

News Letter

BCG Lymphadenitis: A Brief Insight to the Rising Trends

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NEWS LETTER

BCG vaccine was first introduced to the world in the year 1921. It was incorporated in the World Health Organization Expanded Program on Immunization (EPI) in 1974, to strengthen the fight against disseminated TB and TB meningitis in infants and children in developing countries. The vaccine plays an important role as a TB control measure in endemic areas. The vaccine is considered to be safe and has a low incidence of serious adverse reactions, but the most common complication post BCG is regional lymphadenopathy [1]. Other complications include local reactions (erythema, in duration, discharging sinus or ulceration), osteomyelitis, disseminated disease (disseminated BCGosis). The latter are very rare and mainly affect children with impaired immunity.

BCG adenitis is defined as the development of ipsilateral regional lymph node enlargement after BCG vaccination, severe enough to arouse concern amongst parents to seek medical attention. There should be a positive history of BCG administration on the ipsilateral arm, 2-4 months prior, though this duration can range from 2 weeks to 24 months. There should be absence of constitutional features or fever or tenderness over the lesion. Usually, the swelling is ipsilateral and involves discrete lymph nodes. Two forms of BCG lymphadenitis are identified in its natural course: non-suppurative (simple) form and the suppurative form. The former resolves spontaneously within a few weeks without any sequelae. In the latter, lymph nodes enlarge in size and develop suppuration, characterized by erythema, edema of the overlying skin and fluctuation of the swelling. Once suppuration has occurred, the subsequent course is defined by spontaneous rupture, discharge and sinus formation followed by scar formation. Suppuration may develop in 30% - 80% cases of BCG adenitis and the role of pyogenic bacteria is still unclear [2]. There are several risk factors associated with BCG lymphadenitis: vaccine related and host related. The vaccine related factors include:

1. Dose of the vaccine. Over dosage may lead to adverse reactions.
2. Residual virulence of the BCG sub strain. Different manufacturers are known to have different reactogenicity.
3. Viability count of the final vaccine product (proportion of living and dead bacilli).

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The host related factors include:

1. Age at the time of vaccination: vaccine given at birth or within one month of life is known to be associated with higher risk of lymphadenitis.
2. Immune status of the host. Severe immunodeficiency states are associated with disseminated infection.
3. Characteristics if recipient population is also an important determinant which accounts for different incidence reports of these cases within various countries.
4. Faulty vaccine administration. Subcutaneous administration of the vaccine rather than intradermal leads to increased number of complications.

Diagnosis of this entity is largely clinical. However, cytology and microbiological examination till date provides documentation and confirmation of the diagnosis. The finding of an isolated ipsilateral enlarged lymph node in a child 2-4 months of age is usually sufficient to make diagnosis. Almost all the cases present with first two years of life. Further investigations don't help much in diagnosis and are not routinely indicated. Chest X Ray, Mantoux test and hemograms provide less information. Fine needle aspiration cytology shows cytological features similar to tubercular lesions, making the differentiation of the two difficult. There may be presence of epithelioid cell granulomas in a background of caseous necrosis, suppuration or sometimes, diffuse necrosis alone or suppuration alone. Finding of acid fast bacilli in the Ziehl Neelson stain smear or isolating *Mycobacterium bovis* from the culture of aspirated material corroborates with the diagnosis of BCG adenitis. Definitive identification of the organism usually requires phase typing or mycobacterial gene analysis.

Management of these cases has always remained controversial. The most important objective behind treatment is to prevent suppuration, since the non suppurative ones resolve without any active intervention. Non suppurative forms should be kept on close follow up. Antibiotic therapy with erythromycin and azithromycin have also been used along with Anti TB drugs like isoniazid and rifampicin, though well controlled trials have not shown to decrease the duration of illness or prevent suppuration. They should be reserved for cases with suppuration with super infection by pyogenic bacteria. Recent studies have also shown

that needle aspiration can prevent suppurative adenitis. This is considered safer over surgical excision of the lymph node. Use of local ionized instillation therapy is still controversial and under study.

There has been a recent escalation in the reported cases of BCG adenitis which calls for larger studies and in depth analysis of the causative factors. Non suppurative adenitis should be handled with reassurance and regular follow up. Needle aspiration should be performed in case suppuration occurs for both hastening resolution and also for appropriate microbiological examination. Any recent shift in the strain of BCG should be investigated for as the higher virulence strains are more reactogenic. Immune status of the child should be worked upon

in case of disseminated BCGosis. Parental education, increased awareness amongst paramedical staff and general practitioners is essential for prompt recognition, undue investigation and to prevent unnecessary medication and misuse of antibiotics. Also, such complications with the important vaccines like BCG can influence the compliance of people with adherence to EPI programmes in the country, especially the ones endemic for Tuberculosis.

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