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Subarachnoid Hemorrhage in Preterm Infant- A Case Report

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Abstract: An intracranial hemorrhage is the pathologic accumulation of blood within the cranial vault. This can be classified based on the place of accumulation. On December 2014 we received a deceased body of 3 day old preterm infant for post mortem examination at department of forensic medicine & toxicology, Adichunhanagiri Institute of Medical Sciences, B G nagar. On 20 December 2014, there was a quarrel between 2 gentlemen, but accidentally a seven month old pregnant lady came in between them and she was pushed to ground. Soon after that she developed abdominal pain leading to preterm delivery. Deceased neonate was a live born female viable baby, weighing 1 kg and crown rump length is 38 cm, head circumference is 25 cms, foot length is 6cms, dusky red in complexion. Eyelid are separated and eyelashes present, umbilical cord was ligated and dries, meconium has been passed, lanugo hair present over both shoulders, nails are thick and present upto finger ips, scalp hair was black in color and measures 1.5cms in length. The majority of infants with intracranial hemorrhage have no clinical symptoms, including some with moderate to severe hemorrhages.
Keywords: preterm, intracerebral hemorrhages, neonatal respiratory distress syndrome.

INTERODUCTION:

An intracranial hemorrhage is the pathologic accumulation of blood within the cranial vault. This can be classified based on the place of accumulation

Extradural hemorrhage - blood between the skull and dura
Subdural hemorrhage - blood between the duramater and arachnoid mater
Subarachnoid hemorrhage - blood between the arachnoid mater and pai mater
Intraventricular hemorrhage - blood within the ventricles
Intraparenchymal hemorrhage - blood within the brain parenchyma [1]

Intracranial hemorrhages can also be classified as
Grade I: hemorrhage limited to the germinal matrix
Grade II: hemorrhage which has extended into the ventricular system (without dilation of the lateral ventricles)
Grade III: hemorrhage extending into the ventricular system resulting in ventricular dilatation.
Grade IV: hemorrhage which extends into the brain tissue [2]

The actual incidence of perinatal intracranial hemorrhages is not well documented. The most of autopsy-based studies report shows small subdural, subarachnoid, and intracerebral hemorrhages in 20-30% of live births. Larger intraventricular hemorrhages were less common in these studies, representing 10-15% of live births.

In infants of less than 32 weeks' gestation, the most common site of intracranial hemorrhage is the germinal matrix. Risk factors for the development of intracranial hemorrhage in preterm infants are low gestational age and birth weight, maternal chorioamnionitis and other infections, lack of antenatal steroid exposure, hypotension, hypoxemia, hypercapnia, pneumothorax, respiratory distress syndrome, and trauma. The microvasculature of the germinal matrix is frail because of an abundance of neovascularization. These new vessels have few supporting pericytes, immature basal lamina, and deficient glial fibrillary acidic protein (GFAP) in the ensheathing astrocyte end feet. High vascular endothelial growth factor (VEGF) and angiopoietin-2 levels activate rapid angiogenesis in the germinal matrix [3, 4].

CASE REPORT:

On December 2014 we received a deceased body of 3 day old preterm infant for post mortem examination at department of forensic medicine & toxicology, Adichunhanagiri Institute of Medical Sciences, B G nagar.

HISTORY:

On 20 December 2014, there was a quarrel between 2 gentlemen, but accidentally a seven month

old pregnant lady came in between them and she was pushed to ground. Soon after that she developed abdominal pain leading to preterm delivery. A female baby weighing 1 kg was delivered and baby was kept in ICU for neonatal care. Even after thorough hard work by team of doctors baby died after 3 days. Since the case was registered under assault law, police investigating officer made the inquest and subjected to postmortem.

POSTMORTEM FINDINGS:

Deceased neonate was a live born female viable baby, weighing 1 kg and crown rump length is 38 cm, head circumference is 25 cms, foot length is 6cms, dusky red in complexion. Eyelid are separated and eyelashes present, umbilical cord was ligated and dries, meconium has been passed, lanugo hair present over both shoulders, nails are thick and present upto finger ips, scalp hair was black in color and measures 1.5cms in length.

Ossification centres of calcaneum, talus, manubrium and first, second, third segment of body of sternum appeared. On examination of scalp-extravasation of blood presents in the right parietal region and diffuse subarachnoid hemorrhage present over the right side of parietal region. Lungs, heart, kidney, brain, liver, spleen was sent for histo-pathological examination and report suggestive of neonatal respiratory syndrome.

CONCLUSION:

The majority of infants with intracranial hemorrhage have no clinical symptoms, including some with moderate to severe hemorrhages. Infants who are clinically symptomatic may present with any of a number of neurologic symptoms, singly or in combination, including decreased level of consciousness, generalized hypotonia, and seizures. However, these manifestations are not specific to intracranial hemorrhage.

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