

# Iatrogenic burns injury complicating neonatal resuscitation

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## Summary

**A case of iatrogenic thermal injury in a newborn infant during resuscitation for perinatal asphyxia at a secondary health facility is described. The injury, with surface area coverage of about 4%, involved the lower limbs. This report highlights the poor newborn resuscitation skills of traditional medical practice.**

**Key-words:** *Asphyxia, Burns, Newborn, Perinatal care, Resuscitation, Traditional medical practice.*

## Résumé

Un cas d'une blessure thermique iatrogénique chez un bébé nouveau né au cours d'une réanimation pour l'asphyxie périnatale dans un centre sanitaire est l'objet de cette étude. La blessure dans les membres inférieurs a une surface d'environ 4%. Cette communication souligne la mauvaise méthode traditionnelle de la réanimation chez des nouveau nés.

## Introduction

Burns injuries have been reported to be a common form of childhood injury<sup>1-4</sup> The exploratory tendencies of toddlers and pre-school age children render them particularly prone to injuries including burns. This is supported by findings in a previous review of burns injury among children and adults in our centre in which 47.4% of the cases studied were under-five children.<sup>5</sup> Only two neonates (1.3%) were included in that series. Also, in the last 5 years, there was only one (1.85%) neonate out of 54 cases of paediatric burns managed in this hospital (unpublished data). It would therefore appear that burns injury is uncommon in neonates and when it occurs it is usually as a result of accident arising from home care of the newly delivered mother or the infant.<sup>6</sup>

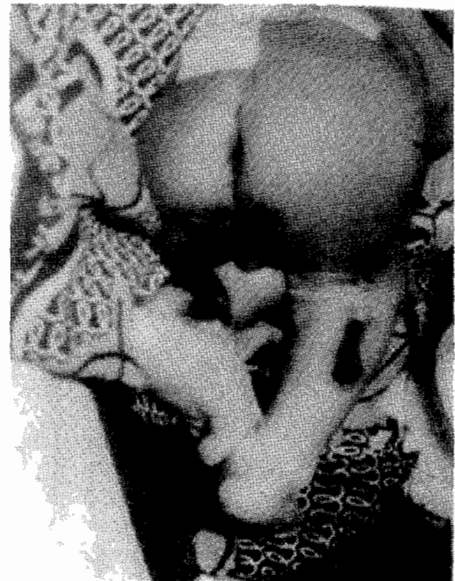
Birth Asphyxia, on the other hand is a major contributor to perinatal mortality in the developing world where the quality of obstetric and neonatal care is poor especially outside tertiary health institutions.<sup>7-9</sup> Most of the asphyxiated newborn babies admitted into our Special Care Baby Unit (SCBU) are in-born babies<sup>9</sup> since our hospital is ordinarily supposed to manage high risk pregnancies. However, a high proportion of the referrals as a result of birth asphyxia occur from poor management of labour, deliveries and resuscitation of the newborn babies by the attending health workers. The use of thermal stimulation as a form of newborn resuscitation, a harmful traditional practice, has been previously described as a major contributor to childhood morbidity and mortality in the tropics.<sup>10</sup>

More deliveries take place outside the orthodox hospital

under the supervision of traditional medical practitioners, sometimes ending in disaster for the mother and or the child. Babies of mothers patronizing unorthodox health institutions run the risk of iatrogenic injuries or complications arising from poor knowledge and skill of the health workers. This case is reported to bring to the fore front the fact that the practice of thermal stimulation as a resuscitative measure still occurs in Nigeria and used frequently by traditional medical practitioners.

## Case report

O.B, a male baby was admitted into our SCBU in February, 2004 at the age of 48 hours. He was delivered at full term at a General Hospital in one of the adjoining states to a booked 28 - year - old Para 4 woman by spontaneous vertex delivery. Labour lasted about nine hours and the baby had cord curled round the neck. The baby did not cry immediately after birth and the APGAR scores were not recorded. The baby had to be smacked repeatedly on the buttocks as a form of resuscitation. A rubber bag filled with hot water was also put on the baby's legs. The baby did not cry until about two hours after delivery, by which time blisters were seen on the feet and legs. The baby could not suck at the mother's breasts and was only fed on plain water until twitching of the left upper and lower limbs was noticed at about the age of 36 hours. The parents were then advised to bring the baby to our unit for further management without a referral note. The mother received antenatal care in that hospital and she was



**Fig. 1** *Figure showing the ulcers on both calves and extending over the left ankle to the anterior of the left leg.*

adequately immunized against tetanus.

The baby weighed 3 kg on admission. There was meconium staining of the skin and the baby was twitching both the upper and lower limbs. There was hypertonia globally with scissoring of the lower limbs and opisthotonic posture. There were multiple oval shaped ulcers covered with eschar on both calves and extending over the left ankle to the anterior part of the leg. The burnt area was estimated to be about 4% of total body surface area and of second degree. (Figure 1)

The admission assessments were neonatal seizure secondary to severe birth asphyxia, iatrogenic superficial burns injury and neonatal hypoglycaemia.

The haematocrit was 49% (normal: 45% - 65%) while the random blood glucose was 2.1mmol/L (normal: 2.8 - 5.0 mmol/L). Serum Calcium was not assayed. The cerebrospinal fluid parameters were normal: 99mg/dL protein, 1.8mmol/L glucose, cell count of 15/ mm<sup>3</sup> and no bacterial growth. An initial 15ml of 10% dextrose was given intravenously to correct possible hypoglycaemia together with slow intravenous 3mLs of 10% Calcium gluconate. This was followed by 4.3% Dextrose in 1/5 normal saline at maintenance rate. Intravenous Ampicillin and intramuscular Gentamicin were given for possible infections. A loading dose of 60mg slow intravenous Phenobarbitone was given to control seizures and this was maintained with 7.5mg 12 hourly doses. Feeding was subsequently done with expressed breast milk via a nasogastric tube and calcium supplements were added to the feeds over the first 48 hours of admission. The wounds were dressed twice daily with natural honey.

The seizures stopped on the 3<sup>rd</sup> day of admission while the patient was able to cry on the 9<sup>th</sup> day of admission. The baby sucked actively from the breasts on the 12<sup>th</sup> day of admission when the neurologic features had largely resolved. The wounds on the right leg healed completely without scars. The one on the left lower leg was improving when the patient was discharged against medical advice on account of shortage of funds. The patient subsequently defaulted from follow up.

## Discussion

Burns injury affecting neonates are uncommon and when they occur, they are usually accidental, or complications of inappropriate therapeutic measures<sup>5,11</sup> usually by traditional medical practitioners. The case described here was not accidental as the injury was caused by inappropriate and erroneously applied thermal stimulation to a neurologically depressed infant to induce pain and make him cry. Most amazingly, the injury was inflicted by a health worker in a government hospital who most likely wanted to combine orthodox medical practice with traditional medical practice.

Perinatal mortality, an index of the quality of antenatal, obstetric and immediate neonatal care available in a community,<sup>12</sup> has been persistently high in Nigeria.<sup>9,13</sup> The seizures observed on admission might have been due to the effect of hypoglycaemia or hypocalcaemia but the persistence of seizures despite the initial correction of these metabolic disorders was most likely a manifestation of central nervous system (CNS) injury arising from the severe perinatal as-

phyxia. Meningitis was excluded on admission. Hypoglycaemia and presumed hypocalcaemia, which may be secondary to perinatal asphyxia,<sup>19</sup> were also corrected on admission and were subsequently prevented with Dextrose-containing infusion, expressed breast milk feeding and oral calcium supplementation.

In conclusion, what this report shows is that, the traditional method of neonatal resuscitation has no place in health care delivery in this modern time and age.

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