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Tuberculous pyomyositis in a rheumatoid arthritis patient treated with anakinra

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ABSTRACT

Musculoskeletal tuberculosis (TB) occurs in only 3% of patients with TB while tuberculous pyomyositis is rare. It usually affects immunocompromised or patients with underlying comorbidities. We present a case of tuberculous pyomyositis in a 85-year-old Caucasian patient with rheumatoid arthritis (RA) treated with steroids and anakinra. The patient presented with fever as well as redness, swelling and induration on the lateral side of the hip and thigh.

Under ultrasound guidance fluid collection of the thigh was aspirated. Polymerase chain reaction (PCR) and cultures of the fluid were positive for Mycobacterium TB. The patient underwent bronchoscopy. PCR and cultures from the bronchoalveolar lavage were also positive for Mycobacterium TB. The patient was treated with anti TB treatment with amelioration of the inflammation in the hip and thigh.

This is the first reported case of tuberculous pyomyositis in a RA patient treated with anakinra.

Introduction

Tuberculosis (TB) caused by Mycobacterium TB represents, one of the most leading causes of death worldwide (1). Musculoskeletal TB occurs in only 3% of patients with TB, while tuberculous pyomyositis is rare and less than 1% (2) Affected patients usually have underlying comorbidities or are immunocompromised (3).

Case presentation

A 85-year-old Caucasian male patient presented in the emergency department of the University Hospital of Ioannina with pain in the left hip which had started 20 days before. The pain worsened the last three days causing difficulties in walking and fever up to 39°C with chills added. He did not have cough, chest pain, palpitations, nausea, vomiting, abdominal pain or disuria. There was no history of trauma.

Physical examination revealed swelling, redness, warmth and induration on the lateral side of the hip and thigh until the left knee. A chest x-ray (Fig. 1A) demonstrated multifocal patchy opacities of varying size located mostly in the upper area of the lungs and a cavity in the middle area of the right lung. The x-ray of the hip joint and triplex of the vessels of the left lower limb were unremarkable. Complete blood count showed normochromic, normocytic anaemia, erythrocyte sedimentation rate 50 mm/hr, C-reactive protein 128 mg/L. The rest laboratory evaluation was normal.

His past medical history included hypertension and rheumatoid arthritis (RA) diagnosed in 2004. His RA treatment at presentation included steroids and anti-interleukin 1 receptor antagonist, anakinra.

The patient was admitted to the rheumatology clinic. Tests for Hepatitis B, Hepatitis C, HIV were negative as well as antibodies for Epstein-Barr virus, cytomegalovirus, Brucella, Herpes simplex virus, Leptospira, Mycoplasma, Toxoplasma, Borrelia. Initially the patient was treated empirically with broad spectrum antibiotics ceftriaxone and moxifloxacin. Because of the insistent of the fever, clyndamycin, metronidazole and tazobactam were administrated while ceftriaxone and moxifloxacin were discontinued. Computer tomography of the chest was notable for a peripheral cavity on the top of the left lung and patchy reticulonodular opacities (Fig. 1B), while computer tomography of the abdomen did not reveal pathological findings. Magnetic Resonance of the left hip demonstrated left sided gluteal region muscle oedema with diffuse enhancement and intramuscular collections with peripheral enhancement (T1 FS + contrast image) (Fig. 2).

The PPD skin test was positive (10 mm diameter). PPD skin test before the initiation of anakinra was not performed by the private rheumatologist who had prescribed the drug.

After the pulmonologists' consultation diagnosis was directed to multifocal TB. An ultrasound examination of the left hip and thigh showed fluid collection in the thigh which under ultrasound guidance was aspirated. The fluid was positive for acid-fast bacilli (Ziehl-Neelsen stain). Polymerase chain reaction (PCR) and cultures of the fluid were also positive for Mycobacterium TB while those for common bacteria were negative.

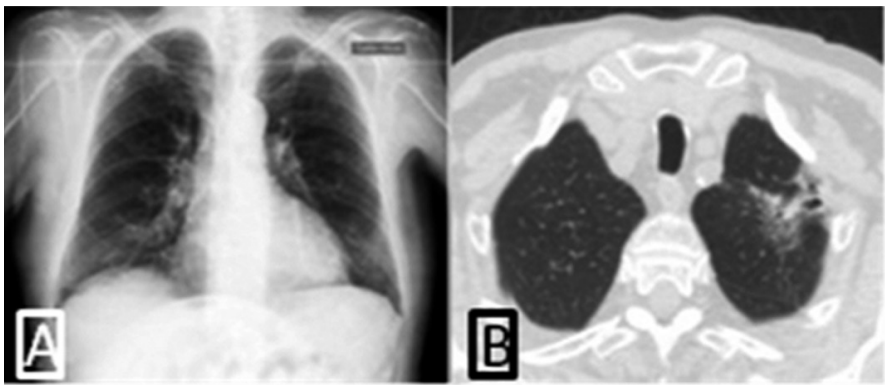

Fig. 1.
A: X ray: There are multifocal patchy opacities of varying size located mostly in the upper area of the lungs and a cavity in the middle area of the right lung.
B: CT of the thorax- demonstrates on the top of the left lung a peripheral cavity and patchy reticulonodular opacities.

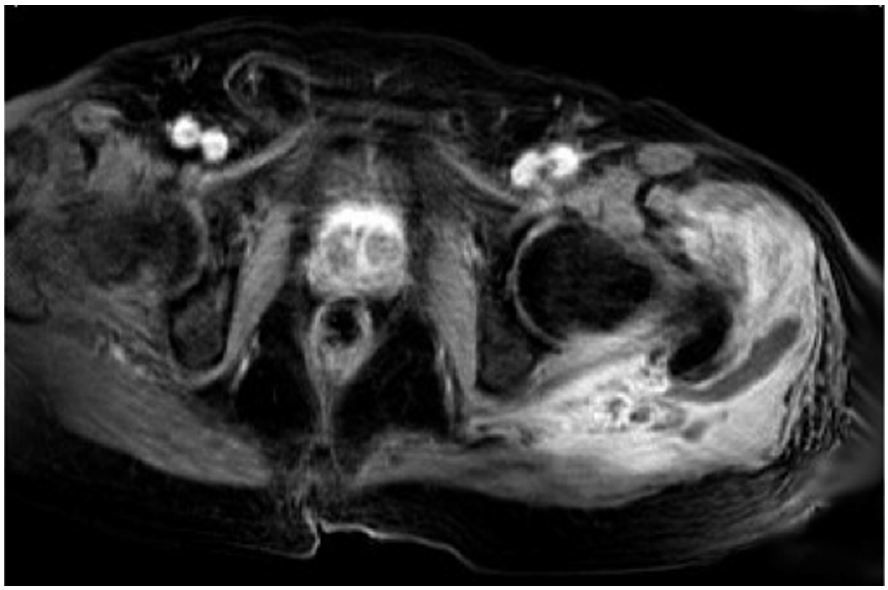

Fig. 2. MRI of the hips: (T1 FS + contrast image) demonstrates left sided gluteal region muscle oedema with diffuse enhancement and intramuscular collections with peripheral enhancement.

The patient was transferred to the pulmonary clinic. Due to lack of cough and sputum production a bronchoscopy was performed. The bronchoalveolar lavage was examined and PCR and cultures were positive for Mycobacterium TB. An anti-TBC treatment with rifampicin, isoniasid, ethambutol, pyrazinamide was started. Seventy two hours after the initiation of the treatment the patient was improved. He was afebrile and the inflammation in the left hip, thigh ameliorated.

Discussion

Pyomyositis is a purulent infection of skeletal muscle that arises from haematogenous spread, usually with abscess formation (3). Predispoding factors for pyomyositis include immunodeficiency, trauma, injection drug use, concurrent infection and malnutrition (4). Forms of immunodeficiency associated with pyomyositis include HIV infection, diabetes mellitus, malignancy, cirrhosis, renal insufficiency, organ transplantation and administration of immunosuppressive agents (4). Our patient was taking steroids and the biologic agent anakinra for RA.

Staphylococcus aureus is the most common cause of pyomyositis while methicillin-resistant Staphylococcus aureus (MRSA) is also an increasingly important pathogen. Other common pathogens include group A streptococci, non-group A streptococci, pneumococci, gram-negative enteric bacilli (3). Mycobacterial pyomyositis has also been reported (5-11). It is extremely rare with incidence between 0.015% and 2% and most commonly in immunocompromised patients or patients with comorbidities (7). Pyomyositis presents with fever and pain with cramping localised to a single muscle group. The disease occurs most often in the lower extremity (sites include the thigh, calf and gluteal muscles), but any muscle group can be involved. Multifocal infection with involvement of more than one muscle group may be observed in up to 20 percent of cases (4). Our patient had multifocal involvement of gluteal and thigh muscles. Tools for diagnosis of pyomyositis include radiography, computer tomography, cultures while magnetic resonance imaging is the most helpful tool (12, 13). Identification of mycobacterium TB in drainage specimens using Ziehl-Neelsen, PCR is mandatory for early diagnosis of active TB and treatment (14).

This is the first reported case of tuberculous pyomyositis in a RA patient treated with anakinra. The patient was not tested with PPD test or quantiferon TB gold test which is more specific to detect latent TB prior to drug initiation (15). Anakinra may lead to reactivation of latent TB.

In conclusion, we described a case of tuberculous pyomyositis in an elderly RA patient treated with steroids and anakinra. Screening with PPD skin test is important before initiation of biologic immunosuppressive treatment.

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