Necrotizing Fasciitis Following BCG Vaccination

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We report a newborn with methicillin-resistant Staphylococcus aureus mediated necrotizing fasciitis after Bacilli-Calmette-Guerin vaccination. Radical debridement of the affected area coupled with twice daily surgical honey dressing and intravenous vancomycin and clindamycin resulted in satisfactory healing.

Key words: Bacille-Calmette-Guerin vaccine, Necrotizing fasciitis, Neonate, Staphylococcus aureus.

Necrotizing fasciitis is characterized by vascular thrombosis and necrosis following rapidly spreading bacterial infection of the skin, subcutaneous fat and fascia. Systemic dissemination and toxicity may at times be marked [1]. The most common organisms implicated include Streptococci of groups B, A and D, Staphylococci, Gram-negative Enterobacteriae and anaerobes. We described a neonate that developed Staphylococcus aureus (S. aureus) necrotizing fasciitis involving the left upper arm following BCG vaccination.

CASE REPORT
A 7 day old previously healthy female neonate, born spontaneously to a non-consanguineous primipara was initially seen for fever associated with swelling and redness over the left upper arm. The baby had received BCG vaccine at our institute, about 18 hours prior to presentation. The inoculation using 26 G hypodermic needle was strictly intradermal, as evidenced by a satisfactory 4 mm bleb formation immediately after the procedure. Sterile saline with cotton was employed to swab clean the proposed site of vaccination. The mother’s antenatal period and delivery were uneventful. Examination revealed an excessively irritable febrile neonate (core temperature 103°F), with a warm and tender erythematous swelling, involving the outer aspect of the middle third of the left arm (approximately 3 cm
below the acromion process 2 cm above the elbow joint). The BCG vaccination site was inflamed. Laboratory investigations revealed a total leukocyte count of 3,800/mm³ (N 30 L62 E4 M4), hemoglobin: 19.5 g/dL, platelets: 71,000 /mm³, C-reactive protein: 109.4 mg/L and micro erythrocyte sedimentation rate: 24 mm (first hour). Considering the clinical laboratory profile, intravenous cefuroxime and amikacin were started empirically. The next twelve hours was characterized by increased toxicity and rapid extension of the swelling to involve nearly the entire arm with deepening overlying erythema and areas of cutaneous sloughing and necrosis. The radiograph of the site showed extensive soft-tissue swelling with interposed air-bubbles (Fig 1). The differentials considered primarily included neonatal gas-gangrene and necrotizing fasciitis. Radical debridement of the lesion was done and empirical intravenous clindamycin was added pending blood cultures. Wound swab culture was sterile for anaerobic organisms; however, positive cultures for methicillin resistant S. aureus were obtained. Intravenous vancomycin was started in place of earlier antibiotics; this was continued for 14 days along with intravenous clindamycin and twice daily surgical honey dressing. Blood cultures returned sterile after 3 days. Anti-tetanus prophylaxis was instituted promptly. Laboratory tests directed towards the immune functions of the baby revealed normal immunoglobulin levels and CD counts. The parents tested negative for HIV I and II by ELISA. HIV studies were not done on the neonate. The wound healed satisfactorily by secondary intention without a skin graft over the next three weeks. The baby was revaccinated with BCG on the right arm at one month of age and observed for 4 subsequent days. Spirit and cotton swab was used for the preparation of the proposed vaccination site on this occasion. Finally, she was discharged home on day 35 of life, feeding satisfactorily with steady weight gain. She was healthy on follow up.

**DISCUSSION**

Necrotizing fasciitis is rare in newborns. Commonly recognized predisposing events include surgery, trauma, ruptured varicella blisters, and intramuscular injection sites. The common predisposing factors in newborns include omphalitis, circumcision, bullous impetigo, rectal temperature measurement and electrode placement for vital sign monitoring [2-4]. In the present newborn, no obvious risk factor other than BCG vaccination in the same arm could be identified. BCG may be complicated by local edema and axillary adenitis, but necrotizing fasciitis is rarely reported [5]. This was possibly the result of bacterial infection and inflammation either by trauma induced by the procedure of vaccination or due to hypersensitivity to the vaccine itself. Hypersensitivity to the BCG vaccine could not be excluded in the present child. Isolation of the pathogenic organism from the lesion confirmed the etiology.

The IAPCOI, 2007-2008 recommended exclusive use of sterile saline without local antiseptics (such as spirit) for swabbing the proposed site of BCG vaccination in neonates [6]. The primary intention of the recommendation was to avoid instances of contact of the vaccine which contains live attenuated viable bacilli with antiseptics like spirit which would otherwise cause rapid inactivation of the same [7]. Certain other widely cited sources [8] state that if alcohol be used, it must be allowed to evaporate before the vaccine is given. Sterile saline causes removal of normal skin flora, including S. aureus by virtue of mechanical cleansing. It is known that spirit application on the skin kills the normal skin flora and vegetative organisms like S. aureus by protein denaturation;
however, it does not render the skin surface absolutely sterile. Alcohol is a highly volatile substance and majority of it evaporates within few seconds of application on the skin surface. Some would argue that the application of spirit would lead to the absorption of the same and would therefore have deleterious effects on the vaccine containing the live-attenuated tubercle bacilli. Being of a volatile nature, majority of the spirit would vaporize quickly and whatever little that enters the deeper skin structures would prove more efficacious against pathogenic microorganisms that may have entered inadvertently, without undue inactivation of the vaccine bacilli.

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REFERENCES


Isolated Idiopathic Unilateral Paralysis of Soft Palate and Pharynx

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Isolated unilateral palatal (velopatopharyngeal) palsy is a clinical rarity. We report this entity in a 10 year old boy, two weeks after an episode of acute tonsillitis. The child was managed with a short course of prednisolone with complete recovery in eleven days.

Key words: Palatal paralysis, Rhinolalia, Tonsillitis.

CASE REPORT

A previously well, immunized, 10-year-old boy, presented with fever and sore throat of four days duration. Examination revealed bilaterally inflamed tonsils. A throat swab was sent for analysis, and the child was given injection benzathine penicillin

I diopathic unilateral palatal paralysis is a rare disorder. Since its first description in 1976, 35 cases have been described [1]. The disorder typically affects boys at ages of 2-3 years with sudden onset rhinolalia and nasal regurgitation of fluids [2-5]. We report a 10-year-old boy with this illness.

Isolated unilateral palatal (velopatopharyngeal) palsy is a clinical rarity. We report this entity in a 10 year old boy, two weeks after an episode of acute tonsillitis. The child was managed with a short course of prednisolone with complete recovery in eleven days.

Key words: Palatal paralysis, Rhinolalia, Tonsillitis.