Ex-tent of surgery (Simpson Grade-II) is appropriate in our case in which the tumor was removed to-tally and the dura was coagulated. Radiotherapy was not given in our case so that radiotherapy cannot be blamed for the rapid recurrence. Radiotherapy is generally given for the recurrent or residual tumors but we agree that it surgery should aim to remove in toto (Simpson Grade-I) which should be followed by radiotherapy which can increase the recurrence interval.

Conclusion

Conclusion from our short report and the two reports mentioned above should be that whatever the extent of surgery, radiotherapy should be considered immediately and the patients with malignant meningiomas should be followed-up closely because of very malignant nature or behavior.

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References

1.Jaaskelainen J, Haltia M, Servo A. Atypical and anaplastic meningiomas: radiology, surgery, radiotherapy, and outcome. Surg Neurol 1986; 25: 233-42.

2.Kawahara Y, Nakada M, Hayashi Y, Watanabe T, Tamase A, Hayashi Y, Uchiyama N, Nitta H, Hamada J. Anaplastic meningioma with extremely rapid recurrence: A case report. Neu-rol Med Chir (Tokyo) 2011; 51: 386-8.

3.Perry A, Louis DN, Scheithauer BW, Budka H, Von Deimling A. Meningiomas. In: Louis Dn, Ohgaki H, Wiestler OD, Cavenee WK, editors. WHO Classification of Tumours of the Central Nervous System. 4th ed. Lyon: IARC Press; 2007.p.164-74.

4.Petridis AK, Doukas A, Mahvash M, Dörner L, Hugo HH, Mehdorn HM. A case of rap-id-growing anaplastic meningiomas. BMJ Case Rep 2009; doi:10.1136/bcr.05.2009.1862

5.Riemenschneider MJ, Perry A, Reifenberger G. Histological classification and molecular genetics of meningioma. Lancet Neurol 2006; 5: 1045-54.