Tropical Pyomyositis : Rare Presentation

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MJAFI 2006; 62 : 387-388

Key Words: Tropical pyomyositis

Introduction

Tropical pyomyositis was first described by Scriba in 1885, as an endemic disease in the tropics. The most common organism implicated is staphylococcus aureus (90% of cases in tropical areas and 75% of cases in temperate countries) [1]. In 20-50% of cases there is a history of trauma to the affected muscles [2]. Recent data indicate that up to 75% cases in temperate areas are immunocompromised. Transient bacteraemia, not contiguous spread from surrounding tissues, is suspected to be the source of infection because there is no external injury or portal of entry that can usually be identified [3].

Case 1

A three week old male neonate presented with high grade fever. The neonate was full term normal delivery with a birth weight of 2700 gms and uneventful perinatal period. Clinical examination revealed a small tender lump in the lower paraspinal region (predominantly left sided) (Fig. 1), which was detected on the third day of admission. The lump gradually increased in size to 12x5 cms, becoming soft and fluctuant. No neurological deficit was detected. Laboratory investigations revealed leucocytosis, raised erythrocyte sedimentation rate (ESR) and C reactive protein (CRP). Screening tests for immunodeficiency state (absolute neutrophil and lymphocyte count, serum globulin levels for IgG, mantoux test for delayed hypersensitivity reaction) were normal. Screening for human immunodeficiency virus (HIV) infection was negative in mother. Hypo echoic areas were seen on ultrasonography and magnetic resonance imaging (MRI) showed hyper intense signal in T2 weighted images, in the lower para spinal muscle layers (Fig. 2). There was no involvement of spinal cord. Aspiration of pus from the muscle grew staphylococcus aureus and biopsy confirmed pyomyositis (showing patchy myocytolysis with sheets of acute inflammatory cells). Blood culture was sterile. He was treated with a 10 days course of injection cloxacillin and surgical drainage with complete and uneventful recovery.

Case 2

A two year male child developed three lumps over the body surface involving the suprasternal (sternocleidomastoid muscle), left scapular (lattissimus dorsi muscle) region and right loin (abdominal wall). He had high grade fever and the lumps were firm, tender, inflamed, ill defined and varied in size from 3 cms to 7 cms in diameter. Polymorphonuclear leucocytosis was present with raised ESR and CRP. Immunological screening tests (absolute neutrophil and lymphocyte count, serum globulin levels for IgG, mantoux test for delayed hypersensitivity reaction) were normal. Ultrasonography revealed hypo echoic areas within the muscle layers of involved sites. Muscle aspirate grew staphylococcus aureus and confirmed inflammatory changes (pus with sheets of acute inflammatory cells) in muscle. Muscle enzymes were normal and he was HIV negative. There was no growth in blood culture. He was treated with surgical drainage (multiple) and a course of cloxacillin (10 days) with complete recovery.

Discussion

Tropical pyomyositis is a suppurative infection of skeletal muscles characterised by single or multiple abscesses within the fascial covering of muscles. The quadriceps, glutei, pectoralis major, serratus anterior, biceps, iliopsoas, gastrocnemius, abdominal and spinal muscles are commonly involved. Usually a single group of muscle is affected, but in 12-40% of cases multiple groups are involved either sequentially or simultaneously [4].

The pathogenesis is not clear, however, it is postulated that un-injured skeletal muscle is intrinsically resistant to infection because myoglobin binds to iron avidly, which is necessary for growth of the organism but when muscle trauma is present, there is sequestration of elemental iron leading to predisposition for bacterial growth. Other factors implicated but not proven include general debility, toxins, impaired host defences, and coxsackie group of viruses. Some of the immune-dysfunction states

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Fig. 1 : Abscess of lower paraspinal muscles overlying lower thoracic, lumbar and sacral spine in a neonate

associated with tropical pyomyositis are HIV infection with CD4 count $<150/\text{mm}^3$ [5], steroid use, diabetes mellitus, leukemia, neutropenia due to myelodysplasia, Felty's syndrome, sickle cell anemia and lymphoma.

Tropical pyomyositis is common throughout the tropics and has been widely reported from Asia, Africa, Oceania, and Caribbean islands. In India it has not been widely reported except for few sporadic case reports [6,7]. A literature search revealed only few reported cases in neonates and infants, worldwide [8,9]. In tropical areas, it is common among males, with a female: male ratio of 3:5. Most cases are usually caused by staphylococcus aureus, but recent reports have also described streptococci, escherichia coli, tuberculosis, salmonella, hemophilus influenzae and polymicrobial isolates as the source of infection.

Although the classical presentation is muscle abscess, the hallmark of the disease is not an abscess but finding myositis on a biopsy specimen of involved muscle. It is characterised by subacute or chronic presentation, with acute presentation occurring infrequently. There are three stages namely, invasive stage lasting 10-12 days, where patient has fever, local swelling, mild pain and tenderness, the affected area has wooden consistency and aspiration yields no pus. The suppurative stage when most patients are diagnosed with distinct muscle swelling and tenderness and pus can be aspirated. In the third stage systemic manifestation of sepsis occurs. Regional lymphadenitis is not a feature. Atypically, the patient may present with pyrexia of unknown origin, acute abdomen, spinal cord compression or compartment syndrome.

Investigations reveal leucocytosis with or without eosinophilia. Blood cultures are positive in only 5% cases. Muscle enzymes and electromyogram are normal, which differentiate it from polymyositis. Ultrasound and MRI are investigations of choice. Ultrasound may show

Fig. 2 : MRI spine (T2 axial) showing extensive cystic collection in paraspinal muscles extending from D9 to S3

muscle heterogeneity or purulent collection. MRI is useful to assess the localisation and extension. It shows hyper intense signal in T2 weighted images, hyper intense rim on enhanced T1 weighted images and peripheral enhancement after gadolinium-diethylenetriamine pentaacetic acid (Gd-DTPA) [10].

Initial drug of choice is cloxacillin, along with surgical or ultrasonography guided drainage of the abscesses. The mortality rate varies from 0.5- 2%.

Conflicts of Interest

None identified

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