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Rare case of Calvarial Haemangioma of Temporo-Parietal Bone: A Case Report

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1. INTRODUCTION

Calvarial haemangiomas (CHs) are rare, benign, slow growing tumours that account for 2%–10% of calvarial tumours and 0.2% of all bony neoplasms.[1–5] They are commoner in women,[1,3–9] in the 2nd to 4th decades[1,5–7,9] and in the parietal and frontal bones.[1,3,6]The radiological appearance can range from sessile growing intra-diploically to globular and the lesions may extend outwards or inwards after eroding the outer and inner tables of the skull. “Sunburst appearance” and “Wagon-wheel sign” are classical radiological findings but the lesions may present simply as a lytic expansile or even sclerotic calvarial mass. Because of varied clinical presentation and atypical radiological characteristics, the final diagnosis can be clinched by histology only. In selected cases where these lesions are not cosmetically acceptable, en bloc resection with tumour free margins followed by cranioplasty is the treatment of choice.

2. CASE DETAILS

A 9-month-old boy was brought to our Neurosurgery OPD, CN Center with the complaint of swelling in the right parietal scalp region since birth. It was gradually increasing since birth. There was no change in colour over the scalp. It was painless. The child had a Normal Vaginal Delivery with no history of instrumentation during delivery. Apart from this there were no other complains.

Local Examination: The size of the swelling was 3X3 cm. It was soft, compressible, non-tender and there were no signs of inflammation over the swelling. Transillumination test was negative.

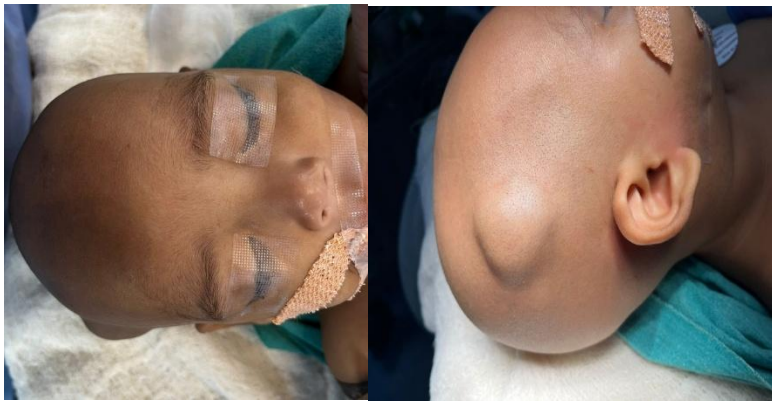

Fig 1: Swelling size pre-operatively

Investigations:

In the next one week of hospitalization, careful clinical and diagnostic evaluation was done.

1) NCCT BRAIN revealed a well-defined soft tissue attenuation lesion in right parietal scalp which has eroded both tables of right parietal bone with small intracranial extra axial extension.

2)

3) CEMRI BRAIN revealed an approximately 29X10mm well defined mixed T2 signal intensity lesion in the right parietal scalp possibly in subperiosteal location showing strong contrast enhancement causing compression of underlying calvarium with focal thinning possibly suggestive of Eosinophilic Granuloma/ Calvarial Haemangioma.

Based on the findings, a decision was taken to excise the lesion.All routine pre-operative investigations were done followed by Pre-Anaesthetic checkup.

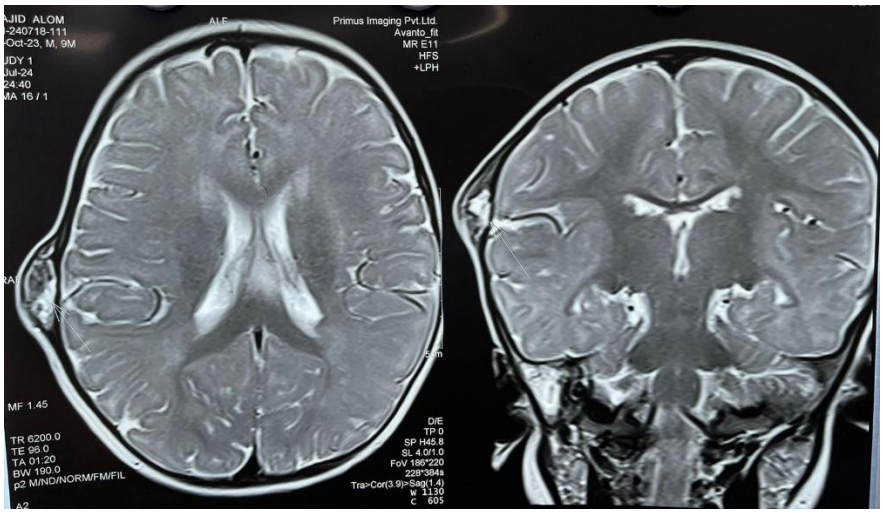

Fig 2: Pre-operative MRI films showing the swelling.

Surgical Procedure:

After the induction of the patient with GA by our neuro-anaesthesia team, the patient was positioned in supine position with right side up. A “C” shaped incision given in right Fronto-Temporal region. Incision deepened. Skin and subcutaneous tissue retracted. Two burrs made and 3x3.5 cm craniotomy done maintaining 0.5cm margin with the lesion with the help of high-speed drill. The size of the vascular lesion decreased after craniotomy. No attachment with dura seen. Bone flap with lesion sent for HPE. Haemostasis achieved. Drain placed. Skin and sub cutaneous tissue closed in layers.

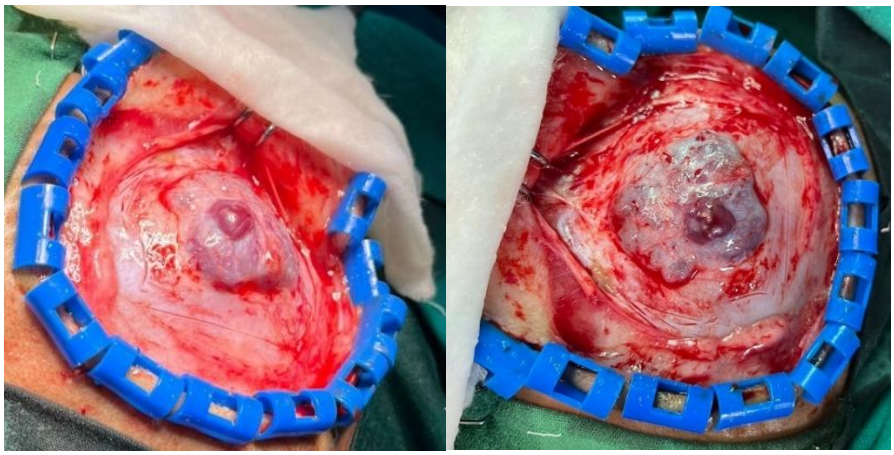

Fig 3: Intra-operative pictures

Post-operative Care:

Postoperatively, patients were managed in the intensive care unit (ICU) with a focus onrespiratory pattern, hemodynamic monitoring, and prevention of complications. Theyreceived comprehensive rehabilitation, includingphysiotherapy of chest and limbs from postoperative day 1 (POD-1).Drain was removed on POD 1. Patient was shifted out of ICU on POD-2 and was discharged on POD-5.

Follow-up:

Patients were followed up at regular intervals (3 weeks and 3 months) afterdischarge. Biopsy reviewed in first follow up visit. Neurological status, functional outcomes, and complications were assessed at each follow-up visit. There was no deficit.

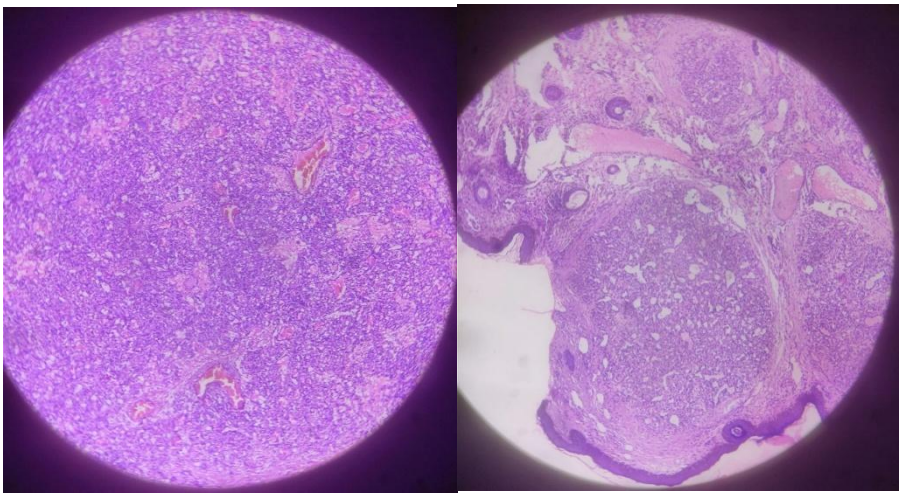

Fig 4: Biopsy-A) Low Power View B) Scanner View

3. DISCUSSION

A PubMed search using the terms “Calvarial”, and “Haemangiomas”yielded 96 results.The classical radiological appearance of Calvarial Haemangiomas (CHs) consists of an expansile lytic lesion on computed tomography (CT) scans.[1]However, there are reports of finding sclerotic lesions mimicking an osteoma as well and also lesions that expand the diploic space with a central sclerosis resembling osteoblastoma.Sunburst appearance of CHs have been reported byauthors on imaging either in x rays or CT scans. While several authors state that the inner table is usually not violated and that growth occurs by erosion of the outer tablethere are reports describing not only breech of the inner table of the skullbut also the dura. Calcification is found in CT scans within CHsand 3 types of the same have been described – a nonspecific amorphous variant, phleboliths (which are more common) and rarely metaplastic ossification.[4]On MRI scans the lesions are sharply demarcated, hyperintense on T1 and T2 weighted sequences and enhance on contrast.[5]Hyperintensity on T1 sequences is related to the presence of fat in the lesion and is considered to be characteristic of CHs.[5] It may also be because of haemorrhage in the lesion as has been described by Zhong et al. Nair et al state that loss of T1 hyperintensity is associated with more aggressive tumor behaviour and have also described a CH with dural enhancement akin to a meningioma. The differential diagnosis of calvarial lesions includes metastatic deposits, eosinophilic granulomas, fibrous dysplasia, osteomas, Paget disease, intraosseous meningiomas, aneurysmal bone cysts and dermoid and epidermoid cysts.[7] While radiology can often differentiate between these lesions, atypical and small CH may be difficult diagnose on imaging alone and only histological diagnosis should be considered to be conclusive. Trauma has also been postulated as a cause,with the injury leading to the release of growth factorsthat may result in proliferation of primitive mesenchymal cells within bone.[8]Two types of CH are described – the commoner sessile type with expansion of the diploic space and a globular type that extends out of the confines of the bones into the surrounding space.[9]While smaller asymptomatic lesions with classical imaging findings may be kept under observation, indications for surgery include cosmetic deformity, pain, diagnostic dilemma and mass effect on the brain.When the decision is taken to proceed with surgery, complete resectionis the treatment of choice.[9] Curettage of the lesion alone results in greater blood loss and a propensity for recurrence.Hence most authors have mentioned complete resection as the procedure that they carried out.

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