Case Report

Intraventricular haemorrhage in a Newborn

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ABSTRACT

We report a 36-h-old very low birth weight female baby (Birth weight 1.1 kg) who was delivered at 29-week gestation. She developed respiratory distress at 4 h of life, in addition to reduced activity, recurrent apnoea, tensed anterior fontanel, progressively increasing occipitofrontal circumference and dramatic fall in haematocrit. Baseline Transfontanelle ultrasound scan (TFUSS) showed blood in the lateral ventricle extending to the parietal cortex with ventricular enlargement of >50%. Repeat TFUSS at 8 weeks showed Grade 3 periventricular leucomalacia.

Key words: Intraventricular haemorrhage, newborn, periventricular leucomalacia

How to cite this article: Ologun BG, Adegoke SA. Intraventricular haemorrhage in a newborn. Niger J Health Sci 2018;18:70-1.

AK was a 36-h-old female neonate delivered at 29-week gestation to a 39-year-old Para 4^{+3} 1 alive woman, who had cervical incompetence. The birth weight was 1.1 kg. The baby developed respiratory distress at 4 h of life for which she was on supportive care. In addition, she was noticed to have reduced activity, recurrent apnoea, full/tensed anterior fontanel, but normal core body temperature. Her occipitofrontal circumference increased by 2 cm from the baseline measurement.

Investigations showed normal random blood glucose, but haematocrit was 35% as against 45% done at admission. She was subsequently transfused with fresh whole blood but with no significant rise in the haematocrit level. Complete blood count and clotting profile were normal. Transfontanelle ultrasound scan (TFUSS) showed blood in the lateral ventricle extending to the parietal cortex with ventricular enlargement of >50% [Figures 1 and 2]. During clinical follow-up visit at 8 weeks of age, repeat TFUSS showed Grade 3 periventricular leucomalacia (PVL) characterised by increased periventricular echogenicity and periventricular cysts [Figure 3].

Submitted: 23-Aug-2020 **Revised:** 14-Sep-2020
Accepted: 14-Sep-2020 **Published:** 23-Mar-2022

Access this article online

Quick Response Code:

Website: www.chs-journal.com

DOI: 10.4103/njhs.njhs_40_20

QUESTIONS AND ANSWERS

1. How severe was this baby's intraventricular haemorrhage (IVH)?
   Ans: This baby had Grade IV IVH, the most severe form associated with intraparenchymal involvement.

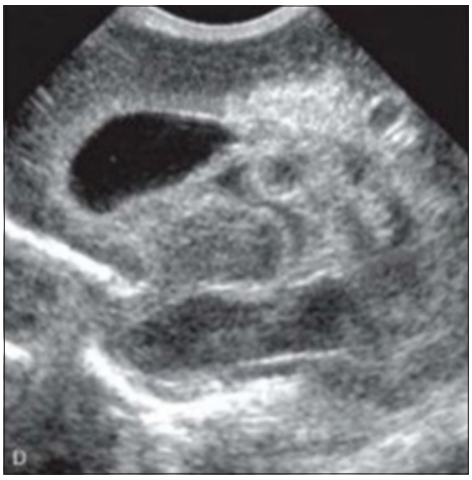

Figure 1: Transfontanelle ultrasound scan on the parasagittal plane shows blood in the lateral ventricle extending to the parietal cortex with ventricular enlargement

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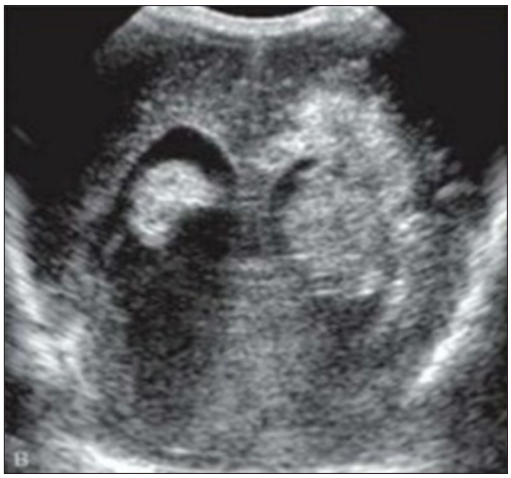

Figure 2: Transfontanelle ultrasound scan on the coronal plane shows blood in the lateral ventricle extending to the parietal cortex with ventricular enlargement

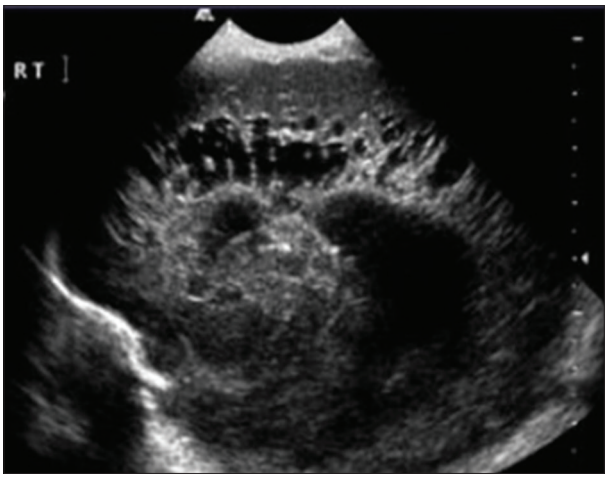

Figure 3: Increased periventricular echogenicity and periventricular cysts in the occipital and fronto-parietal regions

2. What is the pathogenesis of bleeding in newborns with IVH?
   Ans: Bleeding primarily results from rupture of immature gelatinous germinal matrix. Babies delivered before 28 weeks of gestation are more likely to have IVH because the germinal matrix is largely unsupported at this time. In addition, before this period, spontaneous involution of the germinal matrix is not yet completed, hence increasing the risk of haemorrhaging. The risk is inversely related to gestational age and birth weight, with the smallest and most immature infants being at the highest risk. Predisposing factors include prematurity, respiratory distress syndrome, pneumothorax and hypoxic ischaemic injury to the brain, among others.

3. What is the most feared complication of IVH?
   Ans: The most feared complication is the development of PVL. The risk for PVL increases in infants with severe IVH and/or ventriculomegaly. This lesion is characterised by increased echogenicity and cystic degeneration of the periventricular region. The detection of PVL is important because significant percentage of surviving premature infants with this complication develop cerebral palsy, intellectual impairment or visual disturbances.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.