Inflammatory Reaction at the Site of a Bacille Calmette-Guérin Vaccination Scar in an Adopted Child
(See page 487 for the Photo Quiz)

Diagnosis: Inflammatory reaction at the site of a bacille Calmette-Guérin (BCG) vaccination scar due to Kawasaki Disease (KD).

The patient’s physical examination findings fulfill the diagnostic criteria for KD [1]. Laboratory values are consistent with those previously reported in children with KD [2]. Following treatment with a single dose of intravenous immunoglobulin, administered at 2 g per kg of body weight, and initiation of high-dosage aspirin (100 mg per kg of body weight per day, divided into 4 daily doses administered every 6 h), the patient’s fever, rash, and mucosal symptoms (figure 1) resolved. Erythema and induration at the BCG vaccination and tuberculin skin test sites, as well as cervical lymphadenopathy, improved over the subsequent week. An echocardiogram showed no evidence of coronary artery ectasia or dilatation. A follow-up examination, conducted 2 months later, showed a normal, healthy infant with no recurrence of symptoms. An additional echocardiogram had normal findings.

Inflammation at the BCG vaccination scar site (figure 2A) is an early and specific feature of KD [3]. In Taiwan, where the incidence of KD is relatively high and BCG vaccination is widely administered, erythema at the BCG vaccination site has been noted in 24%–48% of children with KD [2, 4]. Although cases of BCG vaccination site inflammation in individuals with KD have been reported throughout Asia, as well as in Europe, Canada, and Mexico, to the best of our knowledge, no case has been reported previously in the United States [3, 5–11]. Earlier reports of inflammation at the site of tuberculin skin tests (figure 2B) in patients with KD have also been published, although there is evidence to suggest that the propensity for this reaction may depend upon the specific tuberculin skin test preparation used [5, 12, 13]. The inflammation and induration

**Figure 1.** Erythematous tongue and dry lips, with desquamation and fissures present at lateral aspects.

**Figure 2.** A, An erythematous induration surrounding the scar from a bacille Calmette-Guérin vaccination performed overlying the right deltoid ~6 months prior to onset of symptoms. B, Erythema and induration at the site of a Mantoux tuberculin skin test performed on the left forearm 6 weeks before presentation.
are thought to be mediated via cross-reactivity between mycobacterial and human homologue heat shock proteins [14]. Erythema and induration at the site of a diphtheria, tetanus, and pertussis vaccination performed 5 months earlier has been reported in 1 child with KD and inflammation of a BCG vaccination scar site [7].

Each year, families in the United States adopt >20,000 children from abroad [15]. More than one-half of these children may have received BCG vaccination prior to adoption [16]. Although reaction at the site of a BCG vaccination scar may occur infrequently in the United States, physicians should be aware of this early diagnostic marker for KD in the appropriate clinical context. Identification of this sign may facilitate prompt diagnosis and treatment of KD, ultimately yielding improved outcomes among children adopted or otherwise emigrating from areas where BCG vaccination is commonplace. Reaction at the BCG vaccination scar site may prove to be particularly useful in aiding diagnosis among children with the incomplete form of KD [9].

Acknowledgments

We thank Dr. Stanford Shulman and Dr. Anne Rowley for their thoughtful comments on this article.

Potential conflicts of interest. All authors: no conflicts.

Sophie Terp,1 Maskit Bar-Meir,1,2 and Tina Tan1,2

1Feinberg School of Medicine, Northwestern University, and 2Division of Infectious Diseases, Children’s Memorial Hospital, Chicago, Illinois

References


Clinical Infectious Diseases 2007;45:518–9
© 2007 by the Infectious Diseases Society of America. All rights reserved.
1058-4838/2007/4504-0021$15.00