

RUPTURED NEONATAL SUBGALEAL HEMORRHAGE: CHALLENGES OF MANAGEMENT FROM A RESOURCE LIMITED SETTING

Abstract

Despite advances in obstetric and neonatal care, subgaleal hemorrhage continues to pose significant challenges to health personnel, especially in poor human resource/facility settings, such as ours. Here, a specialist may not be always readily available, contributing significantly to morbidity and mortality. This study was undertaken to highlight the varying methods of presentation of subgaleal hemorrhage and the need for early identification and management in order to improve outcomes. A confirmed case of ruptured subgaleal hemorrhage was documented over a 12-month period. No mortality was recorded. High index of suspicion is key to early diagnosis. Identification of risk factors, early diagnosis, and prompt and aggressive treatment of hypovolemia will reduce morbidity and mortality.

Key words: Ruptured subgaleal hemorrhage, massage of scalp swelling, neonate.

Introduction

Subgaleal hemorrhage is a collection of blood in the soft tissue space under the aponeurosis, but above the periosteum of the skull.^[1] It is the most serious form of extracranial hemorrhage in newborns and is most often seen after vacuum or forceps-assisted deliveries. However, it can occur even in normal deliveries.^[1-8] The incidence has been estimated to be approximately 1 in 2,500 spontaneous vaginal deliveries without the use of vacuum or forceps. A 10-fold increase has been reported with the use of forceps. The rate of mortality is reported to be between 12–25%.^[2,6,9] We have never recorded a case of ruptured subgaleal hemorrhage prior to

the case reported here. This study was undertaken to highlight the varying methods of presentation of subgaleal hemorrhage, in addition to the need for early identification and management to improve outcomes. We also discourage local home remedies, such as warm compresses or massages over the area of swelling so as to prevent tissue damage and subsequent rupture.

We report our experience with the management of a case of ruptured subgaleal hemorrhage at the Federal Medical Centre in Yola, Nigeria.

Case Report

Baby HA was admitted at age of 5 days on account of swelling of the head said to have been noticed at birth and has been increasing progressively.

Baby was delivered to a 23-year-old primipara via spontaneous vertex delivery at the state specialist hospital, Yola. Pregnancy was booked at 5month gestation, mother had 4 uneventful visits, there were no perinatal risk factors for sepsis identified; mother had blood tonic prescribed and paracetamol for occasional pain. There was no history of smoking or alcohol ingestion during pregnancy, she is not a known hypertensive or diabetic and no history suggestive of gestational diabetes.

Mother delivered at the state specialist hospital, Yola; delivery was spontaneous, vertex and not prolonged. Apgar scores were 8 and 9 at one and five minutes respectively, birth weight of 3.3kg, length of 56 cm and head circumference of 32 cm. Both baby and mother were discharged home 3 hours after delivery. At home, mother was massaging baby's head with rag soaked into hot water but with increasing swelling of the head and increased softening of swelling, baby was taken to the state specialist hospital, Yola where they were admitted for 2 days during

50 which some medications were given which mother do not know but with baby's
51 clinical condition worsening, baby was referred to the Federal Medical Centre(FMC),
52 Yola.

53 Major findings at presentation in FMC Yola were an acutely ill baby, febrile
54 (38.2), deeply jaundiced with severe pallor, weight = 3.4 kg, occipitofrontal
55 circumference = 40cm. respiratory rate = 68/ minute; Broncho vesicular breath
56 sounds, there were no crepitations. Baby had tachycardia with heart rate of 220
57 beats per minute. The baby was conscious but lethargic with normotensive anterior
58 fontanelle. He had generalized head swelling involving the right parietal to occipital
59 region, soft in consistency with some areas of tenderness, findings on abdominal
60 examination were normal (Figure 1).

61 A working diagnosis of a 5 days old term baby with subgaleal haemorrhage
62 complicated by severe anaemia, hyperbilirubinaemia, presumed sepsis and
63 hypovolaemic shock was made. Investigations done reveals a PCV of 13%, random
64 blood glucose of 1.4mmol/L, FBC reveals PCV 13%, WBC 6.0×10^9 /L, N = 58%, L =
65 30%, E = 06%, M = 06%, Platelets = 73×10^9 /L, serum bilirubin was Total =
66 10.8mg/dl, conjugated 9.8mg/dl (90% conjugated), Blood culture did not grow any
67 organism. Transfontanelle scan reveals normal cerebral and cerebellar hemispheres
68 with large collection in the scalp? organized haematoma.

69 After an initial administration of 20mls/kg of normal saline, baby had a double
70 volume exchange blood transfusion using 544mls of fresh whole blood, was also
71 commenced on antibiotics – IV Ampicillin/Sulbactam at 150mg/kg/day in two divided
72 doses and IV gentamycin at 5mg/kg/day, IVF 4.3% Dextrose in 0.18 saline at
73 120mls/kg/day and phototherapy. Within 48 hours of admission, clinical condition is

74 improved but post – EBT PCV was 30% necessitating a top-up transfusion of
75 15mls/kg of packed cells.

76 By the 7th day of admission, baby was noticed to be bleeding actively from a
77 darkly pigmented area on the right parietal region of the scalp, bleeding however
78 continued despite application of dressing over the area, this necessitated surgical
79 evacuation of the haematoma with another transfusion of 15mls/kg of packed red
80 cells after which bleeding stopped and baby continue to improve, head
81 circumference dropped from 40cm to 34cm (Figure II).

82 Baby was discharged home at age 30days, 25 days into admission. Was seen
83 a week following discharge and is in stable clinical state.

84 **Discussion**

85 Subgaleal hemorrhage is an accumulation of blood in the loose connective
86 tissue of the subgaleal space.^[1] and it can occur following a normal delivery,
87 forceps-mediated delivery, or caesarean section. It is the most serious form of
88 extracranial hemorrhage in newborns.^[1,5,6,10] It occurs most frequently following
89 vacuum-assisted delivery. The incidence has been estimated to be approximately 1
90 in 2,500 spontaneous vaginal deliveries that did not involve the use of vacuum or
91 forceps. A 10-fold increase in the incidence of this condition was observed with the
92 use of forceps. These infants usually present at birth or within a few hours following
93 delivery, and the risk of death increases with delays in identifying the condition and
94 initiating aggressive treatment.^[11] Mortality is reported to be between 12-25%.^[1,2]
95 The literature on subgaleal hemorrhage in Nigeria is limited,^[8] and only a few cases
96 have been observed worldwide.

Most documented cases occurred following assisted modes of delivery, such as those that use vacuum and forceps. However, this condition can also occur following caesarean deliveries or at other times following normal deliveries.^[1-7] The case we have reported here, occurred following an attempted vacuum that failed. The baby's head was observed to be enlarged within 24 hours following delivery, and it progressively increased in size. The parents were using a rag soaked in warm water to massage the swollen scalp, but the baby later presented in the hospital with hypovolemic shock and severe anemia. The baby initially had normal saline administered to correct the hypovolemic shock followed by an exchange blood transfusion. The swelling later ruptured with blood oozing, necessitating drainage of the blood with daily dressing of the wound packed with sterile gauze. The rupture may have been the result of the warm compress and /massage performed repeatedly prior to presentation at the hospital, thereby weakening the tissue and causing the rupture. We advise that babies delivered through vacuum or attempted vacuum be observed for at least 24 hours following delivery, so that such complications are looked for and identified early and promptly managed to avoid such complications

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Figure Legends

Figure 1: Baby's condition at presentation prior to EBT and top-up blood transfusion showing severe pallor with enlarged head.



145

146 Figure 2: Baby's condition after EBT and top-up blood transfusion showing the site of
 147 rupture on the scalp and improvement of pallor following blood transfusion.



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