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Primary calvarial space occupying lesions – a short case series at neurosurgery department in erstwhile mental hospital

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ABSTRACT

Three scalp swellings were being evaluated for infectious or tumorous lesion in young adults which on operation was found to be bony and thus was excised under magnification which, on histopathological examination, proved to be osteoma and fibrous dysplasia.

Keywords

Benign skull tumours, Fibrous dysplasia of skull, osteoma of skull

1. INTRODUCTION

Bonytumors are common tumors in humans but tumors involving skull is uncommon being only 1% to 4% of all bony tumors. Malignant tumors are more common, 81%, (Dahlin DC, 1986) than benign and in malignant tumors secondaries are more common than primaries. Three cases, over a period of 2 months were evaluated for skull bony tumours which were excised and histopathology proved to be benign in origin osteoma, fibrous dysplasia, and osteoidosteoma respectively.

2. CASE SERIES

First Case

19 year old male came with chief complaint of headache, and swelling in frontal region for 3 years. Headache was insidious in onset, on and off in nature, dull aching and on Visual Analogue Scale rating was 6. It was not associated with nausea and vomiting. There was no history of photophobia or phonobia. Swelling insidious in onset, progressive in nature. There was no history of trauma, swelling in other part of body or fever. On examination swelling was solitary, hard in consistency, immobile, nonpuslastile and nontender, 4.5c.m x 3 c.m in dimension and with no bony crepitus. There was no neurological deficit around swelling. On Non Contrast Computed Tomography (NCCT) head it was radiopaque with round sclerotic margin.Serology and neurochemistry was within normal limit. Fine needle aspiration cytology was attempted but was inconclusive. Subsequently, surgery was planned and tumour was excised and was sent for biopsy. On Histopathological examination excised specimen proved to be osteoma. Patient reported significant improvement in headache and cosmesis post excision on follow up.

Second Case

21 year old male came with chief complaint of swelling in left parietal region for 2 years and pain at the region of swelling. Swelling was insidious in onset gradually progressive causing pain on combing of hairs in other. There was no swelling in any other part of body and no history of trauma was present. On examination swelling was firm to hard in consistency, non-pulsatile, non-compressive, immobile, tender, 3 c.m x 2 c.m in dimension with no bony crepitus. On Non contrast computed tomography head swelling full-thickness lesion in the left temporal bone that was protruding slightly into the interior of the cranium as well as to the exterior of the cranium

Blood investigation work up was within normal limit. After clinical and radiological work up surgery was planned and tumour was excised and sent for histopathological examination, which later came out to be fibrous dysplasia. Patient was kept in observation for 7 days and during that period patient was symptomatically improved. On follow up till date, there is no recurrence of swelling and no other complaints were present.

Third Case

35 year old female came with chief complain of swelling in occipital region and pain at the side of tumour. Swelling was insidious in onset, progressively enlarging and painful on touch. On examination swelling was hard in consistency, non-pulsatile, non-compressive, immobile, tender, 4c.m x 3 c.m in dimension with no bony crepitus. On Non contrast computed tomography head

CONTENT

In this present series, the authors have encountered 3 patients in a span of one month who presented with bony swellings turning out to be benign swellings of calvaria which, otherwise, are of rare occurrence.

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swelling was the bone density windows showed a homogeneously dense lesion with protrusion extra cranially. After complete clinical examination, blood investigation and radiological workup surgery was planned and tumor was excised and subsequently send for histopathological examination. Histopathological examination of the specimen revealed it to be osteoma. Postoperatively patient pain was completely resolved and after 3 days of inpatient observation patient was discharged. On subsequent follow up patient shows no recurrence of swelling and no other complains was present.

Photo 1 Osteoid Osteoma

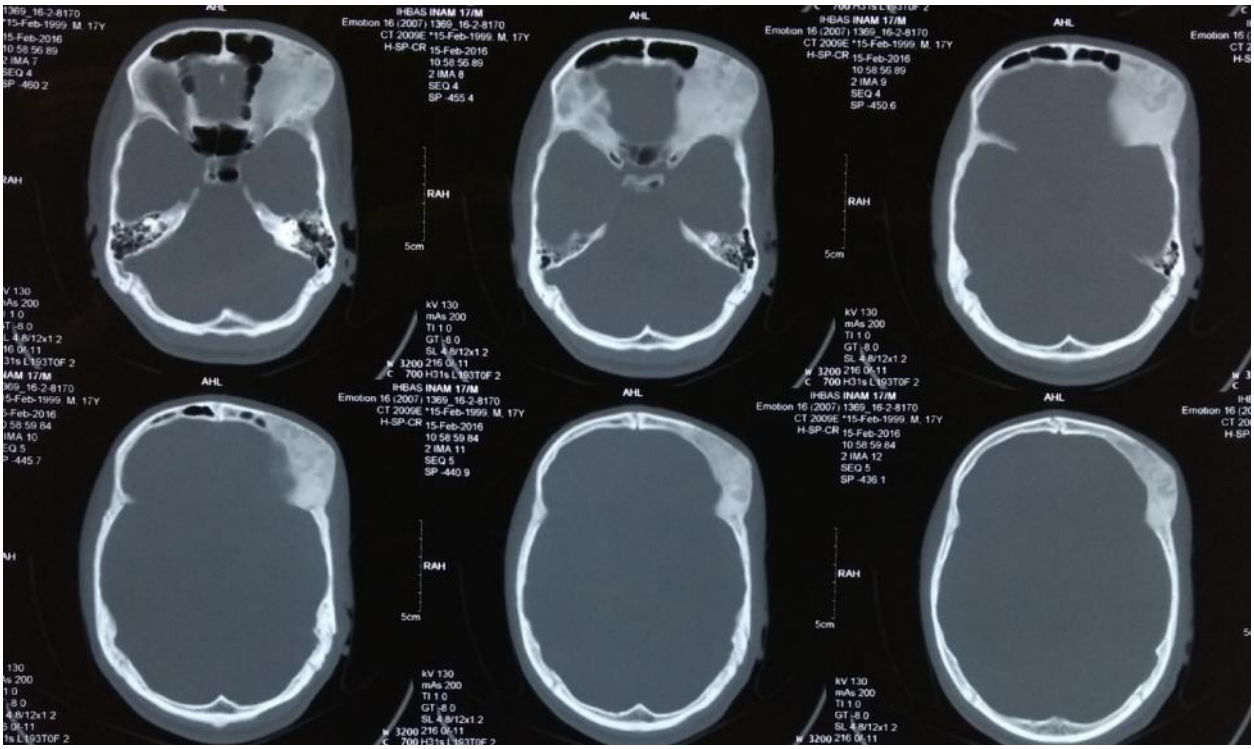
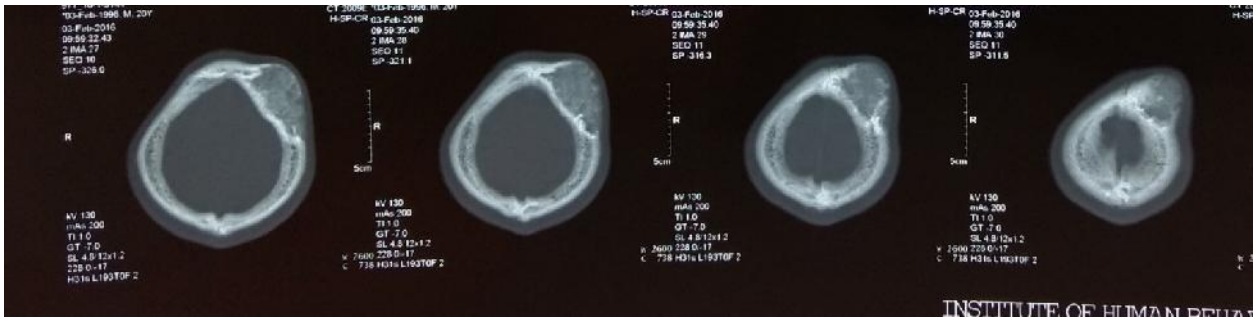


Photo 2 Fibrous Dysplasia



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3. RESULT

All the patient underwent excision of swelling under magnification and showed total resolution of symptoms during post-operative in patient observation. There was no evidence of recurrence of swelling or symptoms on follow up.

4. DISCUSSION

Skull tumours are both primary and secondary. Secondary malignant tumours are more common than primaries. Secondaries has origin mostly from breast cancer, lung cancer, prostate cancer, melanoma, thyroid cancer, lymphoma, leukaemia, multiple myeloma, ewing sarcoma (Ramirez AR, 2002; O'Donnell RJ, 1994). Primary bone tumours are Osteoma(most common being 30% of all primary bone tumours), ossifying fibroma, osteoblastoma, hemangioma, fibrous dysplasia, giant cell tumour, chondroma, aneurysmal bone cyst, epidermoid and dermoid cyst,(Azouz EM, 2005; Moon KS, 2006).Most benign tumours are hypo intense on T1 and hyper intenseon T2 weighted images. Skull tumors are classified on this basis by Wilkins and Rengachary (Wilkins RH, Rengachary S, 1996).

Osteoma

Osteoma is slow growing osteoblastic tumor of the bone formed by intramembranous ossification and is the most common primary bone tumor of the craniofacial skeleton (Smith ME, 1989). It has mostly found in adult females, highest in sixth decade. Osteoma is a slow growing, usually painless tumour mostly involving frontotemporal area of skull. When present in air sinuses, it may give symptoms of recurrent sinusitis. Our patient presented with a left frontal swelling with occasional left frontal headache and cosmetic deformity due to the swelling without any neurological deficit. Pathology consists of osteoid tissue within osteoblastic tissue surrounded by reactive bone. Skull radiograph shows round, sclerotic, well demarcated, homogenous dense projection. It usually arises from the outer table of skull, leaving the inner table intact (Photo 1). Characteristically, diploe is preserved and vascular channels are not increased. Asymptomatic lesions without gross cosmetic deformity may be followed. Surgery is an option for cosmetic reasons or if there is pressure effect on adjacent tissue.

Osteoma:
An exostosis, also called an osteoma, is a benign overgrowth of a pre-existing bone.

Osteoid Osteoma:
Osteoid Osteoma is a benign bone lesion with a nidus of less than 2 cm surrounded by a zone of reactive bone.

Fibrous Dysplasia

Fibrous dysplasia (FD) is a potentially premalignant bone forming condition (Wilkins, Rengachary , 1996). Usually benign, it is postulated to occur as a result of developmental failure in the remodelling of primitive bone to mature lamellar bone and failure of the bone to realign response to mechanical stress. Failure of maturation leaves a mass of immature isolated trabeculae enmeshed in dysplastic fibrous tissue that don't complete the remodelling process (Enneking, 1998). Most lesions occur in the ribs or craniofacial bones, especially the maxilla. Fibrous Dysplasia can occur in monostotic, polystotic and as part of Mc Cune Albright syndrome. Skull is involved 27 % and 50 % of patients in monostotic and polyostotic fibrous dysplasia (Chen YR, 1990). Malignant degeneration occurs in less than 1% cases. Patient can also present with pain and fracture at the site of swelling.In our case patient was complaining of pain at the site of swelling, cosmetic deformity and on and of fever. Fibrous dysplasia has a characteristic radiological feature of homogeneous loss of trabecular pattern leading to ground glass appearance (Photo 2). Excision of the tumours is the mainstay of treatment with correction of bony defects with bone wax or other implants for the cosmetic advantages. Analgesics and antipyretics are other pharmacological drugs required for pain and fever if present. Though seizure is an uncommon presentation antiepileptics are needed to control it. Prophylactic antibiotics are given in postoperative period for preventing any surgical site infection.

Fibrous Dysplasia:
Fibrous dysplasia is an uncommon bone disorder in which scar-like (fibrous) tissue develops in place of normal bone.

5. CONCLUSION

Benign skull tumours are uncommon tumors which are presented mainly as cosmetic defects and headache. Though relatively rare, they must be considered in the differential diagnosis of slow growing space occupying lesions which often cause only cosmetic and rarely, pain and neurological deficits owing to their site of origin and size. X ray, Computed tomography (C.T.),Magnetic resonance imaging studies are radiographic techniques to diagnose them. Excision of the lesion followed by histopathological examination

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leads to confirmation of diagnosis. Surgery is the mainstay of treatment with adjuvant analgesics, antipyretics and antiepileptics, if needed.

DISCLOSURE

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