central canal was seen in every section and it was questioned whether a spinal cord was less representative of "axiation" than a vertebral column.

REFERENCES

1. Willis RA. The structure of a teratoma. J Pathol Bacteriol 1935: 1-14.
2. Martinez-Urrutia MJ, Pereira PL, Lassaletta L, *et al.* Abdominal mass: "Fetus in fetu". Acta Pediatr Scand 1990, 79: 121-122.
3. Narasimha Rao KL, Mitra SK, Pathak IC. Sacrococcygeal fetus in fetu. Indian Pediatr 1984, 21: 820-822.
4. Kimmel DL, Moyer EK, Peale AP, *et al.* A cerebral tumor containing five human fetuses: A case of fetus in fetus. Anat Rec 1950, 106: 141-158.
5. Warkany J. Congenital Malformations. Chicago, Year Book Medical, 1971, pp 1244-1245.

Intradiploic Hemangioma of Skull Bone

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Primary hemangiomas of the skull are rare cranial tumors(1). Wyke(1) reported its incidence to be 0.7% of all osseous neoplasms and 10% of primary benign neoplasms of skull are hemangiomas. Usually these tumors present in the 4th and 5th decade. Because of its extreme rarity in children especially in females with particular affinity for frontoparietal region, the present case is being reported.

Case Report

An 11-year-old female child was admitted to hospital with a slowly increasing painless swelling in the right parietal region with occasional headaches of 5 months. In the past she had been having cyanotic spells since the age of 2 years.

On examination, the child was cyanosed and had clubbing of nails. Nervous system appeared normal but on auscultation of heart there was a continuous apical murmur and P2 was loud. Local examination of scalp revealed a bony hard swelling of 3 cm diameter in the right parietal region which was non tender diffuse and the overlying skin was freely mobile.

Investigations revealed a Hb of 17.5 g/dl while TLC, DLC, ESR and blood chemistry were normal. Plain *X*-ray skull revealed a well circumscribed area of rarefaction with a honeycomb pattern. Plain computed tomography bone window revealed biconvex expansion of diploic space by mixed density mass with bony spicules (*Fig. 1a*).

The lesion enhanced uniformly on contrast administration (*Fig. 1b*). Electrocardiography showed right atrial enlargement, small r/s pattern from lead V1 to

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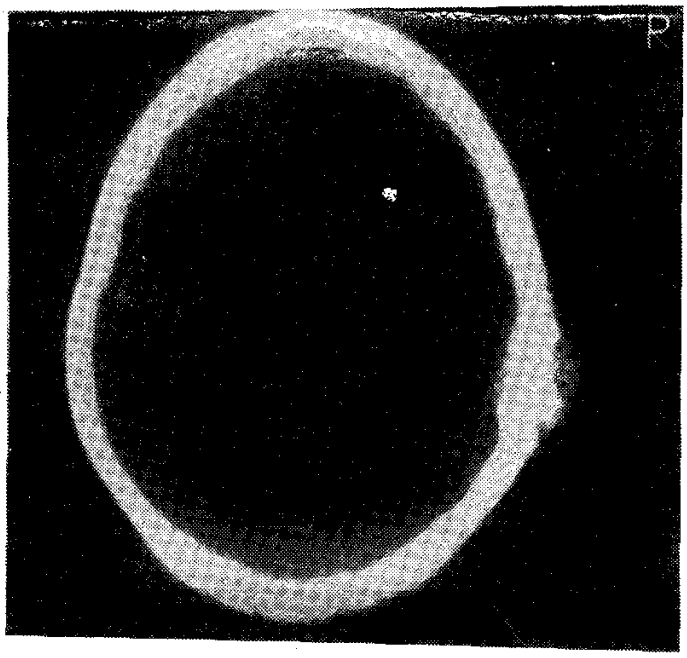

Fig. 1(a). Computed tomography bone window showing mixed density mass with bony spicules.

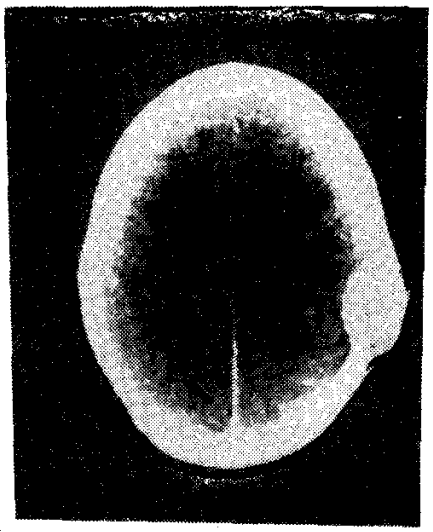

Fig. 1(b). Computed tomogram showing uniform enhancement of the lesion on contrast administration.

V6. Cardiac catheterization revealed single ventricle (LV type) with pulmonamy atresia.

The tumor was removed enbloc with a normal bone and cranioplasty using a tantalum plate was carried out at the same sitting. Histopathology confirmed the diagnosis of cavernous hemangioma (*Fig. 2*).

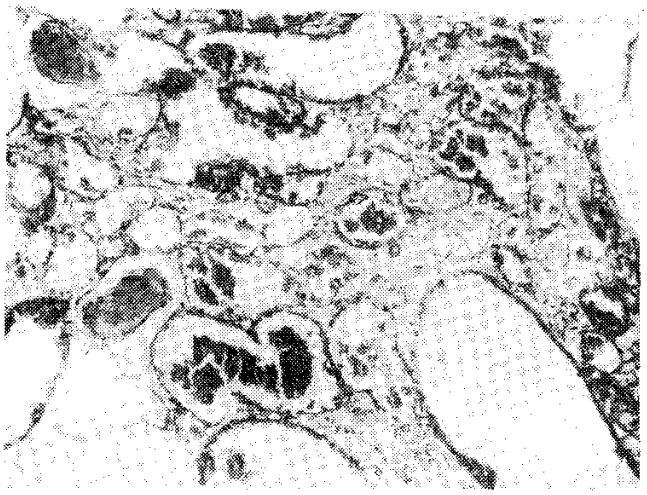

Fig. 2. Photomicrograph showing blood vessels of varying size. Many of them are filled with red blood corpuscles. Two small bony spicules are also seen (H & E 160).

Discussion

Primary skeletal hemangiomas usually present in 4th and 5th decade of life. They are uncommon in children(2-5). The hemangiomas are reported to be two to three times more common in females than males(1,6). Hemangioma commonly involves frontal and parietal bones(1,7). It grows slowly over a long period. Symptoms are nonspecific, usually being lump, headache and proptosis. Hemangiomas are usually not associated with neurological symptoms as there is a tendency for external than internal expansion. Rarely hemorrhage may occur in the hemangioma that brings the lesion to light(8).

Plain *X*-ray skull usually shows area of rarefaction with honeycombing. Angiography typically shows area of increased vascularity with the feeder vessels(9,10). Computed bone window demonstrates an intradiploic cavity with very well preserved inner table and containing widely separated bony trabeculae and spicules. The

lesion stands but more clearly by uniform enhancement on contrast administration as demonstrated in our case.

On gross examination, the lesion looks hard, purplish expansile mass with ill defined limits. Histologically they are classified into cavernous and capillary type. Treatment consists of enbloc removal of the lesion as curettage can lead to unnecessary blood loss. Role of irradiation is doubtful, however, it may be tried in cases where the lesion can not be radically excised as in the basal region.

The differential diagnosis includes any firm, slow growing mass such a fibrous dysplasia, dermoid cyst, meningioma, osteoma, epidermoid, metastasis or tuberculosis. Fibrous dysplasia usually is diffuse and involves frontal bone and does not enhance on contrast administration: Osteoma gives bone density on plain *X*-ray of the skull. dermoid cyst and epidermoids do not enhance on contrast administration. It may be difficult to differentiate hemangioma from the meningioma, though enlarged diploic veins if present, favor a diagnosis of meningioma. Meningiomas usually occur in older age and are rare in children.

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REFERENCES

1. Wyke BD. Primary hemangioma of the skull: a rare cranial tumor. Am J Roentgenol 1949, 61: 302-316.
2. Aurora A, Krishnan MM, Bahadur R, Vidyasagar JVS, Ratnakar C. Cavernous hemangioma of the frontal bone. A case report. Indian J Opthalmol 1991, 39: 76-77.
3. Roy RN, Roy A, Biswas SK. Primary hemangioma of the skull. Neurol India 1973, 21: 46-48.
4. Rothstein J, Maisel RH, Miller R, Tubman D. Mixed cavernous and capillary hemangioma of the frontal bone. Ear Nose Throat J 1985, 64: 481-485.
5. Schneider RC, Gabrielsen TO, Hicks SP. Galvarial hemangioma. The value of selective external carotid angiography in surgical excision of the lesion. Neurology 1973, 23: 352-356.
6. Wold LE, Swee RG, Sim FH. Vascular lesions of bone. Path Annu 1985, 20: 101-137.
7. Dorfman HD, Steiner GC, Jaffe HL. Vascular tumors of bone. Hum Pathol 1971, 2: 349-376.
8. Rahman N, Hafeez M. Hemorrhage in intradiploic hemangioma mimicking extradural hematoma. Neuroradiol 1991, 33: 529-531.
9. Chatterji P, Sharma ML, Chatterji S, Kanwar DL. Cavernous hemangioma of fronto-ethrnoid region. J Laryngol Otol 1969, 83: 925-933.
10. Zucker JJ, Levine MR, Chu A. Primary intraosseous hemangioma of the orbit: Report of a case and review of literature. Opthalmic Plast Reconstr Surg 1989, 5: 247-255.