A 6 month year old male child presented to accident and emergency with a boggy swelling over his right parietal area. Clinical examination revealed a well circumscribed large soft, non-tender boggy swelling of approximately 9.5cm x 12cm, with about 1cm depth. His parents were unsure as to how the swelling had occurred as there had been no witnessed trauma. Further assessment of the area was organised by ultrasound imaging of the swelling which was then extended to look at the brain. Ultrasound of the swelling, using a high frequency linear transducer, revealed the appearance of an organising haematoma. Beneath this a linear fracture of the skull vault was identified. Deep to the bone an extra-axial haematoma was observed. The ultrasound of the brain showed no further abnormalities.

Subsequent investigations included skull radiograph and CT brain which confirmed the ultrasound findings. Although no incident was identified the findings would be consistent with a traumatic event and the possibility of non-accidental injury had to be raised. A formal assessment and investigation of suspected non-accidental injury was carried out. The child was treated conservatively and made a full recovery.

Discussion:

Head injury is a common presenting complaint to accident and emergency departments. Infants differ from older children and adults in that clinical assessment is more difficult. Traditionally the radiological investigations of choice were skull radiographs and computed tomography (CT). A CT head was required for those who had clinical signs or significant radiograph findings suspicious of underlying intracranial injury. Ultrasound is another imaging technique that is used in infants whose fontanelles are still open, to assess for intracranial haemorrhage. This case is particularly interesting as there was no definite history of trauma an ultrasound scan of the boggy swelling was carried out in the first instance. This clearly showed a definite skull fracture with an associated extra-axial haemorrhage and scalp haematoma. On the subsequent skull x-ray the linear fracture was quite subtle and not as clearly seen as on the preceding ultrasound imaging. Recent improvements in ultrasound technology have allowed further applications of this modality. There are single case reports of intrauterine fractures and congenital bone disease such as osteogenesis imperfecta diagnosed by ultrasound in the early years of B-mode sonography. However, the use of ultrasound in the diagnosis of fractures is a more recent application of ultrasound. It is increasingly being used in the facial region of adults and children, including zygomatic, mandibular, orbital and nasal bone fractures. It provides various imaging planes and can be used to evaluate cartilaginous regions. In children it is...
of particular value as it does not use ionising radiation.

**Differential Diagnosis List:** Skull Fracture with associated extra-axial haemorrhage

**Final Diagnosis:** Skull Fracture with associated extra-axial haemorrhage

**References:**


Description: Ultrasound of swelling: On both sides of the right parietal bone there are areas of mixed echogenicity consistent with organising haematomas. Origin:
Description: Ultrasound of swelling: Deep to the scalp there is a fracture of the parietal bone. **Origin:**
Description: Skull x-ray: There is soft tissue swelling in the right parietal region with a subtle underlying linear fracture. Origin:
**Description:** CT: There is soft tissue swelling in the scalp over the right parietal region. There is a thin rim of high density extending along the inner table of the skull vault consistent with a small extra-axial haemorrhage. **Origin:**
Figure 5

Description: CT (with bone windows): Linear fracture in right parietal bone. Origin: