

Mycobacterium Bovis pyomyositis of unusual site in 5 months old child: A case report

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Abstract

Localized abscess in the same site of BCG vaccine is a known complication. However the occurrence of such abscess away from the site of injection is very unusual. We here, report a case of a five months old male infant who developed PCR and culture proven mycobacterium bovis abscess at the right thigh. He received his BCG vaccine on the left deltoid and his four months vaccines (OPV, DTP, HiB, PCV and Hepatitis B) on the right thigh. The exact etiology for this presentation is unknown, however wrongful inoculation of the BCG vaccine at four months can be suspected. Mycobacterium should be considered in any unexplained soft tissue abscess in areas of the world where tuberculosis is prevalent.

Keywords: Mycobacterium Bovis, Pyomyositis, Child

Introduction

Pyomyositis is the term used to describe a bacterial infection of skeletal muscle with abscess formation. The musculoskeletal system is not commonly involved in mycobacterial infection, accounting for only 2% of tuberculosis cases[1]. Tuberculous myositis has rarely been described in the medical literature, and its manifestations may lead to misdiagnosis with malignancy or inflammatory diseases[2]. TB can involve skeletal muscle by many ways, either by extension from the underlying bone, neighbouring joints or tendon sheaths, or from cold abscess, by direct inoculation and by haematogenous dissemination [3]. Bacille Calmette Guerin (BCG) contains a live attenuated (weakened) strain of Mycobacterium bovis, cases of localized abscess as a complication of BCG vaccination at the same site has been reported previously[4]. We present a case of Mycobacterium Bovis pyomyositis presenting as intramuscular abscess in the right thigh in a 5 months old child following his 4th month vaccine.

Case Presentation

A 5 months old boy known case of left multicystic kidney disease, presented with right thigh swelling and hotness with limitation of movement for one month after receiving the 4th month vaccination [OPV, DTP, Hib, PCV, and Hepatitis B] at the same

site. There was no history of fever, weight loss or cough; the child was feeding well and active. There was no history of contact with TB patient. Patient received BCG vaccine at birth in the left upper arm, as per Saudi national vaccination schedule. Examination of the right thigh revealed swelling in the antero-lateral aspect of the thigh, extending down to the knee, with hotness and erythema when compared to the left thigh and mild tenderness and limitation of extension in the right leg. Left leg was normal. There was BCG scar in the left upper arm. Other systemic examination was unremarkable.

Laboratory test showed total leukocyte counts of 11500/mm³; differential count – 31.9% neutrophils; 52.8% lymphocytes; hemoglobin 11.1g/dl; ESR – 94mm/H; CRP 10.7 mg/L; LDH of 335 U/L; Creatine Kinase 160 U/L; Uric acid 157 umol/L; Alkaline phosphatase 334 U/L; coagulation profile was normal; blood culture was negative, serology for HIV was negative. Oxidative burst test and lymphocytes markers were within normal limits. PPD test was negative. Chest X-ray was normal. X-ray of right knee showed haziness and dense fullness along the anterior and lateral aspect of the knee. Ultrasound of right thigh showed fluid collection anterior to the anterior surface of the shaft of distal femoral, no hip or knee joints involvement. MRI study [Fig.1] showed large enhanced intramuscular abscess at the right

thigh, with no evidence of osteomyelitis or septic arthritis. Patient didn't respond to antibiotics, and abscess was drained surgically, samples were positive for AFB, and mycobacterium tuberculosis polymerase chain reaction (PCR). Patient's symptoms improved after surgery and

started on regimen of three Anti TB medications: INH, Rifampin and Pyrazinamide. Subsequently Culture became positive for *Mycobacterium Bovis*. Anti-TB medications discontinued after 6 weeks and patient showed complete resolution of all signs on 6 weeks follow-up.

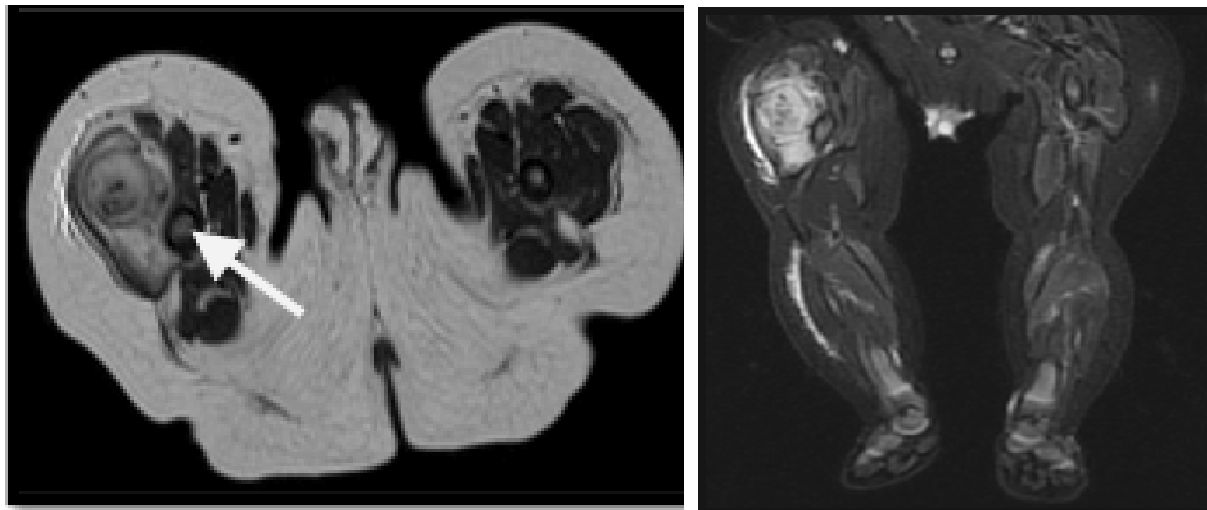


Figure 1. MRI with Gadolinium enhancement showing abscess involving the antero-lateral muscular layer of the right thigh, namely the tensor fascia latae, vastus lateralis and vastus intermedius muscles

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Discussion

The World Health Organization (WHO) recommends BCG vaccination for all infants in countries with high tuberculosis (TB) burden [5]. The BCG vaccine is considered safe when administered to individuals who are immunocompetent. In Saudi Arabia, the BCG vaccine is given to all healthy neonates. Some adverse reactions to BCG vaccine are known, including disseminated BCG in those who are immunocompromised, osteomyelitis, BCG abscesses and lymphadenitis [6]. It is worthwhile to mention that abscess usually has a slow clinical course and may sometimes simulate the occurrence of tumor, which may lead to misdiagnosis [7].

It is well known that MRI, especially with gadolinium enhancement, is very helpful in diagnosis of intramuscular abscess; however, tissue diagnosis is confirmatory as with any other mycobacterium lesion [8]. In our case, diagnosis was confirmed for *Mycobacterium Bovis* on the basis of positive culture. Reviewing the literature, there were five similar cases reported in Saudi Arabia[9], but all those cases were presenting as left thigh swelling, as

BCG vaccine was thought that it was mistakenly given with Vitamin K injection or Hepatitis B at birth. In our case, we believe that BCG vaccine was mistakenly given during the fourth month vaccination and was administered intramuscularly, forming intramuscular abscess. There was

a case reported previously which indicated a different localization of *M. Bovis* abscess from the vaccination site in otherwise healthy child, and this rise the possibility of different localization of the abscess away from the vaccination site[10]. Our case indicate that any child who present with unexplained soft tissue swelling, tuberculous abscess should be considered in the differential diagnosis especially in endemic areas where children receive BCG vaccine as a part of their vaccination schedule, even in the absence of typical chest x-ray findings, positive PPD, or TB symptoms. Draining the abscess surgically and tissue culture should lead precisely to the accurate diagnosis without delay in treatment. Large abscesses as in our case may need surgical debridement, and chemotherapy should be started, as it favored good prognosis in previous reported cases. This case also highlights the possible ad-

verse effects that could happen during vaccination and the need to control this issue.

References

1. Meier JL. Mycobacterial and fungal infections of bone and joints. *Curr. Opin. Rheumatol.* 1994;6:408-414.
2. Puttick MPE, Stein HB, Chan RMT, Elwood RK, How AR, Reid GD. Soft tissue tuberculosis: a series of 11 cases. *J Rheumatol* 1995;22(7):1321–5.
3. Bonomo RA, Graham R, Markley JT, Petersilge CA. Tuberculous pyomyositis: an unusual presentation of disseminated *Mycobacterium tuberculosis* infection. *Clin Infect Dis* 1995;20(6):1576-1577.
4. Lussier N, Bourgault AM, Gaudreau C, Turgeon P. A complication of BCG vaccine: A case of localized cutaneous abscess due to *Mycobacterium bovis*. *Can J Infect Dis.* 1999;10(3):257–259.
5. World Health Organization. BCG vaccine, WHO position paper, Relevé épidémiologique hebdomadaire, 2004;79(4):27–38
6. Deeks SL, Clark M, Scheifele DW, Law BJ, Dawar M, Ahmadipour N, Walop W, Ellis CE, King A. Serious adverse events associated with bacille Calmette-Guérin vaccine in Canada. *Pediatr Infect Dis J* 2005;24(6):538-41.
7. Abdelwahab IF, Keenan S, Hermann G, Klein MJ. Tuberculous gluteal abscess without bone involvement. *Skeletal Radiol* 1988;27(1):36-9.
8. Sabat D, Kumar V. Primary tuberculous abscess of rectus femoris muscle: a case report. *J Infect Dev Ctries* 2009;3(6):476-478.
9. Al Namshan M, Oda O, Almaary J, Al Jadaan S, Crankson S, Al Banyan E, Al Shaalan M, Zamakhshary M. Bacillus Calmette-Guérin-related cold thigh abscess as an unusual cause of thigh swelling in infants following BCG vaccine administration: a case series. *J Med Case Rep* 2011;5:472.
10. Okazaki T, Ebihara S, Takahashi H, Asada M, Sato A, Seki M, Ohto H, Sasaki H. Multiplex PCR-Identified Cutaneous Tuberculosis Evoked by *Mycobacterium bovis* BCG Vaccination in a Healthy Baby. *J. Clin. Microbiol.* 2005;43(1):523-525.

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