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Cold abscess – a rare site

Rehan Sabir Momin[1*], Ismail AS Burud[2], Mahjabeen Salma[3], Altap Sayyed[4], Khaja Moinuddin[5]

1. Associate Professor, Department of General Surgery, Shadan Institute Of Medical Science, Teaching Hospital & Research Centre, Hyderabad–500 086, India
2. Senior Lecturer in Surgery, International Medical University, Kuala Lumpur, Malaysia; Email: mohammedburud@hotmail.com
3. Associate Professor, Department of Pathology, Shadan Institute Of Medical Science, Teaching Hospital & Research Centre, Hyderabad–500 086, India
4. Assistant Professor, Department of General Surgery, Shadan Institute Of Medical Science, Teaching Hospital & Research Centre, Hyderabad – 500 086, India
5. Professor & Unit Chief, Department of General Surgery, Shadan Institute Of Medical Science, Teaching Hospital & Research Centre, Hyderabad–500 086, India

[*]Correspondence to: Associate Professor, Department of General Surgery, Shadan Institute of Medical Science, Teaching Hospital & Research Centre, Hyderabad–500 086, India, Email: rehan@rediffmail.com; mominrehan@gmail.com

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ABSTRACT

We report two interesting cases of occurrence of cold abscess in biceps muscle which is an unusual site for extrapulmonary tuberculosis. Two children, female and male of 8 years and 9 years old respectively presented with painless swelling in arm of 6 months to 1 year duration. These children were immunized to all routine vaccines. Neither of them had any pulmonary or constitutional symptoms of tuberculosis nor does any of them gave any history of identifiable contact with tuberculosis. Blood investigation and chest radiograph were normal. FNAC of swelling were not conclusive. Our clinical impression was either lipoma or neurofibroma. On surgical exploration, swellings were found to be embedded in biceps brachii muscle of arm in both the cases which were meticulously dissected and sent for histopathological evaluation. It showed necrotizing epithelioid granulomata suggestive of cold abscess which was confirmed by growth of mycobacterium tuberculosis on culture.

Figure 1

Clinical presentation of the Swelling seen in the Arm

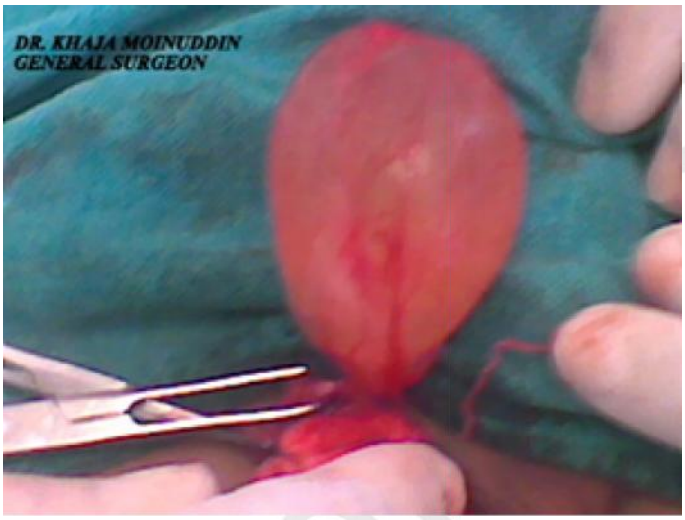

Figure 2

Intraoperative encysted swelling dissected

1. INTRODUCTION

Tuberculosis involving the soft tissue from adjacent bone or joint is well recognized (Abdelwahab et al. 2006). However, primary tuberculous pyomyositis is a rare entity constituting 1% of Skeletal Tuberculosis. Selective involvement of the skeletal muscle by tuberculosis without existing active skeletal or extraskeletal tuberculosis is seldom reported. Tuberculous infection of a striated muscle is usually secondary to direct extension from bone, synovial lining of a joint, infected tendon sheath, direct inoculation or lymphohaematogenous dissemination. This infection is manifested as Tuberculous Myositis or Pyomyositis (Yajko et al. 1994; Resnick and Niqayama 1995).

Striated muscle is the least frequent site of primary extraspinal musculoskeletal tuberculosis (Abdelwahab et al. 2006). Striated muscle is one of the most resistant tissue to mycobacterial infection because of poor oxygen content, high lactic acid concentration and a paucity of reticuloendothelial tissue (Kim, 2001; Batra et al. 2007). All cases of pyomyositis forms an abscess inside the muscle (Batra et al. 2007). Intact human skin is a protective barrier to mycobacterium tuberculosis spread, so the infection to the musculoskeletal system is presumed to spread haematogenously from a primary focus, yet the incidence of active pulmonary tubercular lesion on chest X ray is only 29% (Ahlberg, 1948). Musculoskeletal Tuberculosis mostly results from haematogenous dissemination of mycobacteria or lymphangenous spread from a primary or reactivated focus of infection (Tuli, 2002). Rarely, musculoskeletal tuberculosis may be the result of direct inoculation of the organism into the site (Abdelwahab and Sameul, 1998; Dhillon and Tuli 2001; Heycock and Noble 1961).

Tuberculosis of the soft tissue is not uncommon in the form of proven entities like tubercular bursitis, tubercular synovitis and tubercular spondylitis secondary to underlying bone involvement (Resnick and Niqayama 1995; Abdelwahab and Sameul, 1998). However, selective tissue involvement without bony abnormality is rare. There are rare case reports of tuberculous pyomyositis affecting the muscles of upper and lower extremities and mostly seen in immunocompromised patients (Hardy and Hartmann 1947, Batra et al. 2007; Nathanson and Cohen, 2002; Abdelwahab and Sameul, 1998). Tuberculous pyomyositis has been rarely reported on ultrasonography (Nathanson and Cohen, 2002).

2. CASE REPORT

Case 1: A 8 years old female child presented with painless swelling of right arm since 6 months duration (Figure 1). There were no histories of trauma to arm or pain in swelling. Child did not have any productive cough, evening rise of temperature, anorexia or loss of weight. No history of contact with any tuberculosis patient. She was moderately built and nourished. On local examination, a single painless swelling measuring 6cms x 4 cms found in lower third of the right arm was noted. Overlying skin was normal with no scars or sinuses. It was firm and tender on palpation. Mobility was restricted and gets fixed on contraction of biceps muscle. Her WBC count was 6400/cu.mm, Neutrophils 60%, Lymphocytes 27%, Eosinophils 2%. ESR was 10 millimetres per 1st hour. Chest radiograph was normal study. Tuberculin test was not done. FNAC was not conclusive. Preoperative diagnosis of Lipoma was made. Intraoperatively, an oval shaped swelling was dissected intact from deeper layers of the right biceps brachii muscle (Figure 2). Histopathological examination reported as caseating necrotizing epithelioid granuloma. Culture report of tissue showed growth of Mycobacterium tuberculosis.

Rehan Sabir Momin et al.
Cold abscess – a rare site,
Medical Science, 2014, 12(45), 08-11,
http://www.discovery.org.in/md.htm

Figure 3

Postoperative Specimen sent for Histopathological examination

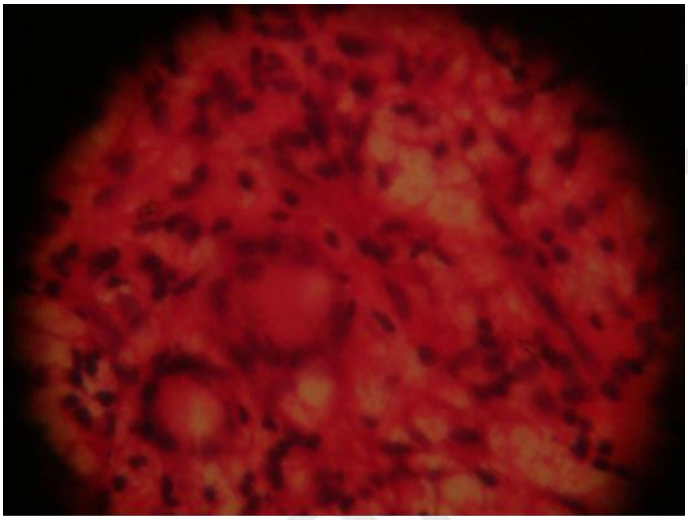

Figure 4

Histopathological section showing chronic abscess with areas of caseation and Fibrosis

Case 2: A similar case of 9 years old male child was reported from Malaysia with a swelling on Right arm since 1 year duration. Clinical diagnosis was Lipoma of arm as no constitutional symptoms were present. Investigations were inconclusive. Swelling was excised and sent for histopathological examination which revealed intramuscular cold abscess showing caseating necrotizing granuloma and culture report confirms growth of Mycobacterium tuberculosis (Figure 3 & 4).

3. DISCUSSION

The selective involvement of muscles by a tuberculous process without coexisting active skeletal or extraskeletal tuberculosis is rarely seen. Prevalence in children who have tuberculosis has ranged from less than 1% to 20% (Abdelwahab et al. 1993; Nathanson and Cohen, 2002). Its frequency decreases after the age of five years and it is rare after the age of ten years. Both our cases reported have age less than 10 years thus supports the literature. In search of the literature, we were unable to find causes that could explain the primary involvement of muscle by tuberculosis without osseous or bursal involvement. From the early 1960s until now, only 2 cases of primary tuberculous pyomyositis have been reported. One involving the gluteal muscle and the other are brachialis and biceps brachii muscle (Abdelwahab and Sameul, 1998; Soler, 2000).

To the best of our knowledge, these two cases that we are reporting now will be addition to the previously rare reported cases in which the tuberculosis affected the biceps muscle without any active pulmonary or extraspinal tuberculosis. With no evidence of coexist active skeletal or extraspinal tuberculosis, the pathogenesis of this intramuscular abscess is still not clear. Such atypical clinical presentation is extremely rare.

The other close differential diagnosis of such cases can be a pyogenic injection abscess secondary to vaccination or any intramuscular injection which can be result of contamination of vaccine or injection equipment. With its multiplanar capability and excellent contrast for soft tissue, Magnetic Resonance Imaging is the best modality for evaluating soft tissue masses (Abdelwahab and Sameul, 1998). Though MRI is superior in evaluating the extent of these soft tissue lesions but has no diagnostic specificity in regard to tuberculosis. Case of primary tubercular pyomyositis is seldom reported in the radiological literature (Abdelwahab et al. 2006).

4. CONCLUSION

We conclude that even when the joints and bone adjacent to a muscle abscess are intact, the possibility of tuberculous abscess should not be ruled out. Therefore, in suspected cases, biopsy is strongly recommended and it is imperative to test cultures and be aware of the risk factors and probability regarding these atypical tuberculous conditions.

Rehan Sabir Momin et al.
Cold abscess – a rare site,
Medical Science, 2014, 12(45), 08-11,
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