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Research Article

A RARE CASE OF POSTTRAUMATIC LEPTOMENINGEAL CYST

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ABSTRACT

Introduction: Post-traumatic leptomeningeal cysts are sequel of growing skull fractures (GSFs). Incidence is 0.05% to 0.1% of skull fractures. Intractable seizure, focal neurological deficits may be associated. This study elucidates clinicoradiological presentation of leptomeningeal cyst.

Case Report: A 7year old female child presented with history of head injury on left side at 3months of age following which she developed swelling in left side of scalp. On eliciting history child had developed early left handedness. A localized well defined soft spherical swelling present in left parieto-occipital region on scalp about 3x4cm, nontender, nonpulsatile with a gap in between fractured bony margins. Skull xray showed lytic lesion with irregular sclerotic margins. CT showed hypodense lesion protruding through the calvarial break in left temporo-parietal region. MRI brain showed well defined cystic lesion with bevelled edges communicating with ipsilateral dilated occipital horn of lateral ventricle. The lesion is extending within the calvaria and extra-calvarially.

Conclusion: Simple linear skull fracture in young children can produce GSF as late complication. Recognizing this rare unusual progression is crucial as early treatment prevents irreversible neurological sequel like seizures, paresis.

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INTRODUCTION

Leptomeningeal cysts are an uncommon sequelae of skull fracture in infancy and early childhood. They usually occur in the parietal region of skull(1,2). Leptomeningeal cysts in the occipital bone is also noted(3). Incidence is 0.05% to 0.1% of skull fractures(4). Posttraumatic, growing, pulsatile cystic lesions are the rare complications after sustaining head trauma to the skull bones in pediatric age groups. Growing skull fractures usually occur during infancy and early childhood younger than 3 years(5). Growth of skull fractures are consequence of dural tear involving both layers below fracture ends and entrapment of arachnoid layer at the time of head trauma. Intractable seizure and focal neurological deficits are associated with growing skull fracture(5,6). Late and variable presentation usually leads to delay and improper treatment which worsens clinical condition.

Aim: To elucidate the clinioradiological presentation of leptomeningeal cyst.

CASE REPORT

A 7year old female child presented with history of head injury(left side) at 3months of age following which she

developed swelling in left side of scalp. On eliciting history child had developed early left handedness.

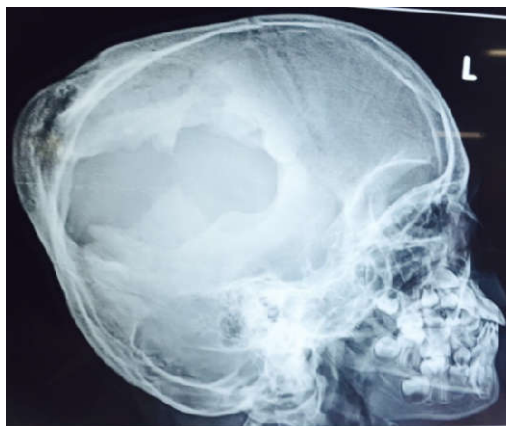
On examination, child was alert, conscious. A localized well defined soft spherical swelling present in left temporo-parieto-occipital region on scalp about 3x4cm, nontender, nonpulsatile with a gap in between fractured bony margins.CNS examination showed normal cranial nerves ,wasting and decreased power of right upperlimb. Sensory system and ophthalmology examination was normal.

Skull xray showed lytic lesion in temporo-parieto-occipital region with irregular sclerotic margins.MRI brain showed well defined T1hypointense and T2hyperintense cystic CSF signal intensity lesion with bevelled edges measuring 6.5x6x4.5cm in left temporo-parieto-occipital region, compressing it and communicating with ipsilateral dilated occipital horn of lateral ventricle. The lesion is extending within the calvaria and extra-calvarially, causing calvarial widening measuring 1.5cm. Excision of cyst done.

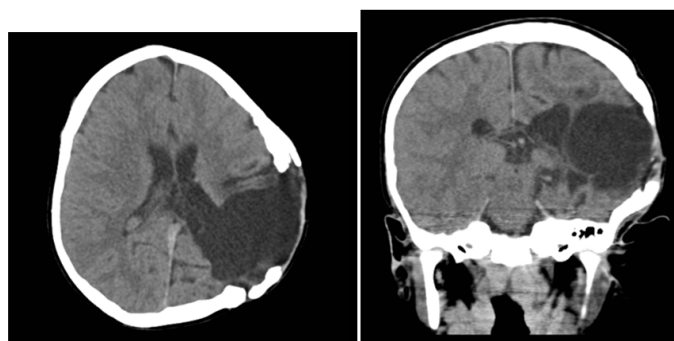
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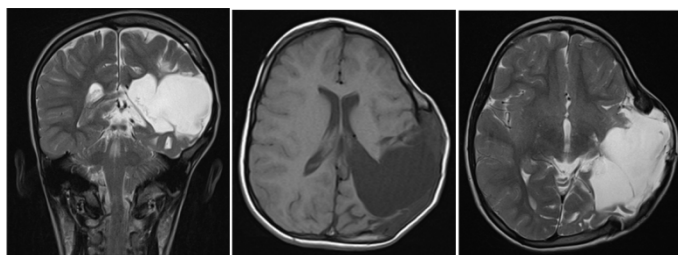
SKULL XRAY Lateral View



CT Brain



MRI Brain



DISCUSSION

Postnatal growth and differentiation of brain and skull vault occurs within first 2 years of life. By the end of 2 years inner and outer calvarial tables, diploic spaces and vascular markings become distinct(7). Head injury is the leading cause of death and disability in children less than 16 year old (4,5,7). The most common causes of head injury are falls and road traffic accidents and less common causes being child abuse, instrumental delivery, physical assaults, cranial vault repair and sports injuries (4-7). In children aged between 0 and 3 years old, diastatic skull fractures carry a high risk of transforming into growing skull fracture gradually over a period ranging from several months to years.

In 1938 Dyke coined the term “leptomeningeal cyst” when he suggested that after the trauma of the head with skull fracture, loculated fluid filled cysts develop and the overlying bone is absorbed owing to pulsations of the brain (7). Duramater has 2 layers; outer periosteal layer and inner meningeal layer. Outer layer is in close contact with periosteum in children and hence formation of extradural hematoma is rare. This is the major cause of duramater tear in linear skull fractures. Malleable skull, firmly attached dura, increase in brain volume are main causes in progression of growing skull fractures. Fracture without dural laceration do not progress into growing skull fractures. Common locations of leptomeningeal cyst are cranial vault either in frontal or parietal regions(8). Due to near normal clinicoradiological presentation in the initial stage of trauma, early diagnosis is usually missed. If patient is left untreated, skull deformity and neurological problems may become prominent.

CONCLUSION

Simple linear skull fracture or suture diastasis in closed head injury in young children when left untreated can produce growing skull fractures as a late complication. Recognizing this unusual progression is very crucial. To identify post traumatic leptomeningeal cyst in suspected cases as a delayed complication in pediatric populations, frequent clinical and radiological reviews should be done.

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