

Hypertriglyceridaemia in Subcutaneous Fat Necrosis of the Newborn

Dear Editor,

Subcutaneous Fat Necrosis of the Newborn (SCFN) is a type of panniculitis that occurs in term and postterm infants following a complicated delivery. We report a case of massive SCFN complicated by hypertriglyceridaemia. A term baby boy was delivered at 40 weeks and 3 days of gestation by crash Caesarean section for fetal distress. His birth weight was 3.265 kg. He was born apnoeic, bradycardic and flaccid, and required suction for thick meconium-stained liquor followed by endotracheal intubation and cardiopulmonary resuscitation. Apgar score was 2 and 8 at 1 and 5 minutes respectively. The cord blood pH was 6.73. The baby was ventilated and received hypothermia therapy for the next 72 hours. We used whole body cooling (CritiCool, MTRE Advanced Technologies), a servo-controlled cooling device.

An indurated and erythematous 9.0 x 4.0 cm subcutaneous swelling was noted on day 6 over bilateral upper back regions (Figure 1). The ultrasound showed a 4.0 x 0.5 x 6.1 cm discoid layer of echogenic material in the subcutaneous layer, and there was no significant increase in vascularity. These findings were consistent with a diagnosis of SCFN. Therefore, no skin biopsy was done. On day 22, firm and rubbery subcutaneous masses measuring 2.0 x 3.0 cm and 1.5 x 2.0 cm developed over his right and left cheeks respectively.

This baby developed hypercalcaemia 2.94 mmol/L on day 7 and serum calcium returned to normal the next day following reduction of calcium content of total parental nutrition (TPN). On day 9, serum triglyceride level was 1.8 mmol/L. The level further rose to 4.62 mmol/L on day 10. The intravenous lipid infusion was stopped immediately but serum triglyceride remained persistently elevated



Figure 1 Subcutaneous swelling over upper back regions following hypothermia therapy.

(average 3.35-3.80 mmol/L, peak 4.20 mmol/L on day 23) for more than four weeks.

SCFN occurred following birth asphyxia without hypothermia therapy.¹ It was also reported in an infant that underwent hypothermic cardiac surgery.² Therefore, birth asphyxia and hypothermia per se could lead to SCFN. We hypothesize that hypothermia therapy could worsen skin perfusion, that was already compromised by birth asphyxia. This was probably what happened in our case. The incidence of SCFN in neonates undergoing hypothermia was around 1% (12 cases developed SCFN among the 1239 newborns in a national registry).²

Hypertriglyceridaemia appeared to be the rarest complication (1/16) in one case series involving 16 children and the most common were hypercalcaemia (9/16) and pain (4/16).³ To date only 3 case reports^{1,4,5} have described hypertriglyceridaemia, of which only one¹ mentioned triglyceride level being elevated for at least a month similar to our case. It was postulated that it resulted from the mobilization of fatty acids from adipose tissue.¹ Hypercalcaemia complicating SCFN usually occurs when SCFN begins to resolve and the mean time for its development is 30 days of life.³ It takes 1-3 months to resolve. In our case hypercalcaemia lasting for one day was probably related to TPN rather than a genuine complication of SCFN.

We report this case to alert the readers the possible occurrence of SCFN after hypothermia therapy, which has become a standard practice for the treatment of hypoxic ischaemic encephalopathy in Hong Kong.

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Ethical Consideration

This study is approved by the Cluster Research Ethics Committee/Institutional Review Board ("REC/IRB") of the Hong Kong East Cluster, Hospital Authority. Informed consent has been obtained.

Declaration of Interest

None

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