

CASE REPORT



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Bacille Calmette-Guerin Lymphadenitis - A Case Report

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Abstract

A 6-month-old child presented with a complaint of swelling in the left axillary region persisting for 3 months, accompanied by intermittent episodes of fever. Ultrasonography revealed hypoechoic lesions in the affected area. Fine needle aspiration cytology (FNAC) indicated the presence of Acid-fast bacilli. Given the presence of multiple matted suppurative lymph nodes, surgical excision was performed, and the child was initiated on anti-tubercular treatment (ATT). After 3-4 weeks, the swelling showed signs of reduction, and the child is currently under regular follow-up.

Keywords: Bacille Calmette-Guerin; Vaccination; Lymphadenitis; Fine needle aspiration; Excision biopsy; Acid fast bacilli

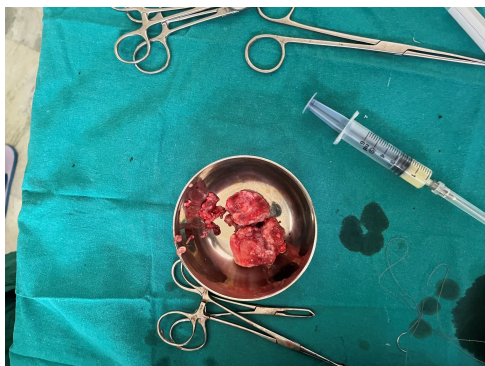
Introduction

World Health Organization established the “Expanded Program on Immunization” in 1974 to ensure that all children have access to routinely recommended vaccines including BCG. Every year 120 million doses of BCG vaccine are administered worldwide⁽¹⁾. BCG vaccine is a part of Tuberculosis preventive measures against TB meningitis and disseminated TB in young children. It was first introduced by Albert Calmette and Camille Guérin at the Pasture Institute, in 1921⁽²⁾. BCG vaccine contains live attenuated strains of *Mycobacterium Bovis*. BCG Lymphadenitis is the most common complication of BCG vaccina-

tion⁽³⁾. Two forms of BCG Lymphadenitis can be recognized in its natural course; Simple or Non-suppurative BCG Lymphadenitis which spontaneously regresses over a period of weeks and Suppurative BCG Lymphadenitis distinguished by the development of fluctuation in swelling with erythema and oedema of overlying skin⁽³⁾. The diagnostic significance of Fine Needle Aspiration Cytology (FNAC) in BCG lymphadenitis has become increasingly recognized^(3,4). It proves valuable in identifying Acid-fast bacilli and confirming the diagnosis, thereby guiding appropriate management decisions, be it timely initiation of anti-tubercular treatment (ATT) or surgical excision⁽³⁾.

Case Report

A 6-month-old child presented with complaints of swelling in the left axillary region for past 3 months. History of intermittent episodes of fever for past 2 months along with progression in size of the swelling for past 1 month. No family or contact history of TB was present. The child was given BCG vaccination on day 2 of life. On examination there were multiple matted, firm & non fluctuant swellings of 5 x 7 cm with no remarkable overlying skin changes along with significant hepatosplenomegaly. BCG scar was noticed without any obvious inflammatory signs. Ultrasonography showed hypoechoic lesion with 13ml abscess. Guided Fine needle aspiration was positive for Acid fast bacilli and samples were sent for mycobacterial culture. Surgical excision was performed and child was started on ATT along with pyridoxine supplementation. After a month, swellings had reduced in size and child is currently on follow-up.



Discussion

The presented case of a 6-month-old child with BCG lymphadenitis aligns with the typical clinical course of this complication following BCG vaccination. BCG lymphadenitis is considered the most common adverse effect of BCG vaccination, and it usually presents as regional lymph node enlargement⁽³⁾. The diagnosis of BCG lymphadenitis is challenging due to its similarity with tubercular lymphadenitis, and microbiological confirmation is essential for accurate diagnosis⁽⁴⁾.

The incidence of BCG lymphadenitis varies, but it is estimated that around 1 in 1,000 BCG-vaccinated children may develop this complication⁽⁴⁾. It typically occurs between 2 weeks and 6 months after BCG vaccination and tends to involve the axillary lymph nodes⁽⁴⁾. In this case, the child presented with swelling in the left axillary region that persisted for 3 months, along with intermittent fever episodes.

Fine needle aspiration cytology (FNAC) has emerged as a valuable diagnostic tool for BCG lymphadenitis⁽⁵⁾. The aspirate from the affected lymph node in this case revealed the presence of Acid-fast bacilli, confirming the diagnosis. This minimally invasive procedure aids in appropriate diagnosis and management, guiding clinicians in deciding whether to initiate anti-tubercular treatment (ATT) or consider surgical excision.

The management of BCG lymphadenitis depends on the form and severity of the disease. In non-suppurative cases, spontaneous regression is observed over time⁽⁴⁾. However, in suppurative cases, such as the one presented here, surgical excision of the involved lymph node along with ATT was chosen^(6,7). Surgical excision is considered a curative option for suppurative BCG lymphadenitis, particularly when repeated aspirations fail or in cases of multilocular, matted lymphadenopathy^(8,9).

The successful outcome in this case, with a reduction in swelling observed after 3-4 weeks post-surgery, highlights the importance of timely diagnosis and management. Early intervention can prevent prolonged illness and its potential impact on the child's growth and development. Improved diagnosis and management strategies, including the use of FNAC and timely surgical excision in appropriate cases, contribute to better patient outcomes and prevent complications associated with this adverse effect.

Conclusion

To summarize, this report details a case of BCG lymphadenitis in a 6-month-old child and offers valuable information on how to manage it. The diagnosis was confirmed through FNAC, which allowed for timely surgical removal and initiation of ATT treatment. The positive outcome emphasizes the significance of early detection and proper intervention. Healthcare professionals should stay alert for BCG lymphadenitis.

phadenitis in vaccinated children who have regional lymphadenopathy.

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