

Case Report**Bacille Calmette–Guérin (BCG) Vaccine Induced Tuberculous Lymphadenitis: A Case Report****Kalyan Sapkota**

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Bacille Calmette-Guérin lymphadenitis is one of the most common complication of this vaccination. We present a case report of infant with this vaccination induced lymphadenitis treated successfully with anti-tubercular therapy. Fine-needle aspiration is the safe and cost-effective method to diagnosis and to manage suppurative Bacille Calmette-Guérin lymphadenitis.


Keywords: *BCG, Lymphadenitis, Tuberculosis, Vaccine***Introduction**

The Bacillus Calmette–Guérin (BCG) vaccine contains live attenuated Mycobacterium bovis; and in Nepal, BCG is routinely administered intradermal at right deltoid region to newborns under National Immunization Program. Although BCG vaccine is a safe and widely accepted vaccine, it may causes local adverse reaction such as regional lymphadenitis, injection site abscess formation, osteomyelitis, and rarely disseminated mycobacterial infection [1]. BCG lymphadenitis which is defined as the development of ipsilateral regional lymph node enlargement after BCG vaccination is one of the most common complication resulting from BCG vaccination [2]. The incidence of suppurative lymphadenitis due to BCG vaccination is 100–1000 per million doses administered [3]. BCG lymphadenitis could either undergo spontaneous regression, or progressively enlarges and suppurates. Two forms of BCG lymphadenitis, non-suppurative

lymphadenitis, and suppurative lymphadenitis are recognized in its natural course [1].

Case Presentation

A male baby of 5 months of age was brought to the hospital by his mother with the complaints of right axillary swelling which she noticed 4 weeks back. There is no history of trauma or skin lesion on hand or any other source of foci except the BCG scar which was healing. No family history of tuberculosis or contact history was present. Mother denies of child having any fever, skin lesion or respiratory symptoms. On further inquiry the baby has received BCG at the age of 1 month. He developed axillary swelling after 3 months of vaccination. He was then started on oral antibiotics Ampicillin and Cloxacillin from local pharmacy. However, the lesion showed no sign of improvement. The axillary swelling was gradually and progressively increasing in size. Then over the course of next few weeks, supp-

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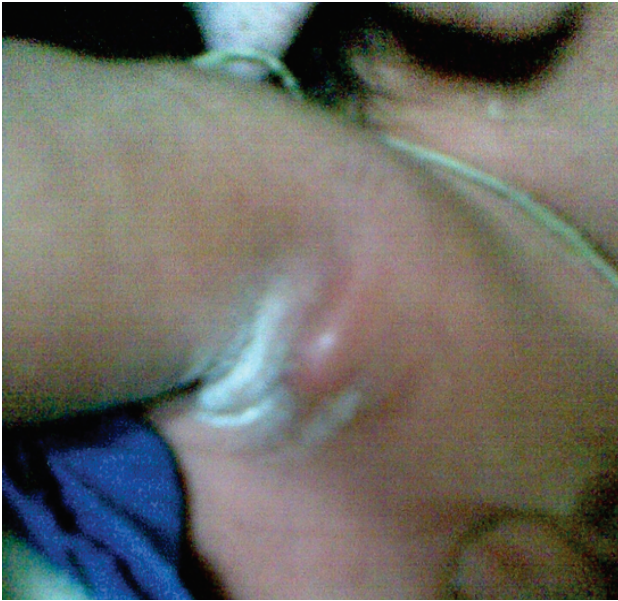


Figure 1: Picture showing swelling over right axilla measuring 3 cm × 2 cm

urative lymphadenitis characterized by fluctuation with edema and erythema above the glands developed. On physical examination the child appeared well. His development milestones were age appropriate. His weight for age was adequate. The child had temperature of 98.6° F. Neck examination revealed no abnormality. Lung auscultation revealed normal breath sounds bilaterally, with-out wheezing or crackles. Head to toe examination revealed no other lymphadenopathy or hepato-splenomegaly. Local examination of axilla revealed right axillary suppurative lymphadenitis with matted lymphnode and local erythema and edema (Figure 1).

His chest radiograph was unremarkable. The results of blood chemistry, and blood count were within normal limits. The FNAC (fine needle aspiration cytology) sample from the affected lymph node was sent for microscopy for Ziehl Nelson (ZN) stain and gram stain and culture sensitivity. The smear showed caseous necrosis with abundant lymphocytes and epithelioid cell granuloma, ZN stain for acid-fast bacilli was positive, suggesting tubercular lymphadenitis. The diagnosis of Tuberculous Lymphadenitis was then made. The child was then started on child regimen of Anti-tubercular therapy under directly observed treatment short-course (DOTS) which include Isoniazid, Rifampicin and Pyrazinamide. Two weeks following anti-tubercular therapy the baby showed clinical improvement as evidence by regression of the axillary swelling and erythema (Figure 2).

On 2 months follow up there was no complaints, the child was doing well. The axillary swelling had regressed completely. The anti-tubercular therapy



Figure 2: Picture showing healing axillary lymphadenitis with supuration.

was continued for 6 months. At the end of 6 months the axillary swelling has completely regressed and the disease was in complete remission without complications.

Discussion

Incidence of BCG vaccine-related complications varies from 0.1% to 17% in different studies worldwide. BCG-related lymphadenitis is the most common complication of BCG vaccination [4]. The related factors for BCG lymphadenitis are either of the following: (a) host-related factors, i.e., very early age at vaccination, congenital or acquired immunodeficiency; (b) factors related to administration, i.e., subcutaneous instead of intradermal, higher dose; or (c) vaccine related factors, i.e., residual virulence of the BCG sub-strain, type of vaccine, dose of the vaccine and viability of final vaccine product [1, 4]. Diagnosis of BCG lymphadenitis is based on: isolated axillary or supraclavicular/cervical lymph node enlargement, history of vaccination on the same side of the lesion, absence of fever and other signs [1, 5]. Several interventional therapies are recommended for the treatment of BCG lymphadenitis, but there is no uniform consensus regarding the most appropriate treatment [1]. Although no official treatment guideline exists for suppurative BCG lymphadenitis, a recent meta-analysis found no benefit to using anti-TB medications [6]. But treatment with anti-TB drugs, including isoniazid and rifampicin, has been shown to be effective in some patient [7]. Surgical excision remains controversial because of potentially high rates of significant scarring. For non-suppurative lymphadenitis, a watch-and-wait approach is recommended as it resolves rapidly in most cases [6].

Conclusion

BCG induced Lymphadenitis is a common occurrence, standard approach to properly diagnose and reporting of such events should be in place. Mild non-suppurative lymphadenitis could be

managed conservatively with 'wait and watch' approach. But Suppurative adenitis should be aspirated to diagnose and to enhance recovery and to prevent complication. Systemic complications and serious disease might warrant use of anti-tubercular therapy. Various strategies currently used in treating BCG lymphadenitis range from conservative management, anti-mycobacterial therapy, aspiration, incision and drainage to surgical excision of lymph node.

Conflicts of Interests: None

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