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Case Report

Paediatrics Section

A Rare Case of Streptococcal Toxic Shock Syndrome

Janani Arul[1], Poornima Kumar[2], Lalitha Krishnan[3]

ABSTRACT

This article reports a case of 16-day-old male baby with features of cellulitis in the diaper area and shock. Blood culture report of baby and high vaginal swab of mother grew Group A *Streptococcus* (GAS) and the neonate was diagnosed to have Streptococcal toxic shock syndrome. Hence, a case of Streptococcal toxic shock syndrome must be identified as early as possible, which is a rare and life threatening condition in a newborn.

Keywords: Diaper rash, Neonatal toxic shock syndrome, Newborn

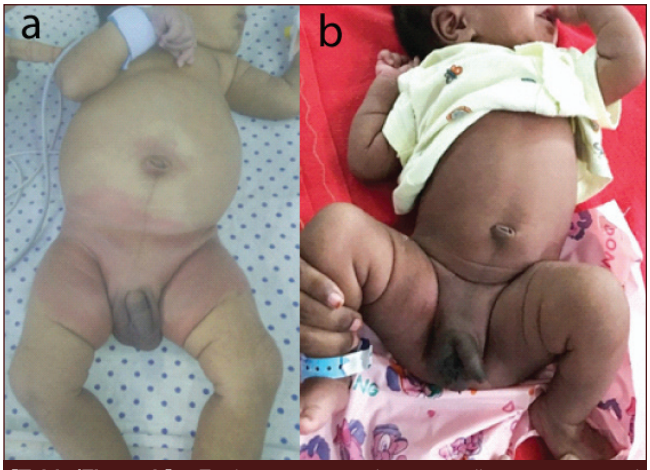
CASE REPORT

A 16-day-old male baby, born by normal vaginal delivery, was brought with reddish discoloration of the medial aspect of left thigh. He was given vaccinations (Hepatitis B, BCG, OPV), just four hours before, on the anterolateral aspect of left thigh. On the same day, mother had initiated him into disposable nappies.

The rash on the medial aspect of left thigh was well demarcated, red in colour and felt firm to touch. There were no blebs, gangrene or pustules seen over the rash. The baby was admitted in view of suspected diaper rash for monitoring. Over the next eight hours, the rash rapidly progressed to the other side of thigh, groin, diaper area and up to the abdomen and peri-umbilical region [Table/Fig-1a].

A provisional diagnosis of cellulitis was made; septic work up (Complete blood count, C Reactive Protein (CRP), blood culture) done and baby was commenced on Inj. Cefotaxime and Amikacin. Results of the sepsis work up showed high CRP (170 mg/dL) and leukocytosis {Total count- 31,000 cells/cubic millimeter, differential count (Neutrophils- 68%, Lymphocytes- 24%)}. Coagulation profile was deranged (Prothrombin Time (PT) -19.8s, activated Partial Thromboplastin Time (aPTT)- 54, International Normalized Ratio (INR)-1.6) and liver function showed low albumin (2.8 mg/dL). In spite of intravenous antibiotics, the capillary refilling time was more than 4 seconds with progressing into septic shock.

At this point of time staphylococcal toxic shock syndrome was considered as the baby had features of shock and it was following vaccination. He was given a bolus of normal saline and subsequently required dopamine infusion. Antibiotics were changed to vancomycin and meropenem to cover MRSA. Clindamycin was also started to inhibit toxin release in staphylococcal toxic shock syndrome. The rash started regressing and baby improved dramatically over the next 24 hours and was perfectly well in seven days [Table/Fig-1b].



[Table/Fig-1a,b]: Erythematous rash over diaper area and subsequent healing.

Blood culture grew GAS (*Streptococcus pyogenes*) sensitive to cefotaxime, ceftriaxone, vancomycin and meropenem. The mother did not have any sign of sepsis but her high vaginal swab also showed growth of *Streptococcus pyogenes*. Clindamycin and Meropenem were stopped and Vancomycin monotherapy was given for 14 days. As part of work up for late onset sepsis lumbar puncture was done, which was sterile. The child was discharged after 14 days of vancomycin, and is well on review.

DISCUSSION

Human skin mirrors many systemic diseases and conversely, a number of infective diseases commence with skin manifestations. Vertical transmission from mother to foetus is the most common route of early invasive disease but maternal cross infection has been described in late onset disease [1] as seen in present case. One among these is GAS which is associated with omphalitis, skin infections, necrotising fasciitis, erysipelas, toxic shock syndrome, pneumonia, osteomyelitis, septic arthritis, bacteremia and meningitis [1-3].

Neonatal erysipelas is an acute superficial cutaneous cellulitis that occurs due to a break in skin barrier. The most common organism is GAS [4]. The differential diagnosis is staphylococcal cellulitis. Toxic shock syndrome is characterised by fever, rash, hypotension, multiorgan involvement and desquamation. Early recognition of this condition is important and treatment includes haemodynamic stability and antibiotics. Although now rare, GAS should be kept in mind as a differential diagnosis of cellulitis or toxic shock syndrome in the newborn. Severe invasive GAS infection has been increasingly reported in recent decades [4,5]. Streptococcal toxic shock-like syndrome is an acute, progressive and often fatal illness that appears to be a result of change in the virulence of GAS [6]. The pathogenic mechanism of GAS is strongly associated with release of pyrogenic exotoxins. Serological type M has been the most common isolate from patients with shock and multiorgan failure [7,8]. These act as super antigens and intensely activate proliferation of T lymphocytes, macrophages and cytokines, which are capable of producing shock and tissue injury.

CONCLUSION(S)

Toxic shock syndrome is a life threatening condition which requires early detection and commencement of broad spectrum parenteral antibiotic therapy. Even a mild skin infection from care givers or mother can lead to invasive skin disease. Hence, the cornerstone of prevention is handwashing as transmission can occur by healthcare providers, colonised mothers or from the community.

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PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Paediatrics, Pondicherry Institute of Medical Sciences, Pondicherry, India.
2. Associate Professor, Department of Paediatrics, Pondicherry Institute of Medical Sciences, Pondicherry, India.
3. Professor, Department of Paediatrics, Pondicherry Instituite of Medical Sciences, Pondicherry, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Janani Arul,
A3-301, Purvawinderemere, Bhavani Amman Koil Streer, Surya Nagar,
Pallikaranai, Chennai, Tamil Nadu, India.
E-mail: jananiarul@yahoo.in

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