

A Rare Case of Suppurative Bacille Calmette-Guerin Lymphadenitis

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ABSTRACT

Introduction: The bacillus Calmette Guerin (BCG) vaccine is live attenuated *Mycobacterium bovis* vaccine, first introduced in 1921 to prevent tuberculosis. In 1974, the World Health Organization expanded the program on Immunization so that all children should have the BCG vaccine intradermally. **Case History:** We are presenting a rare case of a 9-month-old female child with fever, cold, and tender cervical lymphadenopathy with no past or family history of tuberculosis. Patient had acute onset cervical lymphadenopathy on the same side (ipsilateral) as that of BCG vaccination. Size of enlarged lymph node was 5 × 5 cm. On fine-needle aspiration cytology (FNAC), findings were of suppurative lymphadenitis with presence of acid fast bacilli (AFB). Ipsilateral location of cervical lymphadenitis, size >1 cm, and presence of AFB prove it to be BCG lymphadenitis. **Discussion:** BCG lymphadenitis is a lesser-known condition with incidence of 0.5–100/1000 vaccinations. Most common presentation of BCG lymphadenitis is non-suppurative ipsilateral axillary lymphadenitis with onset between 2 weeks and 6 months of age. Hence, this is a rare case of BCG lymphadenitis with unusual features such as suppuration, cervical lymph node involvement, and presentation at 9 months of age. **Conclusion:** BCG lymphadenitis is a rare complication of BCG vaccination most commonly affecting axillary lymph nodes. The present case highlights the importance of keeping this entity in differential diagnosis of childhood lymphadenitis. FNAC with AFB (20%) staining helps in diagnosis and timely treatment of this condition eliminating the need of surgical excision and un-necessary antibiotic treatment.


Keywords: Bacillus Calmette Guerin, fine needle aspiration cytology, lymphadenitis, suppuration

INTRODUCTION

The Bacillus Calmette Guerin (BCG) vaccine is live attenuated *Mycobacterium bovis* vaccine, first introduced

in 1921 to prevent tuberculosis.^[1] BCG vaccination was included in the World Health Organization (WHO) expanded program on immunization in 1974, to cover approximately 3 billion people.^[2]

BCG vaccine is given intra-dermally as per the WHO guidelines.^[3] The incidence of BCG adverse reactions differs between regions globally, ranging between 0.5 and 100 cases/1000 vaccinations,^[4-6] with the most common presentation is regional lymphadenitis, mainly non-suppurative lymphadenitis. A rare complication of BCG lymphadenitis is disseminated disease, which is found in <1 in a million of vaccinated individuals^[4,7]

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BCG lymphadenitis usually occurs in ipsilateral axillary lymph node.^[8]

Clinical features which point toward BCG lymphadenitis include BCG vaccination at the ipsilateral arm, onset usually between 2 weeks and 6 months after BCG vaccination, child age not more than 2 years, absence of systemic manifestations such as fever and weight loss, absence of tenderness over the lymph node(s), unremarkable physical examination, for example, no distant lymphadenopathy or organomegaly and most commonly ipsilateral axillary lymph node involvement.^[9,10] Cervical lymph node involvement is extremely rare in BCG lymphadenitis.^[9-11]

BCG lymphadenitis is usually of non-suppurative type, suppurative type being rare.^[8]

CASE REPORT

We are presenting a rare case of a 9-month-old female child with fever, cold, and tender cervical lymphadenopathy for 3 days. There was no past history or family history of tuberculosis. Patient had acute onset cervical lymphadenopathy on the same side (ipsilateral and left side) as that of BCG vaccination. Size of enlarged lymph node was 5 × 5 cm. It was firm and tender on local examination [Picture 1].

Fine-needle aspiration cytology (FNAC) was performed on enlarged left cervical lymph node.

Microscopic examination of FNAC smears revealed highly cellular smears showing dense inflammation consisting of intact and fragmented neutrophils, lymphocytes, and macrophages in necrotic background [Figure 1].

Smears were stained with 20% Ziehl-Neelsen stain which was positive for acid fast bacilli (AFB) [Figure 2].

Presentation within 1 year of BCG vaccination, absence of past or family history of tuberculosis, ipsilateral lymph node involvement, absence of systemic symptoms/organomegaly, and positive *Mycobacterium tuberculosis* bacilli in necrotic lymph node confirms this case to be of BCG lymphadenitis. Rare features in this case include cervical lymph node involvement at 9 months and suppurative type of lymphadenitis.

DISCUSSION

Complications of BCG vaccination like BCG lymphadenitis are related to type of the injected strain or the type of preparation.^[12,13] Strong strains having high immunogenicity are more likely to cause adverse reactions.^[14] Other factors which



Picture 1: Infant with left cervical lymphadenopathy

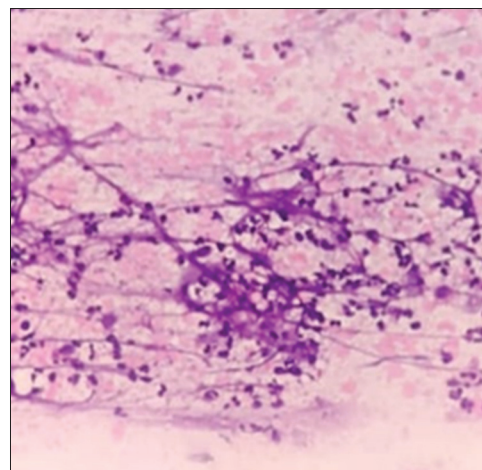


Figure 1: Cervical lymph node fine-needle aspiration cytology smear showing neutrophils on necrotic background (×40)

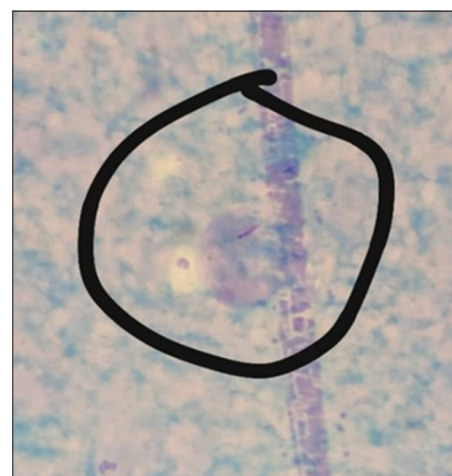


Figure 2: 20% acid fast bacilli (Ziehl-Neelsen) stain- positive for acid fast bacilli (marked by circle)

can be responsible include the dose of the vaccine, the administration technique, and the underlying immunodeficiency.^[15,16]

Alfawaz *et al.*,^[17] Chaves-Carballo and Sanchez^[18] and Goraya and Viridi^[11] found ipsilateral cervical lymphadenopathy in most of the patients of BCG lymphadenitis as against present case where ipsilateral cervical lymph node was involved.

In the present case, suppurative lymphadenitis was found. It is rare type in some studied.^[8] Alfawaz *et al.*^[17] found suppurative lymphadenitis in 55.3% cases which was also similar to Ali and Al Moudaris study.^[19]

CONCLUSION

The present case highlights the importance of keeping BCG lymphadenitis in differential diagnosis of childhood lymphadenitis, especially in infants and involving lymph nodes even at sites other than axilla. FNAC with the use of simple technique of AFB staining can help in diagnosing this condition, eliminating the need of surgical excision and un-necessary antibiotic treatment.

Clinical significance

Recognizing unusual presentation of BCG lymphadenitis in infants and confirming it with the help of tests like FNAC is important for timely and adequate treatment of such cases to prevent systemic complications of this treatable and curable condition.

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