

Case Report

## Growing Skull Fracture/Leptomeningeal Cyst: A Case Report

Shastharha P.<sup>1</sup>, Anuj Vilas Nehete<sup>2</sup>

### Abstract

In infants and toddlers, growing skull fracture is a rare complication following head trauma. Leptomeningeal cyst is characterized by progressive diastatic enlargement of the fracture line, producing a pulsatile cystic mass which is filled with cerebrospinal fluid in the diploic space. We report a case of 4 year old boy presented with huge soft, non-tender pulsatile growing mass on the parietal aspect 9 months after sustaining head injury. CT imaging delineated it as a post traumatic leptomeningeal cyst in parietal bone.

**Keywords:** Growing Skull Fracture; Leptomeningeal Cyst; Craniocerebral Erosion.

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### Introduction

Growing skull fracture is also called Craniocerebral Erosion, a rare complication of skull fractures produced by progressive diastatic enlargement of the fracture line. This is also known as a Leptomeningeal cyst, since it presents as cystic mass filled with CSF. Incidence reported is around 0.5 to 1% of the skull fractures noted in the childhood [1,2]. Cerebrospinal fluid is formed in the brain at the growing end of the fracture. Once reaching the maximum extent, the growing fracture stops to grow and remains stable throughout adulthood [2,5]. Presentations of this condition can have asymptomatic palpable mass at the one end of spectrum to seizures, hemiparesis and psychomotor retardation in the other end.

### Case report

A 4 year was brought in with a history of fall of coconut on the head 9 months ago and had a gradually increasing swelling over the right parietal region. The patient was conscious and there was no history of seizures or vomiting.

On physical examination, a cystic swelling of approx. 8x3cms in size was present over the right parietal prominence. The swelling was compressible but not tender. A bone gap was palpable. There were no focal neurological deficits.



Fig. 1: Clinical photograph showing right parietal swelling

**Author's Affiliation:** <sup>1,2</sup>Senior Resident, Department of Neurology, JSS Hospital, Mysuru, Karnataka 570004, India.

**Corresponding Author:** Anuj Vilas Nehete, Senior Resident, Department of Neurology, JSS Hospital, Mysuru, Karnataka 570004, India.

**E-mail:** [anujnehete@gmail.com](mailto:anujnehete@gmail.com)

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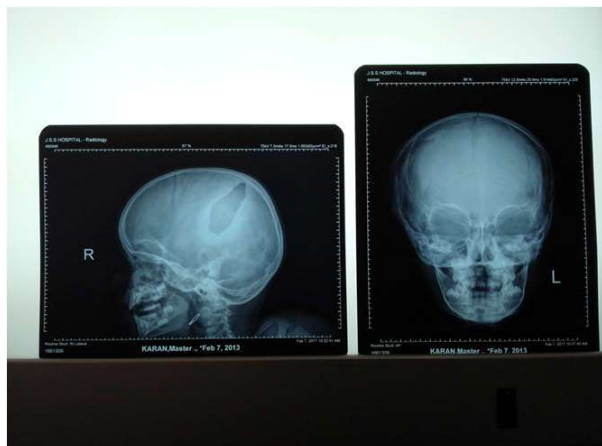
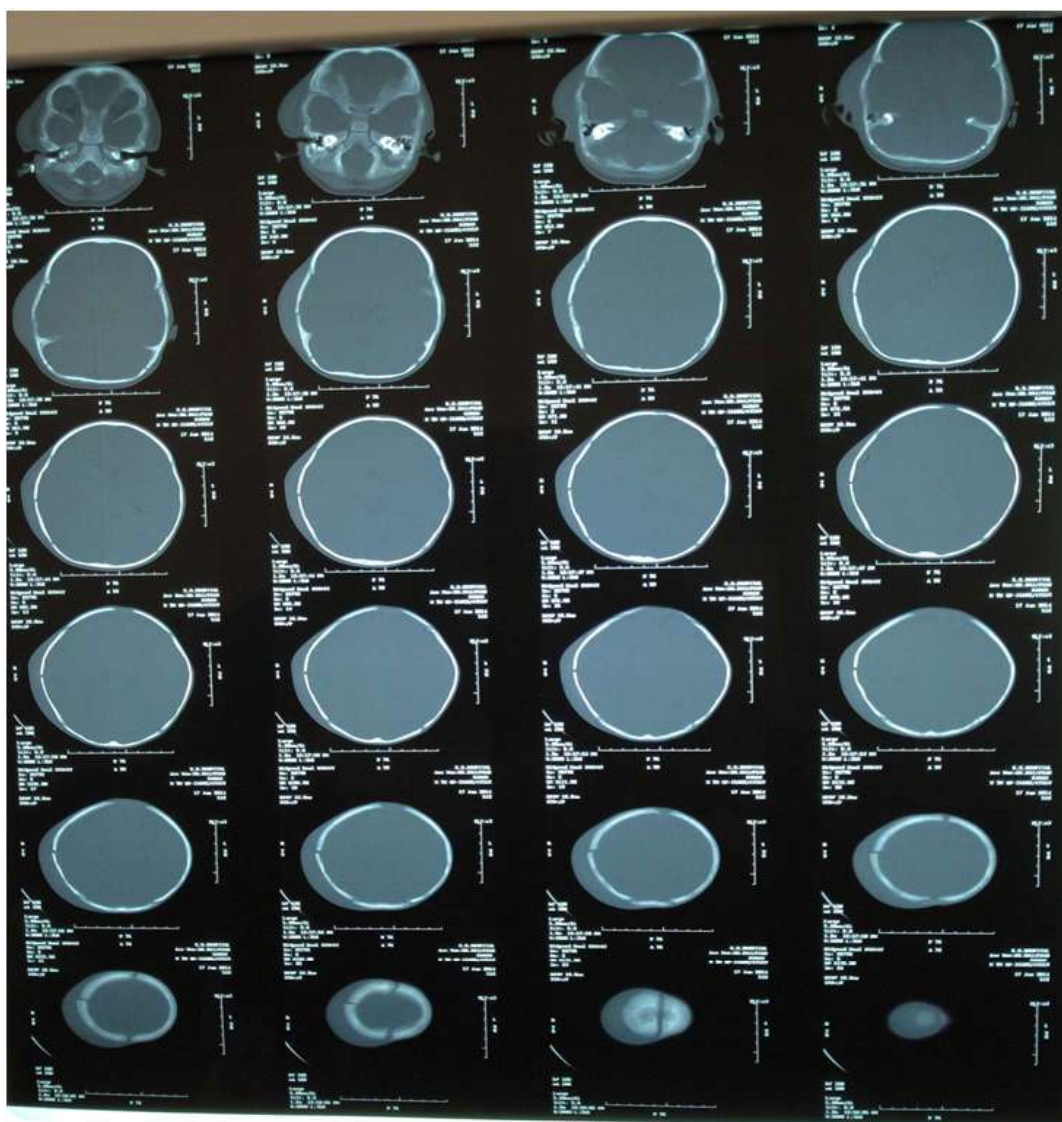


Fig. 2: X-RAY skull showing oblong defect in right parietal bone.

Patient was referred to neurosurgery department for surgical management.

### Discussion

In the first 3 years of life, growth of brain volume is rapid. Lacerated dura mater is the main implicating factor in the causation of growing skull fracture. The lacerated dura due to the pulsatile force of the brain in its maximum growth period will cause cerebral and subarachnoid herniation through the fracture line. Interposition of the tissue halts the healing of fracture by mitigating osteoblast migration. Adjacent bone resorption by the continuous pressure of tissue herniation, aids in



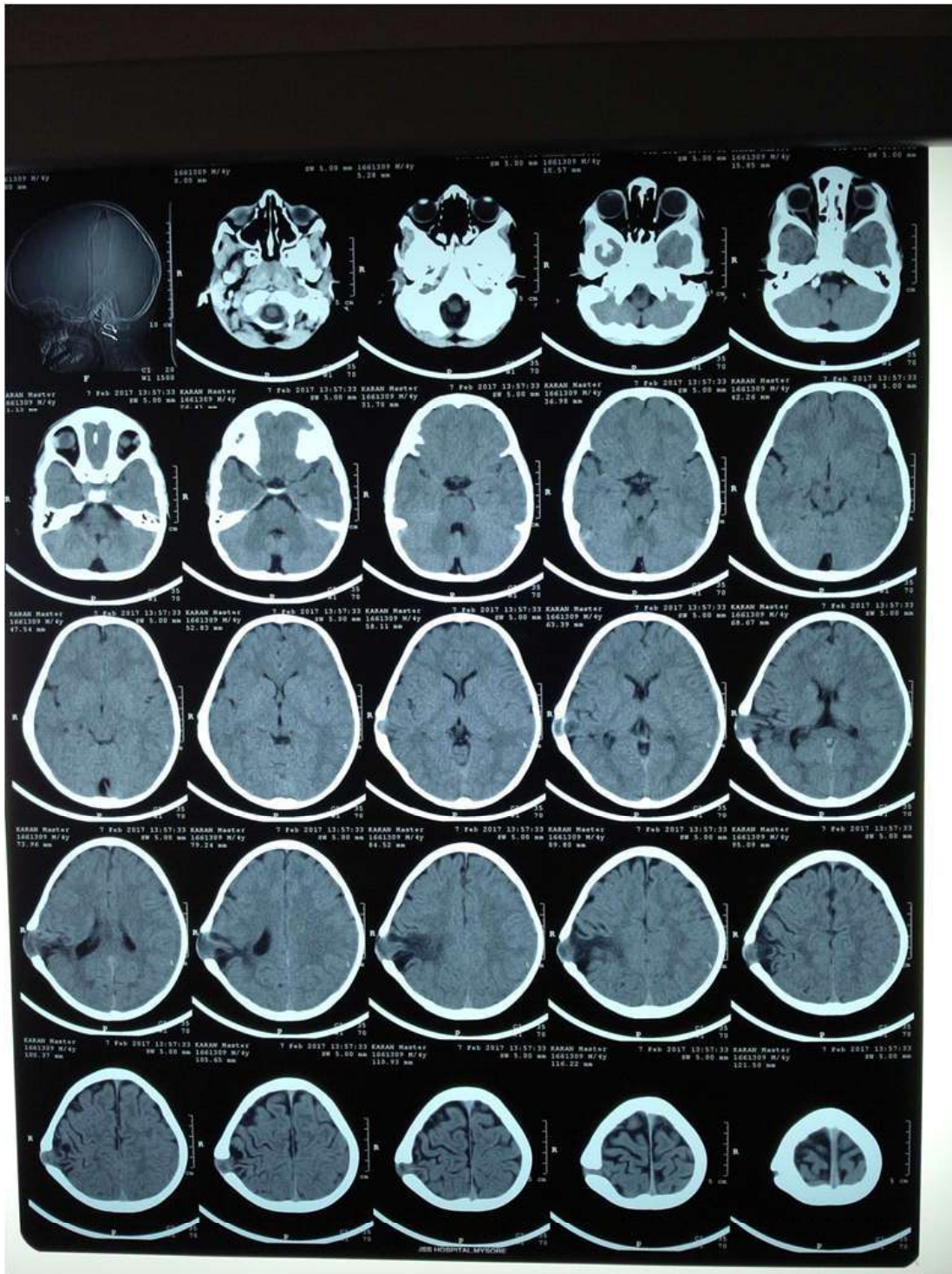


Fig. 3 & 4: CT brain showing lytic calvarial defect with scalloped edges seen in right parietal bone with maximum width being 24mm and length being 90mm with extracranial brain herniation through it. Adjacent brain parenchyma showed encephalomalacic changes.

the progression of the fracture.

There can be focal dilatation of the lateral ventricle near the growing fracture in neonates and young infants [3] immediately following linear skull fracture. This is most often reversible

and may normalise after surgical repair [4]. Dural laceration forms the prerequisite for the formation of Growing skull fracture since, intact dura prevents the same. Surgical repair in such cases must be with watertight closure of dura. Diastasis of > 4mm in the

fracture is considered at risk for the development of a Growing skull fracture [3].

### Conclusion

1. Ignorance of simple linear skull fracture, suture diastasis in closed head injury in young children can produce growing skull fractures as a late complication of head injury.
2. Recognizing unusual progression of the disease is very crucial. To identify post traumatic leptomenigeal cyst as a delayed complication in pediatric populations, clinical examination and radiological tool to be used in suspected cases.
3. Owing to the risk of neurological deterioration and development of seizure disorder surgical correction of growing fractures is recommended.

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