Tuberculous Pyomyositis

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Abstract

Tuberculosis, caused by *Mycobacterium tuberculosis* is a common infection both in immunocompromised and normal hosts. Its clinical manifestation can by divided as pulmonary and extrapulmonary form. Pyomyositis caused by *M. tuberculosis* is extremely rare. The authors report 2 patients, one with underlying dermatomyositis, and the other with polymyositis. The diagnosis was delayed according to nonspecific symptoms and masking effect of steroid therapy, which led to complications. Microscopy and culture of the pus confirmed the diagnosis. Surgical drainage was done and antituberculous therapy was given. The patient with dermatomyositis was complicated by drug induced hepatitis and died but the other was cured. Tuberculous pyomyositis should be considered in patients who are immunocompromised hosts.

Key word : Tuberculosis, Pyomyositis, Tuberculous Pyomyositis

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Pyomyositis is a primary focal bacterial infection of the skeletal muscles accompanied by abscess formation[1,2]. It occurs more commonly in tropical regions and can be grouped as tropical pyomyositis. Most of the cases occur in previously healthy patients[1]. However, it has been increasingly reported in temperate climates where the majority of patients have underlying diseases such as human immunodeficiency virus infection[3], diabetes, or hematologic disorders. Although the most common cause of pyomyositis is *Staphylococcus aureus*, there are various infective agents that can cause pyomyositis, especially in immunocompromised host[1,2]. *Mycobacterium tuberculosis* has rarely been reported as the pathogen

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(4-11). In the present report, the authors describe two cases of tuberculous pyomyositis in patients with dermatomyositis/polymyositis. Diagnosis of tuberculous pyomyositis was delayed due to the similarity of the manifestations of the condition and of the underlying diseases. The clinical presentations, diagnosis procedures and treatment are detailed.

CASE REPORTS

Case 1

A 56-year old man was admitted twice to Srinagarind Hospital in September 1999 and October 1999 with a history of fever, chills and pain in his left thigh and left leg. Four months before the first admission, he had bilateral symmetrical proximal muscle weakness of all extremities, dysphagia, and erythematous rash on his face and upper chest wall but no joint pain. Three weeks before the first admission, he had noticed multiple painless erythematous induration on his left thigh and left leg. He came to the hospital and was admitted. The heliotrope, Grottron' s papule, telangiectasia on the chest wall, multiple swelling of the left thigh and left leg, and generalized proximal muscle weakness were found. His creatine kinase, alanine aminotransferase (SGPT), and aspartate aminotransferase (SGOT) were 3,716, 106, 265 unit/liter, respectively. The electromyogram was compatible with polymyositis. Skin biopsy of the induration on his left leg also showed dermatomyositis. Prednisolone 60 mg/day was started and increased to 120 mg/day and azathioprine 5 mg/day was added due to the slow decrease of creatine kinase and no improvement of dysphagia. He was discharged from the hospital. Three weeks later he developed sustained fever and muscle pain, especially of his left thigh, left leg and left arm for 4 days. He returned to the hospital and was admitted again. His temperature was 38°C. His left arm was tender but not indurate. Ill-defined, warm swellings were evident on the mid-abdomen, left thigh and left leg. He had grade III/V proximal muscle weakness but no heliotrope and Grotton' s papules. The hematocrit was 46 per cent and white blood cell count was 15,200/mm^3 (neutrophils 79%, lymphocytes 2%). Routine chemistry variables were noncontributory. His creatine kinase, SGPT, and SGOT on this admission were 3691, 194, 399 unit/liter, respectively. Chest X-ray film was normal. Ultrasonography of the left thigh showed only muscle swelling. Aspiration of the muscle failed to recover any discharge. However, ceftriaxone was started and prednisolone was reduced to 15 mg/day. Two days later, the fever still sustained and he developed a tender ill-defined swelling on his left arm. Aspiration was done but failed to recover any pus. Because of negative cultures, methylprednisolone 1 gram/day was started for 3 days but the patient did not improve.

After 2 weeks of admission, the swelling at his left arm became more prominent. Aspiration revealed 20 ml of pus which was positive for acid fast bacilli. Therefore, tuberculous pyomyositis was diagnosed and a surgeon was consulted. The operative findings revealed necrotized muscle at the brachialis, brachioradialis, flexor carpi radialis, pronator teres, vastus femur fascia and pus between rectus femoris and vastus medialis. Antituberculous therapy was started with isoniazid, ethambutol, ofloxacin, and amikacin due to abnormal liver function test. His fever declined but he still complained of painful swelling of his left thigh. An operation on the left thigh revealed necrosis of right Rectus Femoris and Vastus Lateralis with pus, which was also positive for acid fast bacilli. Because of the pending culture, clarithromycin and rifampicin were added initially to cover nontuberculous mycobacterium. Pus culture later grew *Mycobacterium tuberculosis* which was sensitive to all antituberculous drugs. The patient improved clinically afterwards and was discharged from the hospital. To confirm his underlying disease, muscle biopsy was done again at the left gastrocnemius after his recovery. Histological findings were compatible with dermatomyositis. The patient developed cholestatic hepatitis after 2 months of treatment and died from fulminant liver failure.

Case 2

A 33 year old man who was a soccer player presented with a history of muscle pain of the extremities and neck for 2 months, progressive dysphagia, hoarseness and difficulty in deglutition for a month and swelling of the left arm for 5 days before admission. He was admitted to Srinagarind Hospital in October 1999 and found to have bilateral grade III/V proximal muscle weakness with tenderness, hoarseness, and swelling of the left arm with fluctuation. His complete blood count showed a hematocrit of 30 per cent, white blood count of 6,500/mm^3, neutrophils 75 per cent, lymphocytes 10 per cent, monocytes 14 per

cent, and eosinophil 1 per cent. Urinalysis revealed albumin 3+ and red cell 5-10/high power field. The creatine phosphokinase and lactate dehydrogenase level were 823 and 3,150 U/L respectively. Other blood chemistry variables were within normal limits. The anti-HIV, FANA and rheumatoid factor were non-reactive. The initial diagnosis was polymyositis and abscess of the left arm. The abscess was drained and pus culture grew *Staphylococcus aureus,* which responded well to the antibiotic given. Then, prednisolone 75 mg/day and azathioprine 100 mg/day were started. A muscle biopsy was done at the left deltoid and was consistent with drug-induced myopathy. He was followed-up for 1 year when prednisolone was tapered to 5 mg every other day. His muscle weakness improved gradually and his creatine kinase declined to 136 unit/liter. In October 2000, he was transferred to another hospital for convenience. Six months later, he returned because of recurrent tender masses off and on for over 6 months. Physical exam revealed multiple tender induration on the right arm and right scapular. The white blood count was 8,200/mm^3 and neutrophil 69 per cent. The creatine kinase level was 120 unit/liter. The ESR was 35 mm/h. Ultrasonography was performed and revealed abscesses in the right axilla, triceps, and biceps. The abscesses were drained and the staining of pus showed acid fast bacilli. The muscle biopsy of the right triceps and biceps also showed acid fast bacilli. Therefore, antituberculous drugs were initiated and maintained for 6 months with good response. The pus culture later confirmed *Mycobacterium tuberculosis* sensitive to all antituberculous drugs. The patient also had complete remission of polymyositis without treatment after treatment of tuberculosis. There was no recurrence of tuberculosis after 1year follow-up.

DISCUSSION

Pyomyositis was first described in 1885 by Scriba[12]. It most commonly occurs in tropical areas such as Asia, Africa and South Africa, therefore, it is usually called tropical pyomyositis[1,2]. However, there is an increasing number of patients with pyomyositis in countries other than tropical regions, which may be called nontropical pyomyositis. The etiology of pyomyositis varies. The most common cause of pyomyositis is *Staphylococcus aureus,* which accounts for more than 90 per cent in tropical pyomyositis but only for two-thirds in nontropical pyomyositis[1,2]. Other organisms are *Streptococci,* and *Escherichia coli.* Other pathogens have been relatively uncommon. *Mycobacterium tuberculosis* is rarely reported as a causative agent despite being one of the most common infections worldwide occurring both in immunozcompetent and immunocompromised hosts. Although the most common presentation is pulmonary tuberculosis in immunocompromised hosts, extrapulmonary sites are commonly found.

By literature review to date, there have been only 10 cases of tuberculous pyomyositis reported[3-11]. Most of them had underlying diseases including: renal failure, acute leukemia and dermatomyositis. Most cases also had steroid or immunosuppressive therapy, which may impair cellular immunity, the major host defense mechanism of tuberculosis. The presented cases had underlying disease such as polymyositis/dermatomyositis. The authors hypothesize that the patients might have had latent tuberculous infection which was later reactivated by steroids. The involved muscles might have been damaged by the process of dermatomyositis and were targeted.

Large muscle groups are the predominant sites of pyomyositis with 70 per cent of the abscess occurring in the appendicular muscles and multiple abscesses occur in approximately 40 per cent of the patients. The muscle involvement in previous reports of tuberculous pyomyositis included muscles of the thigh, calf, arm, gluteus, temporalis, paraspinal group and anterior chest wall. In the presented cases, the muscle involvement was multiple and on the thigh, biceps and triceps similar to the previous case reports.

Plain radiographs of infected muscles are usually not helpful for diagnosis. Ultrasonography was done in both cases and was helpful in the diagnosis and evaluating the extent of lesions for the operative plan. However, a few reports suggestive that magnetic resonance imaging (MRI) is better than ultrasonography and CT scan[11,13]. Chest radiographs for detection of pulmonary tuberculosis may give a clue to the diagnosis.

Aspiration of the swollen muscles yielded pus which was positive for acid fast bacilli and lead to the prompt initiation of antituberculous medication and surgical drainage. Therefore, needle aspiration should be attempted in every case of pyomyositis for early and definitive diagnosis and management.

Tuberculous pyomyositis is curative although it may need multiple surgical drainage. One patient died because of fulminant hepatic failure with anti-

tuberculous drugs but the other is doing well and has had no relapse. The outcome of treatment also depends on the underlying disease.

In summary, tuberculous pyomyositis should be suspected in immunocompromised patients who present with swollen muscles. Ultrasonography, CT scan and MRI are helpful in the diagnosis and localization of muscle involvement. Aspiration of muscles will lead to the discovery of the pathogens for early diagnosis and treatment.

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ฝีวัณโรคในกล้ามเนื้อ

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วัณโรคซึ่งเกิดจากเชื้อ*ไมโคแบคทีเรียม ทูเบอร์คิวโลซิส* เป็นโรคติดเชื้อที่พบบ่อยทั้งในผู้ที่มีภูมิคุ้มกันปรกติและผู้ที่มีภูมิคุ้มกันต่ำ อาการทางคลินิกสามารถแบ่งได้เป็นวัณโรคปอดและวัณโรคนอกปอด การเกิดฝีในกล้ามเนื้อจากเชื้อวัณโรคพบได้น้อยมาก ได้รายงานผู้ป่วย 2 รายที่เกิดฝีในกล้ามเนื้อจากวัณโรค รายหนึ่งมีโรคประจำตัวคือเดอร์มาโตไมโอไซติส อีกรายหนึ่งเป็นโพลีไมโอไซติส การวินิจฉัยล่าช้าเนื่องจากอาการที่ไม่จำเพาะและคล้ายคลึงกันของฝีในกล้ามเนื้อกับโรคเดิมที่ผู้ป่วยเป็นอยู่และผลของยาสเตียรอยด์ทำให้อาการเจ็บป่วยน้อยกว่าปกติ การตรวจหนองด้วยกล้องจุลทัศน์และการเพาะเชื้อช่วยยืนยันการวินิจฉัย ผู้ป่วยได้รับการผ่าตัดเอาหนองออกและยาต้านวัณโรค ผู้ป่วยที่เป็นเดอร์มาโตไมโอไซติสเสียชีวิตเนื่องจากตับอักเสบจากยาต้านวัณโรค แต่ผู้ป่วยอีกรายหายขาดจากฝีจากวัณโรค ควรจะคิดถึงวัณโรคเสมอในผู้ป่วยที่มีฝีในกล้ามเนื้อโดยเฉพาะเมื่อผู้ป่วยมีภูมิคุ้มกันต่ำ

คำสำคัญ : วัณโรค, ฝีในกล้ามเนื้อ, ฝีวัณโรคในกล้ามเนื้อ

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