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Case Report

Fetal cephalhematoma - an unusual antenatal presentation of a common neonatal scalp swelling posing a diagnostic challenge ☆

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ABSTRACT

Cephalhematoma is an accumulation of blood in the subperiosteal space. While cephalhematoma is a well-documented postnatal occurrence, antenatal presentation is quite rare. This case report focuses on a rare presentation of fetal scalp swelling in a routine 32-week antenatal scan of a 38-year-old female. The swelling resolved spontaneously after birth. Awareness of this atypical manifestation is crucial for the radiologist to consider it in the differentials and for the obstetrician in providing appropriate prenatal care and avoiding unnecessary drastic interventions. The aim is to elucidate the diagnostic challenges and clinical management of this unique presentation.

Introduction

A cephalhematoma is an accumulation of subperiosteal blood, predominantly in the occipital or parietal region of the scalp. It is commonly due to the rupture of blood vessels crossing the periosteum due to the compression on the fetal head during labor. Rupture of vessels during labor due to pressure on the skull or the use of forceps or a vacuum extractor leads to a collection of blood. The etiology of antenatal presentation could be due to chronic pressure of fetal head against pelvic bones.

Case presentation

A 38-year-old pregnant female came to the department with preterm contraction, previous caesarian section, and scar

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tenderness with a history of watery discharge and rupture of membranes.

Ultrasound showed a single live fetus of 32 weeks 6 days in cephalic presentation. Fetal head appeared to be dolichocephalic with focal increased extracalvarial hypoechogenic collection in the right parietooccipital region, measuring 8-9 mm in max dimension (Fig. 1). No obvious intracranial finding was noted. Emergency cesarean section was done due to premature labor. Neonatal physical examination showed a right parietal scalp swelling which was hard and was not fluctuating. Neonatal head scan on postnatal day 1 showed a hypoechoic swelling in the right parieto-occipital region measuring 9-10 mm in maximum thickness (Fig. 2A) which was limited by sutures with no intracranial communication and no vascularity within. No intracranial bleed was noted on postnatal ultrasound scans.

Subsequent ultrasound scan on day 4 showed significant resolution of swelling to 4 mm in thickness (Fig. 2B) and Skull radiograph (Fig. 3) with neurologist examination on day 10 showed near complete resolution of the scalp swelling.

Blood tests were unremarkable. Neonatal MRI brain done after a month was normal.

In view of the antenatal scalp swelling which reduced on day 4 of postnatal cranial ultrasound with subsequent resolution in 10 days and no intracranial abnormality, the possibility of antenatal cephalhematoma was concluded. It was probably due to chronic antenatal trauma of compression of fetal head pressure against the pelvic bones.

Discussion

Cephalhematoma is caused by the shearing forces on the skull and scalp resulting in the separation of the periosteum from the underlying calvarium and subsequent rupture of blood vessels leading to gradual collection [1].

Neonatal Cephalohematomas are seen in 1%-2% of spontaneous vaginal deliveries and 3%-4% in forceps or vacuum-assisted deliveries [2] but antenatal presentation is very rare. This is the second reported case in literature to the extent known.

Common causes of cephalohematoma include a prolonged second stage of labor, Macrosomia, cepholopelvic disproportion, abnormal fetal presentation, instrument-assisted delivery with forceps or vacuum extractor, and multiple gestations [1].

In our case, we hypothesize that cephalhematoma resulted due to chronic trauma to the fetal parieto occiput due to its position against the bony pelvis and ischial tuberosity [3]. Possibility of a previous cesarean scar as an additional contributory factor cannot be confirmed.

Cephalohaematomas can be unilateral or bilateral usually bounded by suture lines except in the presence of craniosynostosis [2].

Most resolve spontaneously in weeks but can take a maximum of 3-4 months [2].

Differential diagnosis of an occipital mass in fetal sonography:

- Small meningocele
- Encephalocele
- Epidermal cyst
- Lymphangioma
- Hemangioma
- Cystic hygroma
- Mesenchymal sarcoma [4]

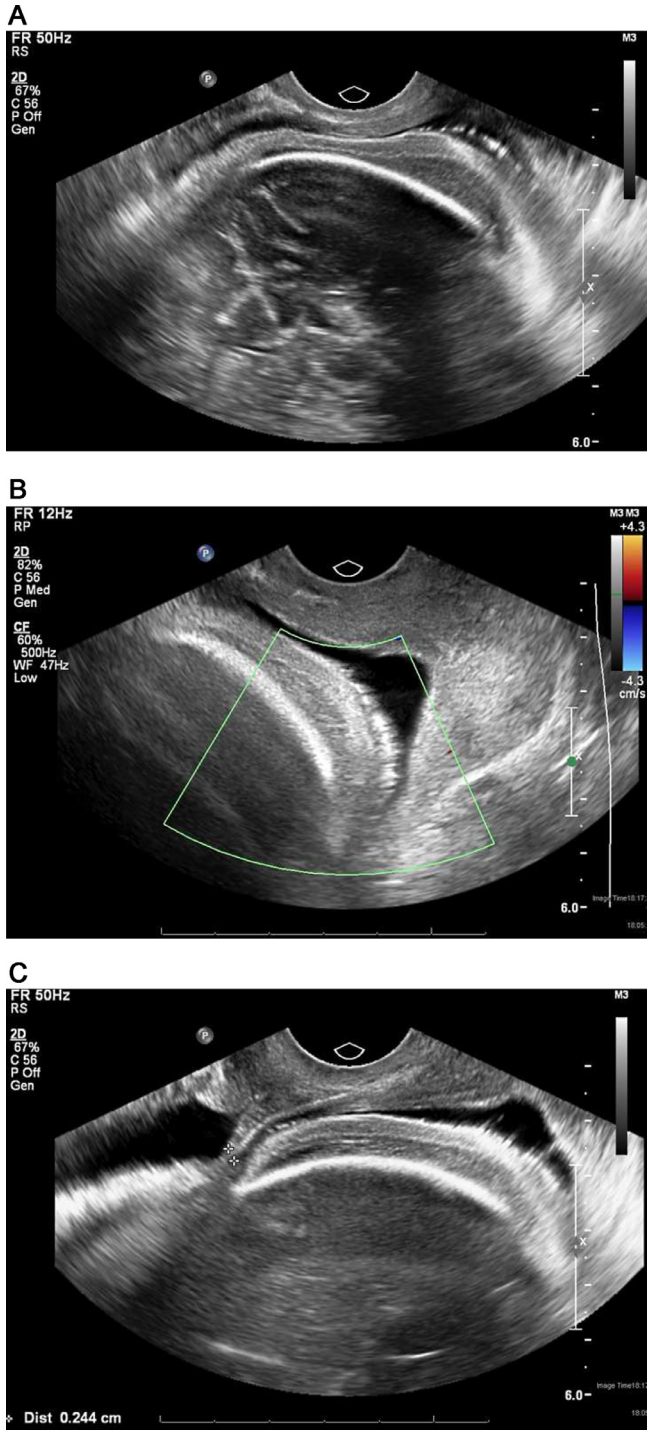

Fig. 1 – (A, B, C) Grayscale and Doppler ultrasound of a 32-week-old fetus with focal parietooccipital soft tissue swelling in the scalp with no color flow.

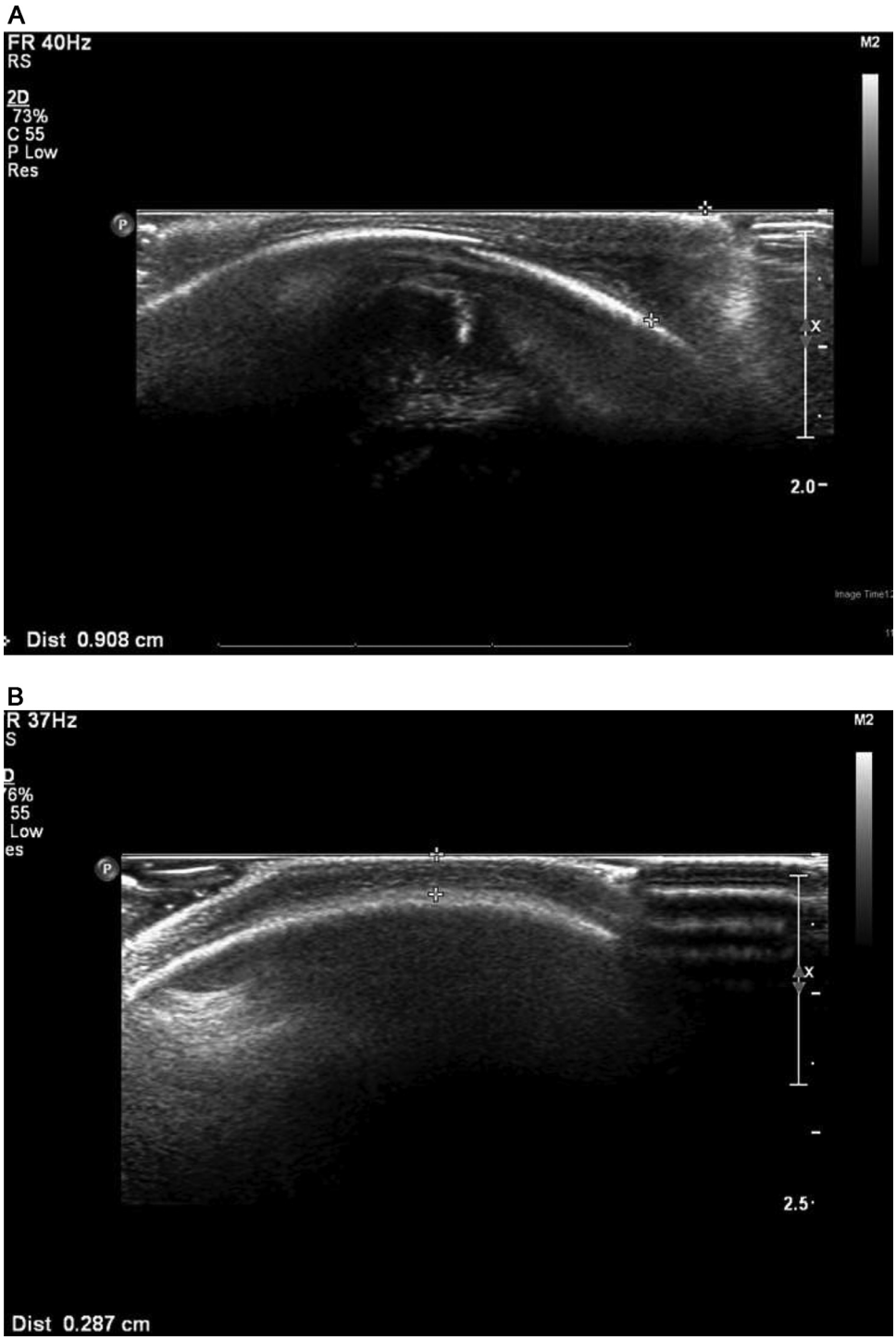

Fig. 2 – (A, B) Postnatal ultrasound on day 1 and day 4 showing reduction of subperiosteal swelling on day 4.

Fig. 3 – Plain AP radiograph of the skull shows resolution of soft tissue swelling on day 10.

Conclusion

In conclusion, once a scalp mass has been found in antenatal sonography, cephalhematoma should be considered in the differential diagnosis which can be confirmed by ultrasound and MRI. This can help to decide the timing and method of delivery and thus reduce the risk of traumatic hemorrhage during vaginal delivery. The review highlights the limited number of documented cases reporting antenatal cephalhematomas. The study presents the clinical characteristics, diagnostic dilemmas, and potential differential diagnoses associated with this condition. Imaging techniques, such as ultrasound and magnetic resonance imaging, are explored as valuable tools in confirming the presence of cephalhematoma during pregnancy. Further research and reporting of cases are essential to deepen our understanding of this rare but self-limiting condition. Awareness of this condition which resolves spontaneously in a few days after birth is of utmost importance to avoid drastic interventions and to optimize management.

Patient consent

Informed Recorded consent was obtained from the patient and she agreed that she accepted that the medical records, including radiology images were to be utilized for research and publication in medical journals.

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