Case 1955

Growing skull fracture or leptomeningeal cyst
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Section: Paediatric radiology
Imaging Technique: CT
Case Type: Clinical Cases
Authors: Roche* S, Puy R, Blanch J, Ribó JL, Capdevila
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Patient: 2 months, male

Clinical History:

Car crash. Convulsion.

Imaging Findings:

The patient presented after a car crash, in which he had been hit by the airbag, having been placed in the front seat. The child had a convulsion before arriving at the hospital and a head CT was performed.

Discussion:

Growing skull fracture is a rare complication of head injury, occurring in 0.6% of skull fractures, almost exclusively in infants and children under the age of three. It consists of a progressive enlargement of a fracture due to an underlying tear of the dura mater. The most common type of fracture leading to leptomeningeal cyst is linear and diastatic, and larger than 3-4mm. The parietal bone is the most commonly implicated site. The diagnosis is usually made during the follow-up, several weeks or months after head trauma, when a palpable skull defect or a bulging mass is detected.

The pathogenesis of leptomeningeal cysts is not clearly understood, but it is known that the presence of a dural tear is essential in its genesis. When a skull fracture is associated with a dural tear, meninges and brain tissue can herniate into the diastatic fracture site inhibiting healing of the fracture. Parenchymal brain injury, subarachnoid haemorrhage, CSF pulse pressure and pulsation of the brain in the vicinity of the bone defect also seems to contribute to the development of a leptomeningeal cyst (1,2).

The standard diagnosis is made with skull radiography and CT scanning. Skull radiography shows an enlarging fracture. CT confirms the enlargement of the fracture, the brain damage which is usually present and the herniated elements (1). In some cases MRI detects CSF advancing through the bone margins of the fracture to the subcutaneous plane, and it could play a role in the early diagnosis of dural tear. Furthermore, MRI is more accurate in demonstrating the damaged brain (3).

Surgery is usually the treatment of choice (4).

Differential Diagnosis List: Growing skull fracture or leptomeningeal cyst

Final Diagnosis: Growing skull fracture or leptomeningeal cyst
References:


Description: Skull radiograph in frontal view 7 weeks after initial injury, showed a well-margined parietal bone defect at the site of a previous skull fracture, showing progressive enlargement of the fracture. Origin:
Description: Skull radiograph in lateral view 7 weeks after initial injury, showed a well-marginated parietal bone defect at the site of a previous skull fracture, showing progressive enlargement of the fracture. Origin:
Description: Axial non-contrast CT scan at the time of initial injury showed a diastatic left parietal fracture and an underlying haematic brain contusion. Origin:
Description: Axial non-contrast CT scan 7 weeks after trauma, showed an enlarging fracture with a cystic mass advancing through the bone defect, characteristic of a leptomeningeal cyst; also present is an underlying poroencephalic lesion. Origin:
Description: Axial CT bone window 7 weeks after trauma, showed an enlarging parietal fracture.
Origin: