Streptococcal toxic shock syndrome following fetal scalp electrode monitoring

Sir,

Streptococcal toxic shock syndrome (STSS) has been described in adults and children as being due to Group A beta hemolytic streptococcus (GABHS).\textsuperscript{1,2} We report a case in a premature infant who acquired (GABHS) via the puncture site of fetal scalp electrode and developed the features consistent with STSS in a very short period.

A male infant was born by SVD to a healthy 16 year old mother with no overt symptoms of infection at 33 weeks gestation. She received two doses of dexamethasone. Fetal scalp electrode was used for intrapartum monitoring. The infant weighed 1.9 kg with Apgar of 8 and 9 at 1 and 5 minutes and was admitted to the Special Care Unit.

At 30 hours of age, he was noted to be less active with mild inflammation at the electrode puncture site on the scalp. An infection screen was carried out and he was commenced on penicillin 100,000 IU/kg and gentamicin. The initial hemoglobin was 13.4 gm/L, platelet 119 x 10\(^9\)/L, white cell count 1.0 x 10\(^9\)/L with neutrophil of 4%, sodium 129 mmol/L, potassium 3.9 mmol/L, bicarbonate 12 mmol/L, creatinine 55 µmol/L. A chest x-ray showed increased streakiness but no areas of consolidation or collapse. Group A beta hemolytic streptococcus was grown from both the blood culture and gastric aspirate culture.

The infant was transferred to Neonatal Intensive Care Unit (NICU), but over the next 12 hours deteriorated rapidly. He developed respiratory failure and in \(\text{F}_{2} \text{O}_3\) of 0.5 with arterial blood gases: \(\text{pH} 7.12, \text{PaO}_2\) of 72, \(\text{PaCO}_2\) of 58.9, \(\text{HCO}_3\) of 18.2 mmol/L, base deficit of - 9.7 mmol/L, requiring mechanical ventilation. Hypotension was treated with plasma expanders and infusion of dopamine and dobutamine. There was spreading erythema of scalp and generalized erythematous rash with subcutaneous induration consistent with sclerema. Cefotaxime was added. Supportive care was continued. The scalp oedema worsened with erythema and oedema extending to face. The initial puncture site started oozing pus, sterile on culture, for which surgical decompression was performed. Yellowish fluid continued to drain from the wound. He developed paralytic ileus. The abdominal x-ray showed sparse bowel pattern and rather homogenous appearance consistent with fluid-filled bowel or free fluid in the peritoneum.

Over the next 14 days his general condition and paralytic ileus improved but he developed clinical and radiological evidence of small bowel obstruction. A laparotomy was carried out and an ileostomy was carried out because of small intestine inspissation with meconium and feces. He also developed direct hyperbilirubinemia consistent with hepatitis due to prolonged total parenteral nutrition.

The general condition fluctuated during his subsequent stay in NICU. He had liver dysfunction with prothrombin time (INR) 11.2 and Kaolin PTT > 90 seconds, F.D.P. <10 µg/ml. In spite of aggressive intensive support he died on day 50.

This case had a fluminant course with multisystem involvement, including an erythematous rash with extensive soft tissue involvement associated with GABHS sepsis and it fulfills the criteria of toxic shock syndrome due to streptococcus.\textsuperscript{1} It also illustrates the rapid progression of illness from a minor scalp inflammation to severe systemic illness with sclerema and other complications which proved fatal. The initial clinical picture was unlike that seen with Group B beta hemolytic streptococcus.

Scalp electrode puncture site providing a portal of entry for streptococcus viridans leading to sepsis and meningitis has been reported earlier\textsuperscript{4} and was probably a significant factor in this case as the inflammation was first apparent at the electrode puncture site.

Streptococcal toxic shock syndrome (STSS) can occur in a newborn,\textsuperscript{3} progressing more rapidly in premature infants as compared to older children, hence prompt recognition and aggressive treatment may be life saving.

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\textbf{References}


