Doncaster and Bassetlaw Paediatric Department
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Welcome to the fifth issue of '**The PEN'** – the Paediatric Education Newsletter. This is a monthly educational bulletin of cases, clinical questions and learning points from recent teaching.

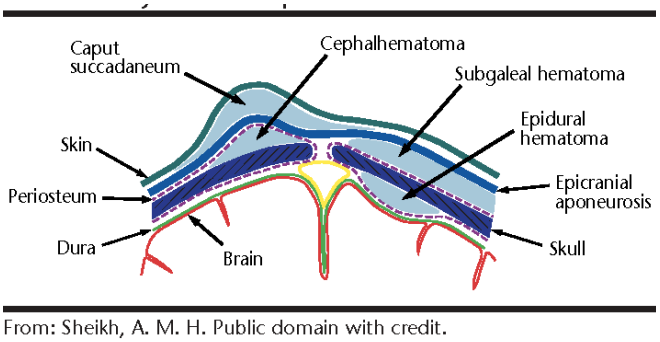
Neonatal cranial swellings (Based on a recent case at DRI)

1. How do you differentiate between the following diagnoses?

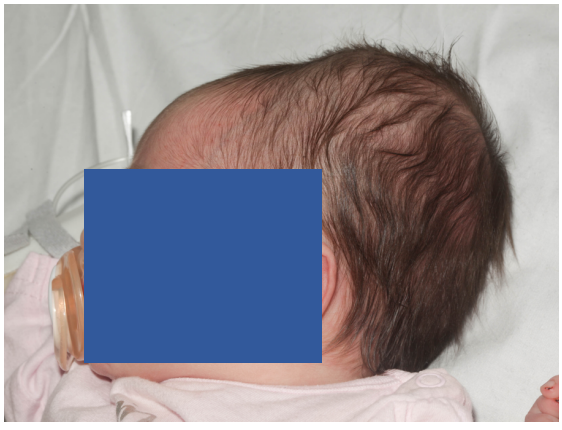
   A. Cephalohaematoma
   B. Subgaleal haemorrhage
   C. Caput Succedaneum

Answer:
A **Cephalohaematoma** is a fluctuant swelling limited by suture lines. It is caused by rupture of superficial veins between the skull and periosteum, may be associated with linear skull fractures and can cause significant jaundice. It occurs in 1-3% of live births; but can be up to 4% following instrumental deliveries. Approximately 15% are bilateral. Appears after birth and frequently enlarges over the first few days.
A **Subgaleal bleed** is a massive fluctuant swelling due to haemorrhage below the aponeurosis of the scalp. It extends beyond the suture lines and may cause shock (secondary to hypovolaemia), anaemia and jaundice. It is more often associated with ventouse delivery but may occur spontaneously. The swelling may be first noted at birth or several hours later and can rapidly progress in size.
Caput Succedaneum is a boggy diffuse swelling with poorly defined margins. It can extend beyond suture lines and is associated with moulding of the head. It is present at birth and resolves within a few days.

In our case the Term infant (pictured below) was born by NVD. No swelling was documented at birth. She returned for a NIPE check on day 1 of life where bilateral large swellings were noted. These did not extend across suture lines. Due to the significant size of the swellings and a language barrier we admitted to CHOU for FBC, SBR, coagulation studies and observation overnight. Diagnosis: Bilateral Cephalohaematoma.



From: Sheikh, A. M. H. Public domain with credit.



Article Links

1. DynaMed Initial Newborn Assessment See Image 33/73 and related text for Bilateral cephalohematomas Willemot L, Lagae P, Jeannin P, Baelde N, Verstraete K.

2. Neonatal cephalohematoma. JBR-BTR. 2013;96(4):258–9https://www.jbsr.be/articles/315/galley/312/download/

3. Raines DA, Krawiec C, Jain S. Cephalohematoma. (2020). Cephalohematoma. In: *StatPearls* [Internet]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470192/

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Hydrops Fetalis – Louise Wilson ST3

Background:

Hydrops fetalis is abnormal accumulation of fluid in 2 or more compartments e.g. tissue oedema, pericardial /pleural effusions & ascites.

Causes:

Immune hydrops due to rhesus haemolytic anaemia used to be the most common cause but this has decreased significantly since the implementation of Anti-D. 80-85% of cases have a non-immune cause .

Associations:

- Cardiovascular (~20%) e.g. structural heart defects, arrhythmias
- Chromosomal abnormalities (~13%) e.g. Trisomies, Turner's syndrome
-Haematological (~9%) e.g. twin-twin transfusion, rhesus disease, α-thalassaemia, G6PD deficiency
- Respiratory (~6%) e.g. congenital diaphragmatic hernia, CCAM, TOF
- Infective (~6%) e.g. TORCH, syphilis, hepatitis

Pathophysiology:

The common final pathway is low plasma oncotic pressure, high central venous pressure +/- reduced lymphatic flow which leads to accumulation of interstitial fluid.

Management at delivery:

Still birth is common and management/ventilation may be difficult due to pulmonary hypoplasia or large volume ascites.

Intubation is required in the delivery room in most cases with ventilation often requiring increased pressures. Pleural/ascitic drainage may be required immediately.

Management on the neonatal unit:

Weight may be increased due to excess fluid, using the 50th centile weight for gestation may be more appropriate. Umbilical catheterisation for IV access is usually required as cannulation will be difficult due to oedema.

Early discussions with Embrace are advised for transfer to tertiary centre. Multiple investigations needed to look for a cause. As many of these babies will need early transfusion of RBCs, platelets and FFP it is advised to take bloods for genetic testing prior to transfusion.

Prognosis:

Overall prognosis is poor with estimated survival rates of ~50% in non-immune hydrops. Prematurity <34 weeks and low albumin are predictors of poor prognosis. Neurodevelopmental outcomes at 1 year for non-immune hydrops show normal development in 2/3.

Article Links

1. **DynaMed Hydrops Fetalis**
2. Kosinski P, Krajewski P, Wielgos M, Jezela-Stanek A. Nonimmune Hydrops Fetalis-Prenatal Diagnosis, Genetic Investigation, Outcomes and Literature Review. *J Clin Med*. 2020 Jun 8;9(6):1789
3. Désilets V, De Bie I, Audibert F. No. 363-Investigation and Management of Non-immune Fetal Hydrops. *J Obstet Gynaecol Can*. 2018 Aug;40(8):1077-1090

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