SPECTRUM OF BCG LYMPHADENITIS: A CASE SERIES

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ABSTRACT: Bacillus Calmette-Guérin (BCG) related regional lymphadenitis is not an uncommon complication following BCG vaccination. We present a case series of 3 infants with BCG lymphadenitis managed at our institute over a 1-year period. One of them presented with isolated left axillary mass, second child presented with axillary swelling with sinus, the third one with supraclavicular swelling. Two of them were treated with antituberculous drug and the third child was not started on any drugs. All three of them were serially monitored till resolution of lymphadenopathy. No significant difference was noted in time taken for regression of lymphadenopathy among the three infants.
KEY WORDS: BCG, vaccination, lymphadenitis.

INTRODUCTION: The live attenuated Bacillus Calmette-Guérin (BCG)vaccine is the oldest vaccine that continues to be widelyused nowadays. It is derived by in vitro attenuation of anisolate of Mycobacterium bovis, specially cultured in anartificial medium for years and named after its discoverers, the French bacteriologist Albert Calmette and veterinarianCamille Guérin[1]. BCG was first used in humans to prevent tuberculosis(TB) since 1921. It is now used worldwide in childhoodimmunisationprogrammes. It helps to protect vaccinees, especially infants and children, against disseminated TBand tuberculousmeningitis, with an estimated efficacy of78% and 64%, respectively. The efficacy for protectionagainst pulmonary tuberculosis in adults and childrenremains 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 ipsilateralaxillary, 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.

Case Series: We present an illustrative case series to describe the characteristics and outcome of 3 infants, who developed BCG Lymphadenitis and who were managed in our Centre over a 1-yearperiod.Table 1 summarizes our recent experience in the

Management of 3 infants who presented withBCG lymphadenitis from November 2012 to November 2013.Two of them were male infants and one was female. All 3 of them had received BCG vaccination (2 at birth, 1 at 2 months) and one of them presented with isolated left axillary mass, second child presented with left axillary lymph node with discharging sinus and third child had supraclavicular swelling(fig.1)(fig.2). All were thriving well and none of them developed fever or constitutional symptoms.

	Case 1	**Case 2**	**Case 3**
Sex	**male**	**male**	**female**
Age at presentation(months)	2	3	5
Duration after vaccination(months)	2	3	3
Size of left axillaryLN at presentation(cm)	3 x 1.5	2.5 x 2.5(supraclavicular)	2.5 x 2.5with discharging sinus
Appearance of BCG vaccination site at presentation	Normal scar	Normal scar (higher than classic site)	Normal scar
Mantoux test	> 10mm	> 10mm	9mm
Chest x ray	normal	normal	normal
FNAC of lymph node	AFB -ve	AFB +ve	AFB -ve
Management	Serial follow up	Isoniazid and rifampicin for 6 months	Isoniazid and rifampicin for 6 months
Wound care	none	none	Dressing till sinus healed
Outcome at latest follow up	Regression of lymph nodes by 4 months	Regression of lymph nodes by 3 months	Wound healed by 5 months with 1 cm scar

Table 1: Characteristics and outcome of 3 infants with BCG lymphadenitis

BCG-Bacillus Calmette-Guérin, FNAC- fine needle aspiration cytology, AFB- acid fast bacilli, LN- Lymphnode, cm –centimeter, mm- millimeter.

Table 1: Tuberculin skin tests were performed in all of them using 2 units of tuberculin (PPD-RT23) administered by the Mantoux method. Two of them were positive (≥10 millimeters induration at 48 to 72 hours after intradermal injection) and the remaining one had an induration of 9 millimeters.None had abnormal findings on chest radiographs. FNAC (fine needle aspiration cytology) of the lymph node was done in all 3 cases. One of them was smear positive for AFB(acid fast bacilli)(fig.3). Two drug regimen with isoniazid and rifampicin was started for two infants with daily dressing for the case -3 who had discharging sinus. The discharging sinus healed after 2 weeks and resolution of lymphadenitis occurred by 4 months (range 3 to 5 months) in all the three cases. None of them required any surgical intervention.

DISCUSSION: BCGLymphadenitis should be considered whenever child presents with axillary or lower cervical lymphadenopathy, no fever or constitutional symptoms and minimal inflammatory signswith precedinghistory 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 isnot 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 ofany 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 antituberculousdrugs 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 preventspontaneous perforation and sinus formation[11]. Surgical excision considered in cases with failed needle aspiration, multiloculated or matted lymph nodes, and draining sinuses.

All three infants in our case report had received BCG vaccination at other health care facility.Hence dosage and technique of vaccination could not be ascertained. There was no significant difference in the resolution period of lymphadenopathy between infants who received ATT and the infant who was not started on any drugs. 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 reactionsfollowing 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.

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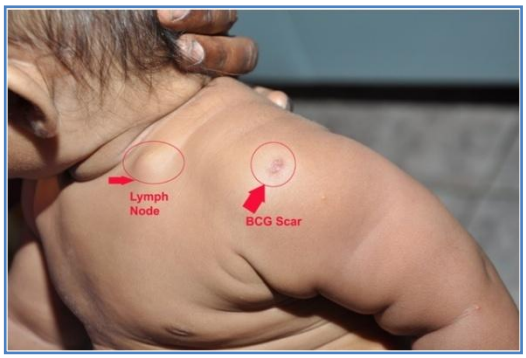
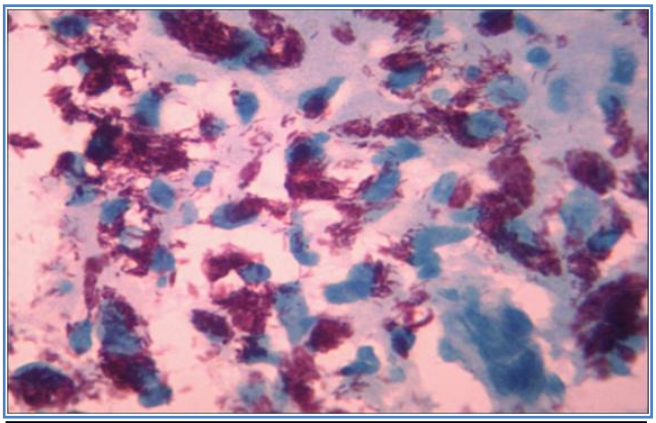
BCGlymphadenitisphotographs



Supraclavicular node with BCG given high in the deltoid region

Normal child with classic BCG scar



Photomicrograph of FNAC of lymphnode showing heavy load of AFB bacilli(ZN stain)

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