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Original Research Paper

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RECURRENT MENINGIOMA WITH MALIGNANT TRANSFORMATION: A CASE REPORT AND LITERATURE REVIEW.

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ABSTRACT Intracranial meningiomas continue to challenge our best clinical efforts to eliminate them once discovered and deemed appropriate for treatment. Malignant meningiomas constitute 10% to 15% of all meningiomas and limited information exists regarding adjuvant treatment. The external whole brain irradiation is recommended. Traditional chemotherapy has proven ineffective; thus, new chemotherapeutic agents and new methods of delivery should be developed. Immunotherapy may be considered for patients with malignant meningiomas when all others previous treatment have failed. We report a case of anaplastic meningioma. A 35 year old man presented with partial complex seizures, headache and aggressiveness. A computerized tomography and magnetic resonance image demonstrated a large right parietal-occipital mass with diffuse contrast enhancement and extensive surrounding edema. A parieto-occipital flap was performed. The tumor and the infiltrated dura were radically removed. Postoperatively, the patient remained neurologically intact. The treatment was complemented by external radiation. After a 5 year tumor recurred again and was resected with histopathology anaplastic meningoma. Three month later patient presented with locally aggressive recurrence, which was unresectable, patient was re irradiated.

KEYWORDS : Recurrent meningioma and Reirradiation

INTRODUCTION

Meningioma, one of the most common types of brain tumors in adults, remains a clinical problem yet to be solved by neurologist, neurosurgeons and oncologists. Meningiomas constitute 15% to 20% of all primary brain tumor and 10% to 15% of all meningioma are considered malignant[1](Wilson CB et al 1994). Approximately 90% of meningiomas are benign. The WHO classifications defined the most frequent subtype as grade I meningioma and atypical and anaplastic neoplasms as grade II and III meningiomas, respectively[2] (Moradi A et al 2008).WHO grade II and III meningiomas have a significantly higher recurrence rate after both surgical and radiotherapy managements[3] (Durand A et al 2009).Multiple surgical resections may be required in patients with recurrent meningioma. When repeated operations are required, the chance of cure is significantly reduced. In rare instances, a histological malignant transformation may occur and make the prognosis even worse .

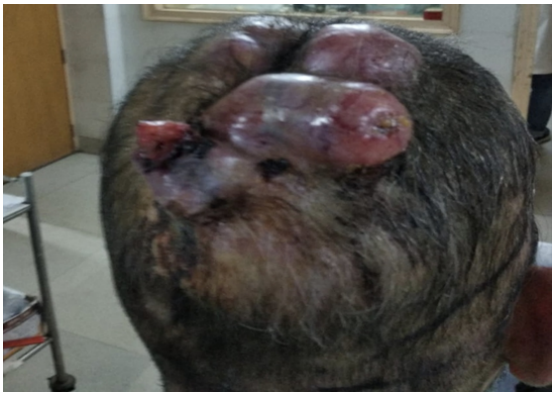
We here report a case of parieto occipital meningioma which at the time of presentation was histological benign. Location and invasion of bone resulted in subtotal resection with later recurrences. There was a malignant transformation in the course of multiple recurrences. Extensive tumor invasion led to serious complications and finally the demise of the patient.

CASE

This 35 year old man presented with strong headache, behavior disorder, vomiting and two episodes of partial complex seizures in the last three months. The neurological examination revealed a mild mental confusion and bilateral papilledema. There was no motor or sensitive signs.

A magnetic resonance image (MRI) obtained with and without contrast showed an enhancing large right parieto-occipital mass with diffuse contrast enhancement and extensive surrounding edema. The dura infiltrated by the tumor was removed. The tumor was removed radically and it can see at the postoperative MRI scans .

The patient was referred to Radiotherapy department, to receive complementary treatment with external brain radiation. The histopathologic exam showed atypical meningioma with vascular channels surrounded by neoplastic meningothelial cells, and highly cellular areas with mitoses. The patient received radical dose of radiation 50 Gray with concurrent temazolamide by convention method may/ 2015. The patient was doing well till oct/ 2019, and he suffered local tumour recurrence, which was histopathologicaly Anaplastic meningoma ,MRI contrast reveals locally aggressive recurrent 6x6 cm ICSOL right parietal region with peripheral oedema and center necrosis. The tumour invades into skin and patient shifted to neurosurgery where tumor was resected .The tumor was histopathological malignant meningoma, after 4 month patient again presented with local reccurence shown in picture 1



Picture 1.

The MRI demonstrate a 5.2x 5.6 x6.6 cm subdural extracranial mass in right occipital region, the mass is enhancement on post contrast isointence a T2 and T1 ,it shows heterogenous enhancement in post contrast image Shown in fig 1.

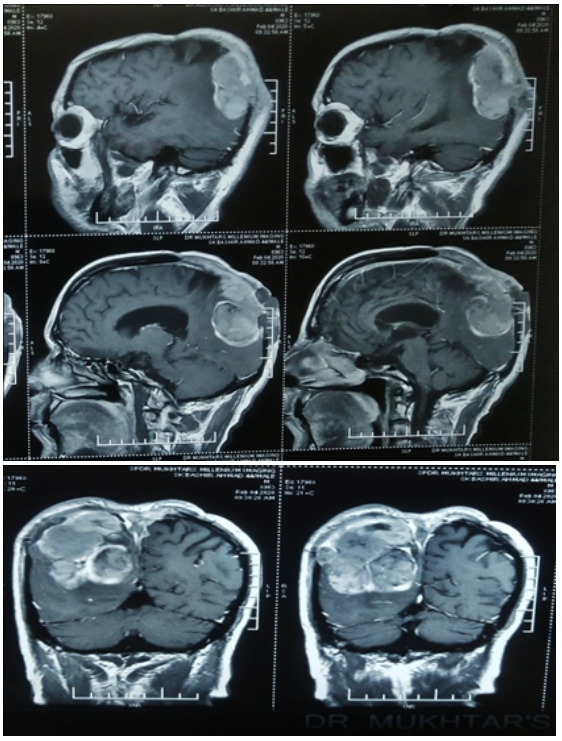
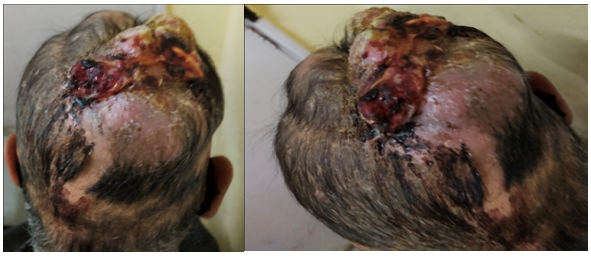


Fig 1.

The patient then underwent local palliative radiotherapy (GTV, 60gy/30F), with satisfac¬tory result with 40% response clinically Shown in picture 2, and shifted to nurosurgery department for re excision.



Picture 2.

DISCUSSION

The majority of meningiomas are benign. However, atypical and anaplastic meningiomas are more aggressive, especially anaplastic meningiomas, which are rare but bear a high recurrence rate and unfavorable prognosis[3]. Meningioma is the most common intracranial brain tumor, accounting for over one-third of primary brain neoplasms[4] (Ostrom QT et al 2014) .Meningioma is divided into 15 subtypes and 3 grades[5] (Louis DN et al 2016). Grade III has three variants, namely anaplastic, rhabdoid and papillary. Anaplatic Meningoma is the most common grade III type, which has a high degree of malignancy and a high recurrence rate. The age at onset of Anaplatic Meningoma ranges from 18 to 70 years old[6] (Aizer AA et al 2016). Extent of resection and overall survival for patients with atypical and malignant meningioma.

The clinical characteristics of Anaplastic Meningoma are not ty-pical,most patients present with signs and symptoms attributable to mass effect at the tumor site, including headache, seizure, and hemiparesis, while some patients are asymptomatic[7] (Sughrue ME et al 2010) Variable reports of median overall survival are found in the literature, with some series reporting a survival of 1.5-3.5 years, a 5-year survival rate of 35%-61%[8] (Moliterno J et al 2015).

A retrospective study demonstrated that the factors associated with the progression-free survival of Anaplastic Meningoma were preoperative Karnofsky performance status, extent of tumor resection, radiotherapy, tumor location and a history of meningioma[9] (Zhu H, Xie Q et al 2015). Approximately 80% of patients with recurrence develop tumor regrowth and metastasis, but extracranial metastases in these cases is rare, accounting for only 0.1%. Although surgery is considered the primary treatment of choice for such cases, the high recurrence and metastasis rates require other adjuvant therapeutic modalities, such as external beam radiotherapy[10](Sun SQ et al 2015).

Surgical resection is a reliable approach in treating meningioma in most cases. Total resection is the best management for the cure of the tumor and the least chance of recurrence. Total resection is often curative but may not be feasible based on factors such as extent, location, and bony or dural infiltration of the lesion. A subtotal resection may significantly increase the postoperative recurrence rate[11] (Whittle IR et al 2004). For local recurrences, treatment options include repeated surgical resection, radiotherapy and chemotherapy.

Alternative nonsurgical treatments of recurrent meningiomas has been employed. The most frequent nonsurgical managements are radiotherapy and chemotherapy. There is no consensus for the role of radiotherapy and chemotherapy in therapeutic management. Concerning WHO grade III meningiomas, radiotherapy is considered necessary because of their potential for recurrence and aggressive behavior. Chemotherapy has not shown any convincing effect on atypical and anaplastic meningiomas and should be reserved for recurrent meningiomas when all standard therapies have failed[12.] (Mason WP et al 2002). Interestingly, for our patient, the initial presentation of the meningioma in 2015 was atypical. Samples from recurrent lesion in 2019 showed anaplastic features. Substantial evidence had indicated the malignant transformation for the sections of repeated recurrent tumor is unresectable and post radiation help it to became a resectable tumor.

In conclusion, since maningoma is prone to recurrence aggresively, it represents a major challenge in terms of treatment making accurate diagnosis essential. Anaplastic Meningoma exhibits the general imaging characteristics of malignant tumors, but when it causes bone destruction, observing whether symmetry exists between bone destruction and mass may provide clues to the diagnosis. Anaplastic Meningoma can be accurately diagnosed through a combination of imaging and pathological findings. Alternative nonsurgical treatments of recurrent meningiomas has been employed. The most frequent nonsurgical managements are radiotherapy however role of chemotherapy not proved yet .

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