

BCG Lymphadenitis

Bipin Rathod*, Sunil Mhaske**

Abstract

Bacillus Calmette-Guérin (BCG) related regional lymphadenitis is not an uncommon complication following BCG vaccination. We report a six month male child who presented with fever and swelling in left axilla. The earlier diagnosis at this age may help in better management of the condition and prevent further complication and have better prognosis.

Keywords: BCG; Vaccination; Lymphadenitis.

Introduction

The live attenuated Bacillus Calmette-Guérin (BCG) vaccine is the oldest vaccine that continues to be widely used nowadays. It is derived by in vitro attenuation of an isolate of Mycobacterium bovis, specially cultured in an artificial medium for years and named after its discoverers, the French bacteriologist Albert Calmette and veterinarian Camille Guérin [1]. BCG was first used in humans to prevent tuberculosis (TB) since 1921. It is now used worldwide in childhood immunisation programmes. It helps to protect vaccinees, especially infants and children, against disseminated TB and tuberculous meningitis, with an estimated efficacy of 78% and 64%, respectively. The efficacy for protection against pulmonary tuberculosis in adults and children remains unclear [2]. Complications from BCG Vaccination: BCG vaccine is considered to be safe and has a low incidence of serious adverse reactions [3]. The most common complications after receiving BCG are local reactions and regional lymphadenopathy [4]. The local reactions at the inoculation site can range from erythema and induration, to the formation of papule, discharging ulcer or abscess. Regional lymphadenopathy arises

as a result of enlargement of ipsilateral lymph nodes, principally involving the axillary, and rarely, the lower cervical chain. The higher the BCG injection site above the insertion of the tendon of the deltoid muscle, the higher the likelihood of cervical lymphadenopathy. Serious complications such as regional or distant soft tissue granulomas, osteomyelitis and disseminated disease (disseminated BCGosis) are rare, which mainly affect patients with impaired immunity, like those with acquired immunodeficiency syndrome (AIDS) or primary immunodeficiencies.

Types of BCG Lymphadenitis: The term "BCG lymphadenitis" is usually coined when ipsilateral axillary, supraclavicular or lower cervical lymph node enlargement developing after BCG vaccination is severe enough to arouse significant concern from the child care provider to seek medical attention [5]. There are two forms of BCG lymphadenitis. The nonsuppurative form (simple form) is characterised by a benign clinical course and the lesion resolves spontaneously without any sequelae over a period of weeks [6,7]. The suppurative form is marked by the progressive enlargement of regional lymph nodes leading to a collection of suppurative material, with recognizable fluctuation in the swelling. If left untreated, the suppuration will eventually rupture, leading to persistent caseous discharge and sinus formation.

Author Affiliation: *Resident, **Professor & Head, Department of Paediatrics, PDVVPF's Medical College, Ahmednagar, Maharashtra.

Reprint Request: Sunil Mhaske, Professor & Head, Dept. of Paediatrics, PDVVPF's Medical College, Vilad Ghat, Ahmednagar, Maharashtra 414111.
E-mail: sunilmhaske1970@gmail.com

Case Report

A 6 month male child, was presented with small

swelling in the left axilla since 1 month. Three weeks later the mother noticed swelling in the right post auricular region. The appearance of swelling was associated with occurrence of high grade fever with evening rise.

Child has been immunized with BCG vaccine and other vaccines upto age.

On examination he had Pulse 122bpm Bp:100/62 mmHg Respiratory rate 38 cycle/min

On Local Examination, Swelling over the right postauricular region and in the left axillary region.



Fig. 1: Child with small swelling in the left axilla, non-suppurative left axillary lymphadenitis.

On Investigation,

Complete Blood Count-Hb:7.6g%,

TLC:7700/cumm

N38 L55 E05 M02

Platelet:3.32 lackh/cumm

ESR:35 mm/hr

CRP:Negative

Chest X-ray:NAD

MONTOUX TEST: positive

Histopathology

Smears were made from aspirated material and

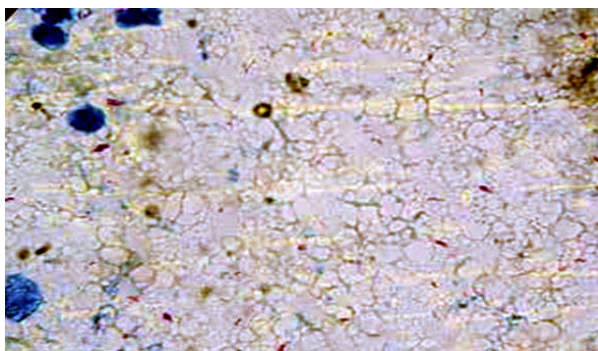


Fig. 2: Acid-fast bacilli in aspirates of bacille Calmette-Guérin adenitis (Ziehl-Neelsen, ×400 |)

stained with Leishman Giemsa stain and modified Ziehl-Neelsen ZN stain). Microscopic evaluation was done for cytomorphology and detection of acid fast bacilli.

Treatment

inj. Ceftriaxone 300 mg iv Bd for 6 days

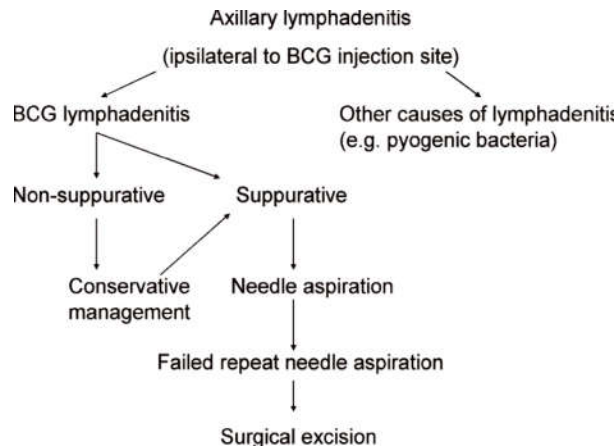
inj. Amikacin 45 mg iv Bd for 6 days

Tab. Macox ZH 3/4th od for 6 mnth

Probiotic sachet 1/2 Bd

Discussion

BCG Lymphadenitis should be considered whenever child presents with axillary or (Photograph of non-suppurative left axillary lymphadenitis) lower cervical lymphadenopathy, no fever or constitutional symptoms and minimal inflammatory signs with preceding history of BCG vaccination on the ipsilateral arm. Onset is usually 2 to 4 months after BCG vaccination, although it may range from 2 weeks to 6 months. Almost all cases occur within 24 months. The diagnosis of BCG lymphadenitis is basically clinical. A tuberculin skin test is not useful for making a diagnosis of BCG lymphadenitis with typical presentation. CXR is usually normal in an infant with localized BCG lymphadenitis. Any abnormal pulmonary infiltrates or opacities suggestive of intrathoracic lymph node enlargement should prompt further investigation to exclude tuberculosis or disseminated BCG infection. Acid fast bacilli (AFB) may be seen on microscopy of any discharge or aspirate from the suppurative lymph node [8]. Once diagnosed, treatment of BCG lymphadenitis has remained controversial. Medical management with drugs including antibiotics like oral erythromycin and antituberculous drugs like isoniazid and rifampicin have been used [9, 10]. Though uncontrolled observations suggested their efficacy, results from controlled trials have indicated that these drugs neither reduce the risk of suppuration nor shorten the duration of healing. In suppurative form, needle aspiration is recommended to prevent spontaneous perforation and sinus formation [11]. Surgical excision is considered in cases with failed needle aspiration, multiloculated or matted lymph nodes, and draining sinuses. Infants in our case report had received BCG vaccination at other health care facility. Hence dosage and technique of vaccination could not be ascertained. None of them required any surgical intervention.



Conclusion

Good immunization technique, correct dosage and quality control of the BCG vaccine are presumed to be of paramount importance in avoiding untoward reactions following its administration. Non-suppurative BCG lymphadenitis is a relatively common benign condition that will regress spontaneously over a matter of weeks to months. Reassurance and masterly inactivity with regular follow-up are all that is required.

References

1. Fine PE. The BCG story: lessons from the past and implications for the future. *Rev Infect Dis.* 1989; 11(Suppl 2): S353-9.
2. Colditz GA, Brewer TF, Berkey CS, et al. Efficacy of BCG vaccine in the prevention of tuberculosis: meta-analysis of the published literature. *JAMA.* 1994; 271: 698-702.
3. Romanus V, Fasth A, Tordai P, Wiholm BE. Adverse reactions in healthy and immunocompromised children under six years of age vaccinated with the Danish BCG vaccine, strain Copenhagen 1331: implications for the vaccination policy in Sweden. *Acta Paediatr.* 1993; 82: 1043-52.
4. Szczuka I. Adverse events following immunization with BCG vaccine in Poland 1994-2000. *Przegl Epidemiol.* 2002; 56: 205-16.
5. Victoria MS, Shah BR. Bacillus Calmette-Guérin lymphadenitis: A case report and review of the literature. *Pediatr Infect Dis J.* 1985; 4: 295-6.
6. Lotte A, Wasz-Hockert O, Poisson N, et al. Second IUATLD Study on complications induced by intradermal BCG-vaccination. *Bull Int Union Tuberc Lung Dis.* 1988; 63: 47-59.
7. Singla A, Singh S, Goraya JS, Radhika S, Sharma M. The natural course of nonsuppurative Calmette-Guérin bacillus lymphadenitis. *Pediatr Infect Dis J.* 2002; 21: 446-8.
8. Gupta K, Singh N, Bhatia A, Arora VK, Singh UR, Singh B. Cytomorphologic patterns in Calmette Guérin Bacillus lymphadenitis. *Acta Cytol.* 1997; 41: 348-50.
9. De Souza GR, Sant'Anna CC, Lapa e Silva JR, Mano DB, Bethlem NM. Intradermal BCG vaccination complications-analysis of 51 cases. *Tubercle.* 1983; 64: 23-7.
10. Power JT, Stewart IC, Ross JD. Erythromycin in the management of troublesome BCG lesions. *Br J Dis Chest.* 1984; 78: 192-4.
11. Banani SA, Alborzi A. Needle aspiration for suppurative post-BCG adenitis. *Arch Dis Child.* 1994; 71: 446-7. BCG lymphadenitis photographs Supraclavicular node with BCG given high in the deltoid region Normal child with classic BCG scar *Journal of Evolution of Medical and Dental Sciences/* Volume 2/Issue 52/ December 30, 2013.