Primary Intradiploic Meningioma

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ABSTRACT

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The authors report a case of a patient who presented with a slow growing swelling on the scalp. C.T. head revealed an osteolytic intradiploic lesion of the cranial vault. The lesion was excised in toto and the histopathological examination showed evidence of the benign intradiploic Meningioma. The possible etiology, clinical findings, C.T. appearance, the differential diagnosis and the treatment strategy are discussed.

Keywords: Intradiploic Meningioma, C.T. finding, Histopathology, Treatment strategy

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INTRODUCTION

Approximately 1% of the meningiomas arise in the extradural sites. The Meningiomas that originate in the skull have been referred to as calvarial, intraosseus or intradiploic. Primary intradiploic Meningioma are relatively rare cranial lesions. Osteoblastic and osteolytic subtypes of intradiploic Meningioma have been described. Of these the osteolytic subtype is most uncommon and more likely to be malignant than the osteoblastic type. Intradiploic Meningiomas should be considered in the differential diagnosis of osteoblastic or osteolytic skull lesions.

CASE REPORT

A 13 year old boy was admitted with complaint of swelling on the right side of the head near the temple since 6 months. The parents noticed that the swelling was gradually increasing in size since 2 months. No history of similar swellings either on the head or else where in the body. There was no history of pain, fever, headache, vomiting, seizures or visual disturbances.

General examination showed moderately built and moderately nourished boy. He was not anemic, not jaundiced, not cyanosed and there was no peripheral lymphadenopathy. BP 110/70, PR 76/ minute. No abnormality was detected either in the central nervous system or cardiovascular system. Patient had upper respiratory tract infection which was controlled with antibiotics. Local examination revealed a small swelling in the ® upper temporal region about 2cm in diameter. Skin over the swelling appeared normal. No visible pulsation or bruit heard. The surface of the lesion was smooth and consistency was hard. The swelling appeared to arise from the bone. C.T. Head – plain scan showed focal, lytic, punched out lesion in the ® temporal region adjacent to the temporo parietal suture line. The inner table of the skull appeared intact but the outer table showed erosion. C.T. head – contrast scan showed contrast enhancement of the lesion. Clinical findings and C.T. picture were suggestive of either

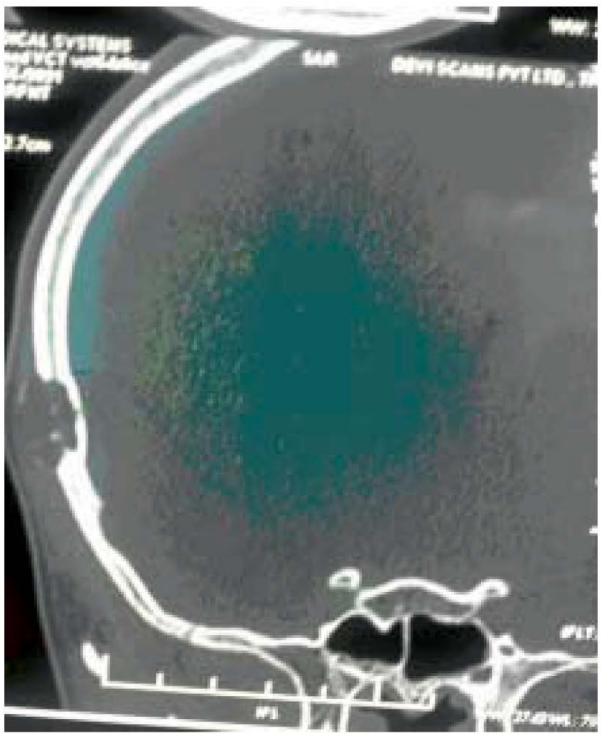

Figure 1. **CT head – Plain scan - coronal section showing a focal osteolytic lesion in the ® high temporal region with interruption of the outer table and intact inner table of the skull.**

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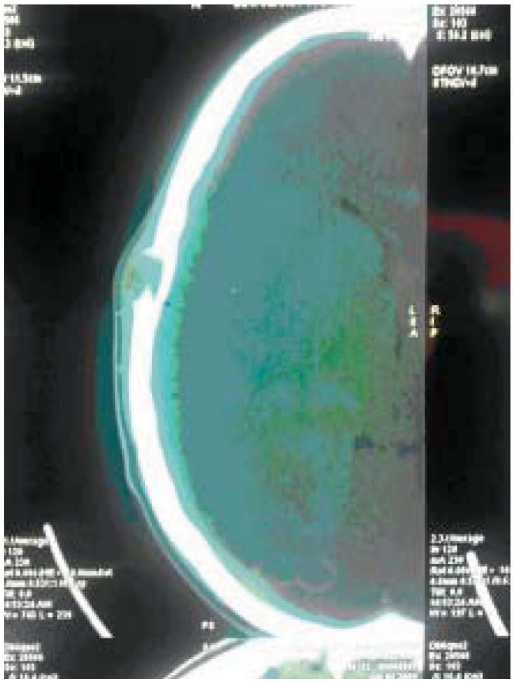

Figure 2. **CT head – Axial section showing and osteolytic lesion in the ® high temporal region with interruption of the outer table and intact inner table of the skull.**

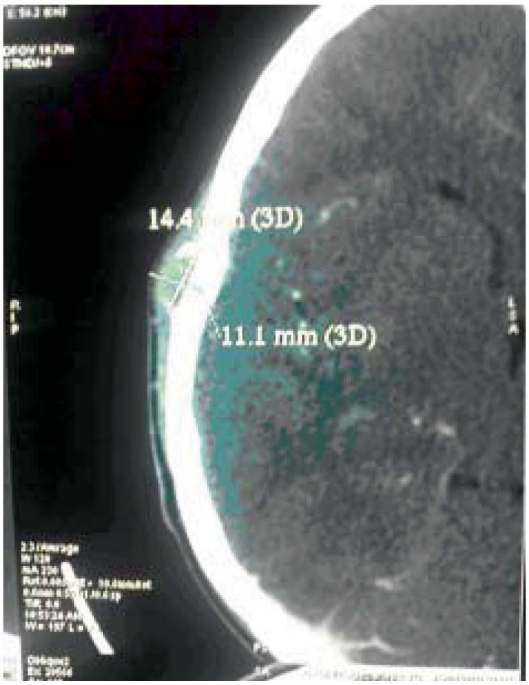

Figure 3. **Contrast CT scan - axial section showing homogeneous enhancement of the lesion located in the ® high temporal region. Note the intact inner table and interruption of the outer table of the skull.**

Aneurysmal bone cyst or Eosinophilic Granuloma. The lesion was excised in toto along with the over hanging bony ridges under general anesthesia. The inner table of the skull was found to be intact. Histopathological examination revealed a neoplasm composed of spindly cells arranged in whorls. There were areas showing concentric whorling of the tumor cells and the tumor showed extensive myxoid degeneration. The appearances were suggestive of benign intradiploic meningioma. The postoperative period was uneventful and patient was discharged on the 7th postoperative day with advice to come for periodic follow up.

DISCUSSION

It is likely that intradiploicmenigiomas originate from entrapment of arachnoid cells in the bone. Head trauma, abnormal cranial moulding and embryogenesis, and arachnoid cells accompanying blood vessels and cranial nerves as they traverse the skull, all these can result in the entrapment of arachnoid cells or meningocytes in the bone. It is presumed that intradiploicmenigiomas arise from these entrapped cell rests in the calvarium.

The classification of primary extradural meningiomas was introduced by Lang and colleagues.

Type 1. Tumors that are purely extra calvarial.

Type II. Tumors that are purely calvarial.

Type III. Calvarial tumor with extra calvarial extension.

Based on their anatomical location, these types are further divided into convexity or skull - base tumors. Intradiploicmeningiomas belong to either type 2 or type 3 category. The present case belongs to type 3 category. The tumors tend to occur in young patients but there is a second peak during 5th to 7th decade of life. The present case is a 13 year old boy who presented with a solitary lesion in the pterional area. The tumors are usually solitary. Convexity intradiploicmeningiomas most commonly present as slow growing scalp masses with possible relation to cranial suture. Common locations include periorbital regions and fronto, temporo parietal region.

The radiographic appearance of intradiploicmeningiomas are typically either osteoblastic or osteolytic subtype. The mixed versions also have been reported. Majority of these tumors cause hyperostois that may mimic fibrous dysplasia. Most of these tumors are benign but malignant transformation is also described. The osteolytic subtype of intradiploicmeningiomas are more likely to be malignant than the osteoblastic subtype. Intradiploicmeningiomas should be considered in the differential diagnosis for patients presenting with osteoblastic or osteolytic skull lesions. The osteolytic lesions typically cause thinning, expansion and interruption of inner or outer tables of the skull and these lesions enhance homogeneously after contrast

administration. As of 2007 only 16 cases of the rare osteolytic subtype have been reported in the literature. In the present case the lesion appeared as an osteolytic variety with interruption of outer table with intact inner table and showed contrast enhancement. The differential diagnosis for solitary osteolytic skull lesions include Haemangioma, Chondroma, Chondrosarcoma, Dermoid, Myeloma, Plasmacytoma, Giant cell tumor, Aneurysmal bone cyst, Eosinophilic Granuloma, Metastaticdepoistis and Intradiploicmenigioma. Biopsy and histopathological examination is necessary to confirm the diagnosis.

TREATMENT

Wide surgical resection of intradiploic meningioma is the treatment of choice and is potentially curable if surgery is possible. However patients with tumors that cannot be completely resected and that are histologically benign and neurologically asymptomatic may be followed up using serial C.T/M.R Imaging. 26% of these tumors may show evidence of atypical or malignant changes. These patients may be considered for adjuvant therapy which include radiation or chemo therapy.

The present case belongs to the osteolytic subtype of intradiploic meningioma. The tumor was excised in toto and histopathological examination showed evidence of a benign type of intradiploic meningioma. The patient was advised to come for periodic follow up to rule out recurrence of the lesion.

END NOTE

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Conflict of Interest: None declared

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