

CASE REPORT

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Intradiploic Epidermoid Cyst of the Skull

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Intradiploic epidermoid cysts, like epidermoid cysts in other cranial locations, are rare. Approximately 100 intradiploic epidermoids have been reported, involving all of the cranial bones in proportion to their relative sizes¹¹. Over half erode through both tables of the cranium, creating variably sized areas of unprotected brain beneath the soft tumor. We report a case of an intradiploic epidermoid cyst of the right parietal bone that was found after minor head trauma.

KEY WORDS : Intradiploic · Epidermoid cyst · Head trauma.

Introduction

Intradiploic epidermoid cysts are uncommon benign tumors which arise between the two tables of cranial bones and constitute less than 1% of all cranial tumors^{3,6}. They vary in size, location, and rate of growth. Some remain small for long periods of time; others may reach considerable proportions, causing compression of intracranial structures. Some authors have reported the intracranial rupture of an epidermoid cyst producing complications such as pneumocephalus⁷ and traumatic rupture into the frontal sinus of a frontal intradiploic epidermoid cyst¹⁰.

We report a case of an intradiploic epidermoid cyst of the right parietal bone that was found after minor head trauma.

Case Report

A 13-year-old boy was referred to our hospital for a painful right parietal cutaneous swelling and palpable mass. He was struck over the right parietal area 2 months before admission. This resulted in soft-tissue swelling and headache. On Physical examination, we observed firm, painful, fixed swelling of about 4cm in diameter involving the right parietal bone. Neurological examination revealed no abnormal findings. Plain radiograph(Fig. 1A) showed a circular, lytic cranial defect in the right parietal bone and thin sclerotic margins. Computed tomography(Fig. 1B) showed a well-defined cystic mass involving both tables with sclerotic margin

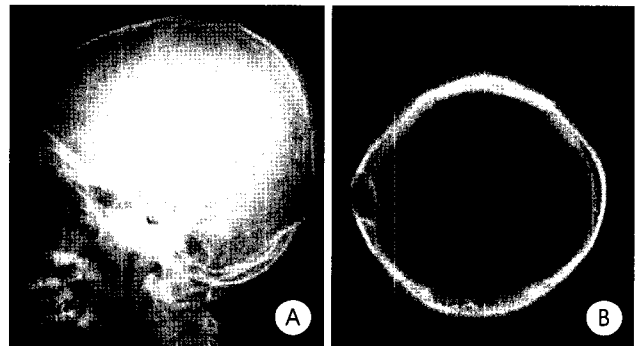


Fig. 1. Skull X-ray films of lateral view(A) shows a large lucent area with a well-defined sclerotic margin in the right parietal bone and axial computed tomography of the skull(B) shows a sharply demarcated, lytic lesion of the right parietal bone.

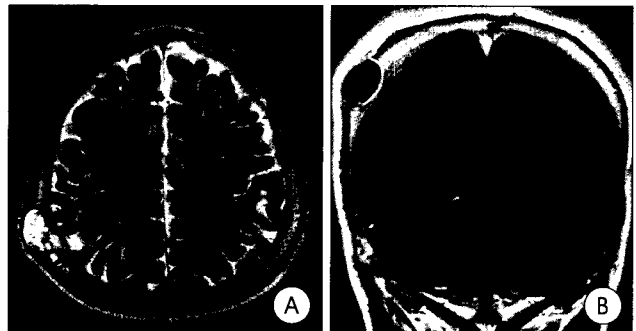


Fig. 2. Axial T2-weighted image(A) shows a intradiploic tumor with heterogenous signal intensity but do not show peritumoral edema and mass effect. Coronal contrast-enhanced T1-weighted image(B) demonstrates subperiosteal fluid collection adjacent to tumor and thin wall enhancement.

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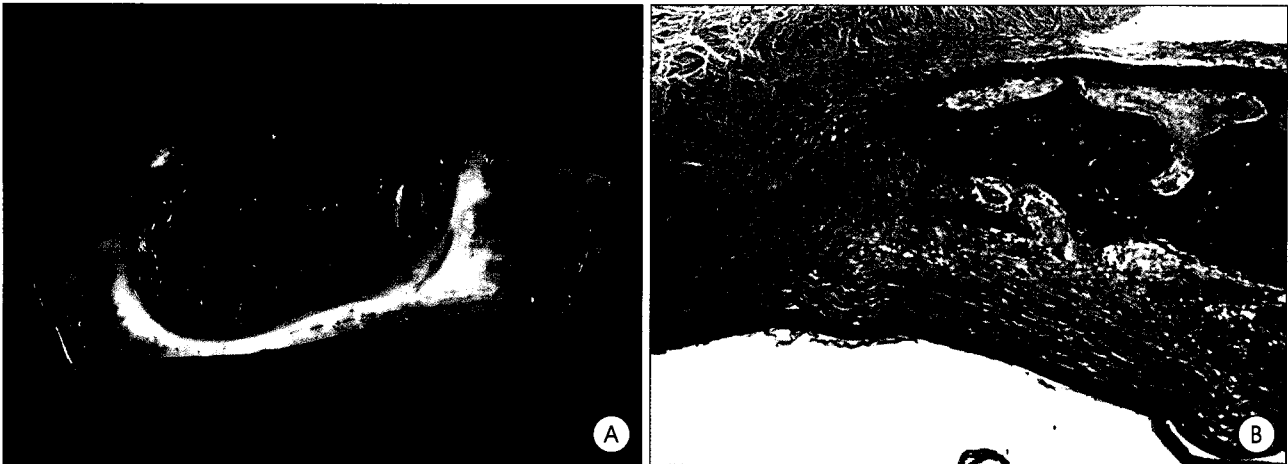


Fig. 3. A well demarcated unilocular cyst containing hematoma and whitish keratin material is noted in outer table of skull bone(A). Low-power photograph of cyst wall is composed of keratinized stratified squamous epithelium(B : H&E, ×100)

and partial destruction of the outer table. Magnetic resonance image(Fig. 2) showed a hemorrhagic component in the cyst and subperiosteal fluid collection adjacent to the mass.

At operation a semicircular scalp flap was lifted and a thinned shell-like outer table of the skull was revealed. Craniectomy around the tumor was done and tumor was totally excised. On removing the thinned-out outer table of bone mass, semisolid cheesy material and small amount of hemorrhage were encountered and sent for histological examination. Its inner table appeared very thin and the underlying dura mater was intact throughout. The cranioplasty was done with the use of bone source over the bone defect. The histological examination(Fig. 3) confirmed the diagnosis of epidermoid cyst. Postoperative course was uneventful. At 6months postoperatively, the patient was well and free of any symptoms or recurrence.

Discussion

Epidermoid cysts account for less than 1% of cranial tumors and intradiploic epidermoid cysts are less common than the intradural variety^{3,6,12}. The origin of intradiploic epidermoid cysts is controversial. Generally, it is believed that inclusion of epidermal nests is of developmental origin, with epidermal cells sequestered in ectoderm structures during closure of the neural tube during the 3rd to 5th embryonic weeks^{1,9,12}. Immunohistochemical studies seem to corroborate this hypothesis, because cells from dermoid and epidermoid cysts show the same carbohydrate moieties as human skin, demonstrating their common embryological origin⁸. Epidermoid cysts can also result from introduction of epidermal elements at the time of a trauma³.

Most intradiploic epidermoid cysts are manifest clinically as small, asymptomatic lumps in the scalp. The most com-

mon symptoms are tenderness or headache. Intracranial hypertension, seizures, traumatic rupture or focal neurological signs have been described in patients with large cysts^{3,6,7,10}. In our case, minor head trauma over the lesion resulted in headache and painful cutaneous swelling, and the underlying intradiploic epidermoid cyst was incidentally found.

The differential diagnosis of intradiploic epidermoid cysts includes dermoid cyst, hemangioma, eosinophilic granuloma and, in the orbitofrontal region, cholesterol granuloma. Differentiation between dermoid and epidermoid cysts is based on histological examination. Dermoid cysts are more frequently diagnosed in childhood and epidermoid cyst in adult life. Dermoid cyst are commonly located in the orbital region, and the midline⁴. Hemangiomas usually have a typical, but nonspecific appearance of a honeycomb or radiating sunburst pattern. The main differential diagnosis in children is eosinophilic granuloma. Atypical epidermoid cysts are not characteristic, being difficult to differentiate them from other lytic skull lesions¹.

Some authors have emphasized that total excision of the entire cyst wall is required to prevent the recurrence of symptoms, although others have found such recurrence to be rare. Cushing⁵ said that the aim of surgery is to achieve a complete removal of the tumor with its capsule, which must be carefully dissected from the bone and dura. Thorough curettage of the dura is often necessary to free it from material of the epidermoid cyst wall, which was the only living, growing part of the neoplasm, and it should be completely removed. Incomplete removal of the tumor wall is usually followed by recurrence. Total removal of tumor is associated with a good long-term prognosis with permanent cure and minimal operative mortality. Rarely, these cysts may undergo malignant degeneration and a recurrence rate of

8.3% to 25.0% have been reported^{2,13}. We believe that total excision of the epidermoid should be done before it reaches a size that might make complete removal impossible or cause other complications. Cranioplasty using various material may be needed, when there is a large bony defect.

Conclusion

Intradiploic epidermoid cysts of the skull are rare benign tumors of the skull. These lesion grow slowly, can attain enormous size and bleed due to minor head trauma over the lesion which may lead to neurologic deficit. If patients with large but asymptomatic epidermoids involving both cranial tables occur, we recommend the prophylactic removal of these tumors, subsequent cranioplasty and careful follow-up.

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