CASE REPORT

AN UNUSUAL PRESENTATION OF HUGE MENINGIOMA EXTRUDING OUT OF SKULL

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Scalp masses are commonly seen in clinical practice. They range from simple sebaceous cyst to malignant neoplasms. Clinical presentation is straight forward in most of the cases. Simple subcutaneous swelling till erosion of scalp and skull all can occur. However very few intracranial masses present with exophytic scalp swelling. This is because they have to erode dura, thick skull bone and all the layers of scalp to appear out on scalp. It is very unusual that an intracranial mass present like a scalp swelling. Some of the intracranial masses have tendency to erode skull. Dermoid & meningioma are among the most common.

Keywords: meningioma, skull and scalp erosion, reconstruction

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INTRODUCTION

Meningiomas are among the most common extra axial intracranial tumors.[1] which derived from meningothelial cells. They account for 15% of all adult and 4 % of all child hood tumors.[2] The etiology of it is largely unknown. However trauma, radiation and genetic predisposition all said to play role.[3] Mostly they are benign, but some of its variants have tendency of malignant transformation.[4] Some forms like choroids meningioma have aggressive course.[5] Meningothelial, transitional and fibrous are the most frequent benign sub-types.[4]

Diagnosis can confirmed both on clinical and radiological imaging, which includes CT-scan with contrast with consecutive fine sections and MRI of brain. Sometimes other advanced tests like angio-MR, and digital subtraction (DSA) angiography performed with selective arteriography including late venous phases to know the vascularity and feeding vessels are also needed.[6]

Management and prognosis depend on their grade and histology.[1] Size of the tumor has implications on the management plan; if less than 2.5 cm and is not symptomatic, can be managed conservatively with serial monitoring with radiological imaging.[7] Surgery is the main stay of the treatment[8] & in selective cases radiosurgery can be opted.

CASE REPORT

A 45 years old male from periphery presented in out patient department with a large swelling (Figure-1) on anterior right side of the head crossing the midline on left and encroaching the right supra orbital margin and extending posteriorly at level of pinna for the last 10 years. Swelling was progressively enlarged over the passage of time. It had black discoloration in patches with occasional skin erosion and ulceration. It measures 6×9 cm transversely and 7×8 cm vertically and was nodular. On palpation the bone defect was palpable underneath.

No lymph nodes were palpable. Patient had failed excision attempt by a local doctor & was deferred due to increased bleeding. On computerized tomography (CT) scan brain with contrast (Figure 2 & 3) it was a contrast enhancing intracranial mass with extra cranial extension. There was obvious hyperostosis of bone and a large bone defect.

He had unremarkable chest x-ray, spinal x-ray and other hematological investigations. He was prepared for surgery and with the collaboration of Plastic surgeon it was resected with a 3 cm wide margin of scalp. Grade 0 Simpson's resection was done (Figure-4).

Duroplasty was done with fascia lata graft from right thigh. Reconstruction of the scalp defect was done initially by 'reverse radial fore arm graft' of the right arm (Figure-5) which on third post-operative day started to become congested. On eight post-operative day it became necrosed (figure 6) & was ultimately debrided & was replaced with 'bucket handle graft' (Figure-7, 8).

Post-operative CT scan brain (figure 9) showed no residual tumor. He had uneventful recovery & was sent home on 10th postoperative day.

Histopathology revealed Meningosarcoma. Our further plan was to reverse the flap and radiotherapy but unfortunately patient lost to follow-up.

Figure-1: Gross appearance of multi-lobulated extruding scalp mass with necrosis and ulceration at places

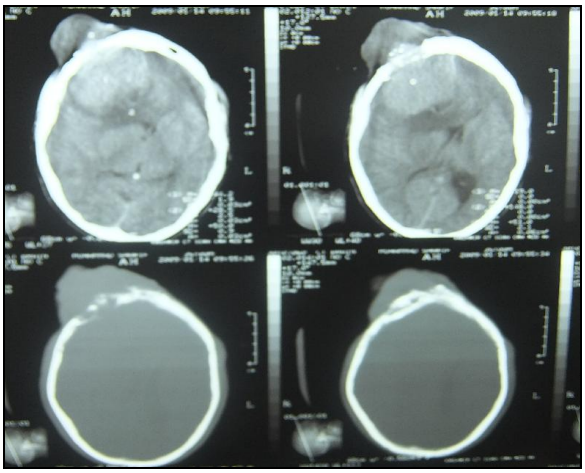

Figure-2: CT scan brain without contrast showing intracranial mass with extracranial extension & bone window showing large boney defect

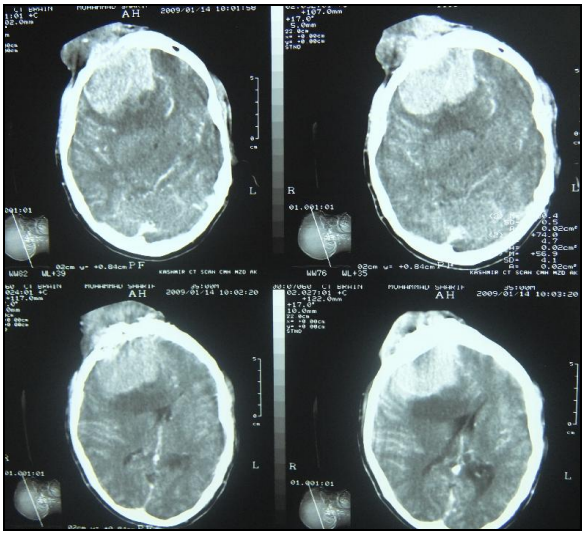

Figure-3: CT scan brain with contrast showing mass with intense contrast enhancement

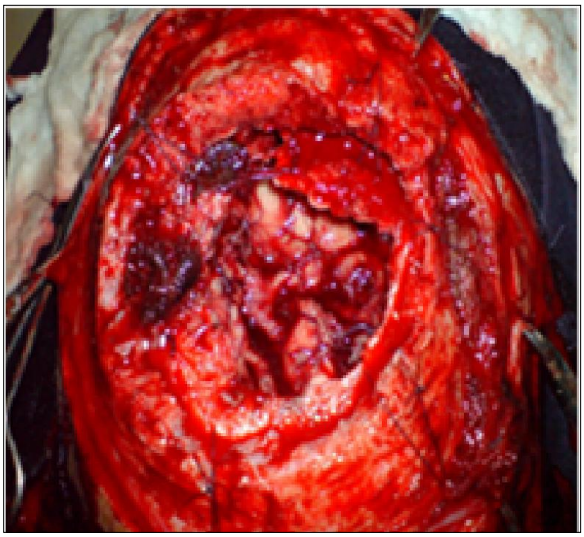

Figure-4: Per-operative picture showing complete mass removal and large boney defect

Figure-5: reverse radial forearm graft on scalp defect, with congestion

Figure-6: Necrosed reverse radial forearm graft

Figure-7: Bucket handle scalp graft

Figure-8: Well healed partial thickness mesh skin graft on donor site

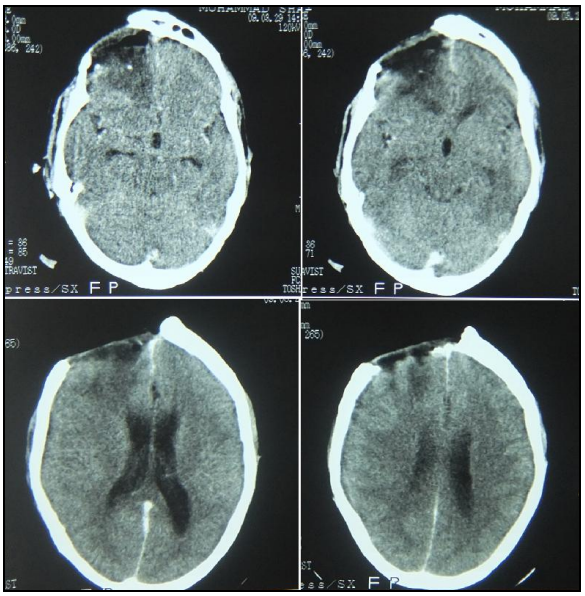

Figure-9: Well healed partial thickness mesh skin graft on donor site

DISCUSSION

Extra cranial extension of an intracranial mass is not common. Various barriers have to overcome in order to extrude out from scalp. Dura, bone & scalp are the main hurdles. However some tumors like meningiomas, which have tendency to erode skull because of bone involvement can extrude out.[9] But it is highly unusual to get an enormous size and to present as large scalp swelling as was in our case. Since meningioma are slow growing tumors so it takes years to have a size what we encountered.

It was a huge tumor involving right frontal & parietal scalp with irregular surface and occasional areas of necrosis. Since size of tumor have implications both on management as well as prognosis so it is worth considering it. Asymptomatic lesions having sizes less than 2.5 cm can be managed conservatively with serial regular MRI brain scans.[7] The lesion as large as we had (more than 9 cm) is definitely surgical. We did surgery and as recurrence depends upon extent of removal (95% with Simpson's grade-1)[10] so a wide local excision of whole tumor along with dura and scalp with 2 cm margin was excised (Simpson's grade-0).

It was not only the removal of tumor that was of primary concern. Filling of that defect in dura & scalp was also equally important. Various methods of duroplasty[11] are available. We had fascia lata graft as dural substitute & for scalp defect we sought help of plastic surgeon. They also had multiple choices as free skin transplantation, scalp flap, cervico-shoulder flap, trapizius myocutaneous flap & radial artery retro-island flap.[12] They opted for radial artery retro-island flap which subsequently underwent necrosis & we had to perform a successful bucket handle scalp flap. It was well managed team effort that ended up with excellent patient's outcome.

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