

## Iatrogenic Scald Injury Following Neonatal Resuscitation: A Case Report

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**Abstract:** We report the case of a 13 h old female, referred from a health centre with severe birth asphyxia, neonatal seizures and scald injury resulting from hot water fomentation used as a method of resuscitation. The case as well as the challenges it poses to neonatal health care in Nigeria is discussed in this study.

**Key words:** Health centre, severe, birth asphyxia, neonatal seizures, scald injury, Nigeria

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### INTRODUCTION

About 10% of newborns require some assistance to begin breathing at birth. Resuscitation of the newborn infant at birth is therefore an important emergency procedure which is expected to be undertaken at all levels of health care services where babies are delivered (Fisher and Paton, 1979). However because most of the health facilities in developing countries are ill equipped many of the delivery rooms are not equipped and the efforts of birth attendants are just attempts to do something for dying babies. Many earlier methods which depended on uncomfortable stimuli to initiate the onset of breathing, like spanking the feet or buttocks, hot fomentation or total alternate immersion of the infant in hot and cold water have since been found to be highly injurious and wasteful of precious time which can be used more effectively (Fisher and Paton, 1979; Saugstad, 1988; Palme-Kilander, 1992; Gross and Roberts, 1951). In fact, often times such methods worsen the clinical condition of the baby and increase morbidity and mortality. The present case typifies such intervention in a primary health facility in Nigeria.

### CASE REPORT

Baby OB, a 13 h old female neonate was referred from a health centre to the nursery of the University Teaching Hospital Ado-Ekiti, Southwestern Nigeria with the complaints of failure to cry at birth, ulcer at the back and abnormal movements noticed after birth. The baby had been delivered by Spontaneous vertex delivery at 12.30 am. According to the mother, the baby was spanked at the back and buttocks several times; methylated spirit and hot fomentation were applied to the body until the

back became sore. Yet the child did not cry but was noticed to be breathing. Glucose water was given by cup and spoon an hour afterwards. A few hours later she gave an abnormal cry and there was upward rolling of the eyes and twitching of the limbs. He was then referred to the University Teaching Hospital for further management. The mother had attended for antenatal care in the same health facility and was given 2 doses of tetanus toxoid. She was in the health facility for about 5 h before the delivery of the baby. The mother was a 31 year old woman with post secondary education, a secundipara and a civil servant. The first child, 3 year old girl was alive and well had been delivered in a mission house. The father was 34 years old and had received some secondary education. He was a company driver. On examination, the baby was term, convulsing, pale, hypothermic  $T < 33.5^{\circ}\text{C}$ , weight 2.6 kg, length 47 cm and occipitofrontal circumference 35.4 cm. The convulsions were generalized involving the 4 limbs. The heart rate was  $144 \text{ beats min}^{-1}$  and the cry was high pitched. The baby was dyspnoeic with respiratory rate of  $68 \text{ min}^{-1}$  and she had a second degree burn injury area of 10 by 8 cm at her back. Diagnoses of severe birth asphyxia, neonatal seizures and iatrogenic scald injury were made. Investigations revealed PCV 58%,  $\text{HCO}_3$   $20.8 \text{ mmol L}^{-1}$ , Cl 99.1, Na 134.9, K 5.1, random blood sugar  $3.4 \text{ mmol L}^{-1}$  and pulse oximeter ranges between 70 and 82%. The facilities were not available for EEG and CT scan. Transfontanel ultrasound was also not done.

The convulsions were managed with diazepam and phenobarbitone. The renal status was monitored, associated sepsis was managed with parenteral antibiotics and oxygen therapy was given. She also developed hypoproteinemia with generalized oedema which was managed with fresh plasma transfusion. The convulsions stopped after 72 h and she improved gradually and slowly

tolerated oral feeding. She was subsequently discharged to follow up after 2 weeks of admission to continue out patient daily dressing of the burn area at her back.

### **DISCUSSION**

Birth asphyxia accounts for about 19% of the approximately 5 million neonatal deaths, majority of which occur in the developing countries, especially sub Sahara African countries which include Nigeria (World Health Organization, 1996; Effiong, 1976; Omene and Diejomach, 1977). The non-availability of skilled manpower in terms of knowledge of appropriate resuscitation techniques and of facilities for resuscitation are responsible for great proportions of these neonatal death (Adebami *et al.*, 2007; Owa and Osinaike, 1998). Birth asphyxia is the leading cause of neonatal morbidity and mortality in Nigeria (Owa and Osinaike, 1998; Okolo and Omene, 1985).

The present case typifies the type of care that is currently provided in many primary health facilities in Nigeria. The mother had antenatal care in the hospital, the quality of which is doubtful. The birth asphyxia in the baby was probably not anticipated. Since birth asphyxia could occur at any stage of labour. Therefore, anticipation together with preparation for resuscitation is key strategy. The present case also shows that there was general poverty of knowledge of the practice of newborn resuscitation at the health centre and this is probably contributed to by the lack of and/or decay in the status of the equipment available to the workers. When health facilities are not equipped the attendants are restricted to just doing something for a dying baby instead of just standing and looking. Thus, we see that the resuscitative methods employed in the present case consisted of slapping of the back, sprinkling methylated spirit and hot formentation which resulted in burn injury to the baby. Methylated spirit which is sometimes instilled into the nostrils, rubbed on the skin for tactile stimulation or poured into a swab placed under the nostrils of the baby is used for resuscitation in primary and secondary health facilities in Nigeria (Adebami *et al.*, 2007). This is a denatured absolute ethyl alcohol commonly used in the hospital for preparation of the skin, wound dressing and as a cleaning agent. It is known to be irritant to the eyes, mucous membranes, upper respiratory tract and skin. It also precipitates central nervous system depression and convulsions, pulmonary damage and gastrointestinal abnormalities. In the present case, the baby did not only suffer severe birth asphyxia and neonatal seizures she also suffered scald injury.

These are preventable injuries to the newborn. Even though this baby got to the health facility and survived, her eventual prognosis may be adversely affected. The decay and neglect currently experienced at many health posts will make it necessary to retrain the medical staff on the use of the equipment when they are supplied. The injury sustained by the patient could be the tip of the iceberg regarding what is going on in primary health facilities where the majority of the births take place.

### **CONCLUSION**

To improve neonatal health indices in developing countries especially in the Subtropical regions there is therefore, need to improve the knowledge and skill of the health workers in all the health facilities especially at the primary and secondary care levels. This can be done through the efforts of the various ministries of health at the local, state and federal government levels in conjunction with the regulating agencies by ensuring appropriate update courses before practicing licenses are issued and thereafter at suitable intervals. International agencies, non-governmental organizations and donor agencies could also collaborate with various institutions in developing nations to bring about a significant reduction in the current high child wastages occurring in the poor nations as it has been done for other diseases like malaria, guinea worm.

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