

Cephalhematoma Causing Severe Anemia in the Newborn: Report of 2 Cases

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Abstract

This report describes two newborns with massive Cephalhematoma leading to marked blood loss and severe anemia. The hematocrits were 19% and 13% respectively. The babies were managed with blood transfusion, phototherapy, antibiotics and dexamethasone.

Key words: Cephalhematoma, anemia, newborn

Ann Med Health Sci Res. July-Dec., 2011; 1(2) 223- 226; received 19/04/11; accepted 25/09/11; published 12/12/11.

Introduction

Cephalhematoma is the result of hemorrhage into the sub periosteum of the scalp bone and so it is limited to the surface of one cranial bone.^[1, 2] It is the commonest mechanical birth injury in Nigeria.^[3] The scalp swelling in Cephalhematoma is non pulsatile and usually not visible until several hours after birth because the bleeding into the sub periosteum is a slow process. The condition is self-limiting and resolves within 2 weeks to 3 months. It requires no treatment and infrequently results in significant anemia, which can severe enough to necessitate blood transfusion.^[1,2,4] This report describes two newborns presenting with massive Cephalhematoma leading to marked blood loss and severe anemia.

Case Reports

Case 1

A 2 day old male neonate presented with scalp swelling, weakness and whiteness of the body. The mother was Para 3+0 and she received antenatal care in a private hospital and kept all appointments and used only the prescribed drugs. She delivered vaginally in the same hospital but the process was prolonged and complicated by cervical dystocia and maternal exhaustion. The baby's condition at birth could not be assessed objectively because the Apgar Scores were not recorded at the site of delivery.

Physical examination revealed a mature neonate who looked ill, weak, and markedly pale. He was grunting and breathless but not jaundiced. The head showed a diffuse and extensive swelling of the scalp involving the parietal regions, the occiput and posterior aspect of the neck as well as the right peri orbital area. He was in obvious respiratory distress with flaring alae nasi and recession of the intercostals and sub costal areas.

He weighed 3.55kg and the head circumference and length were 37cm and 48cm respectively. He had a respiratory rate of 52 cycles per minute and peripheral pulse rate was 164 beat per minute. The breath sounds

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were vesicular with background-transmitted noise. The heart sounds were normal and soft systolic murmurs were heard. The abdomen and genitalia were normal but the Central Nervous System showed depressed primitive reflexes as well as high-pitched cry.

The clinical course was complicated by the development of subtle seizures and jaundice on the second and fourth days of hospitalization respectively.

The hemogram revealed marked anemia with Hematocrit of 19%; Leukocyte and Platelet Counts of $8 \times 10^9 / L$ and $200 \times 10^9 / L$ respectively. The serum Bilirubin level was 13mg / dl with the unconjugated component being 10.4 mg / dl. Radiograph of his skull showed massive scalp swelling overlying the entire skull, but worse over both parietal and occipital areas considered to be due to traumatic Cephalhematoma / edema in the presence of a displaced posterior parietal fracture. He was screened for sepsis and no organism was isolated.

Anemia was corrected with packed cell transfusion. Moreover, he received intra venous fluids, parenteral antibiotic and dexamethasone as well as phototherapy. He responded to treatment and was discharged home in a satisfactory state after 10 days of hospitalization. The head circumference was 35.4 cm and he weighed 3.1 kg.

The child was seen at one year and achieved all developmental milestones appropriately. Neck control was at 14 weeks and he sat unaided at 7 months and walked at eleven months.

Case 2

A 2 – day old female neonate presented with a 3-hour history of scalp swelling, fever and pallor. It was noted that she had no bleeding from the nostrils nor mouth, genitalia or anus.

The mother was Para 2 + 0 and received antenatal care in a public hospital. The pregnancy was not associated with peripartum pyrexia or prolonged rupture of membranes.

Labour was prolonged and delivery was in a taxi on the way to the hospital. The second stage of the labour was associated with cord complication as cord was around baby's neck. The taxi driver assisted the mother in the delivery of the newborn. She was inactive at birth and failed to cry until 30 minutes later.

Physical examination showed a term infant with estimated gestational age of 38 to 40 weeks, weighing 3.75kg and appropriate for gestational age. The head circumference and length were 38 cm and 49 cm respectively. The Pulse was 165 beats per minute, Respiratory rate 60 cycles per minute and Temperature of 38.3C.

The scalp was diffusely swollen, pitting and erythematous. The patient also had peri orbital ecchymoses and swelling of the infra auricular areas. The Central Nervous System showed sluggish primitive reflexes with the Moro's reflex eliciting an asymmetrical response in the right upper limb. The heart, chest and abdomen were normal. It was also noted that the child did not show areas of petechial hemorrhages on the body.

Laboratory findings showed Hemoglobin 4.2Gm / dl, White Blood Cell Count $5 \times 10^9 / L$. Differential counts 76 Lymphocyte, 24 Neutrophil. The platelet was adequate on blood film. The cerebrospinal fluid cell count showed 2 WBC, 23 RBC; protein 20mg/dl, glucose 66mg/dl and the Gram stain and Culture were negative and sterile respectively. The radiograph of the skull showed Calvarial fracture.

She developed jaundice on the 3rd day of admission and Total serum Bilirubin was 14.2 mg / dl with the unconjugated fraction being 11.8mg / dl. The patient was managed by packed red blood cell transfusion,

antibiotics and anticonvulsants. The jaundice responded to phototherapy.

The baby improved gradually and was discharged after 12 days of hospitalization. She was seen at 4 months of age with good neck control and Erb's palsy of his (R) upper limb. Patient was lost to follow up.

Discussion

Cephalhematoma results from Mechanical Birth Injury, which is the outcome of inappropriate or deficient medical skill or attention at the time of birth.^[1,3, 4] Indeed, a un- skilled taxi driver assisted in the delivery of the second baby and the development of Birth Injury in the baby was therefore not surprising. On the other hand, Cephalhematoma can occur despite skilled and competent obstetric care and may also be independent of any acts or omissions on the part of the parents.^[1]

Cephalhematoma is the most frequently documented birth injury in Africa^[3] as it occurs in nearly 50% of different types of all reported mechanical birth injuries in the continent and the condition occurs in babies irrespective of where the newborn is delivered. In this report, whereas one of the cases presented was delivered in a taxi, the other was in a hospital as was noted by other workers^[1,3,5] Factors implicated^[1,5] in the causation of Cephalhematoma include prematurity, macrosomia, cephalo - pelvic disproportion, dystocia, prolonged labour and breech presentation.

The most significant finding in both babies is massive bleeding into the periosteum of the scalp bone leading to severe anemia. Indeed such massive blood loss into the periosteum is likely to be the outcome of a significant traumatic impact to the scalp of the babies during passage through the birth canal. For this reason, the possible points that may impact on the scalp during passage through the birth

canal include the sacral promontory, symphysis pubis or Ischial Spines as suggested by various reports.^[1, 3]

Additionally, the foetal head may hit a hard object after expulsion from the birth canal, as may be the case in the baby delivered in a taxi. Indeed the un- skilled assistance that the taxi driver rendered may have necessitated the use of unwarranted force leading to the buffeting of the baby's head against bony prominences of the pelvis as earlier highlighted.

Documented complications^[1-4] associated with Cephalhematoma include underlying linear fracture, jaundice, calcification and intra cranial hemorrhage. The fracture in this condition is the result of either a compression of the foetal head against the promontory during passage through the birth canal or from instrumental delivery like application of forceps. It may also result from impact on the head by a foreign object after expulsion from the vagina as previously explained.

The unconjugated hyperbilirubinemia noted in both babies is a usual finding in cases of Cephalhematoma and results from hemolysis of the extravasated blood in the sub periosteum. It usually resolves without the bilirubin levels rising to dangerously high values to warrant Exchange Blood Transfusion. The calcification is the result of resorption of blood in the Cephalhematoma while the intra cranial hemorrhage indicates more severe injuries. Fortunately, we did not encounter these later complications in our patients.

Undeniably, Cephalhematoma and birth injuries generally are associated with inappropriate obstetric practices and crude interventions by unskilled persons as seen in one of the babies who also had Erb's palsy. Consequently, there is need to train health workers in good obstetric practices, so that the management and outcome of labour is improved. In addition, appropriate health information relating to Cephalhematoma and anemia should be provided to all mothers during pre-natal care.

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