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Case Report

A rare case of tuberculous abscess on the anterior abdominal wall ☆,☆☆

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ABSTRACT

Intramuscular tuberculosis (TB) is a rare manifestation of extrapulmonary TB because of the lower rate of survival and multiplication of Mycobacterium tuberculosis in striated muscle. A 27-year-old woman with no previous history of tuberculosis presented with painless, progressive swelling of the anterior lower abdomen. Abdominal ultrasonography and computed tomography (CT) scan revealed a well-defined, enhancing thick wall cystic mass in the lower rectus abdominis muscle extending to pectineus muscle. Open drainage and wide debridement were performed before prescribing antituberculosis drugs.

Introduction

Tuberculosis (TB), an infectious disease caused by Mycobacterium tuberculosis, affected 10.6 million people in 2021 and was one of the leading causes of death worldwide [1,2]. TB usually manifests as a pulmonary infection. Extrapulmonary tuberculosis (EPTB), which refers to TB infection besides the lungs, represents approximately 15% of all TB infections. Extrapulmonary TB can affect both immunocompromised and immunocompetent patients, although pulmonary TB patients with a comorbidity of human immunodeficiency virus (HIV) have a greater incidence of developing EPTB [1]. Intramuscular and subcutaneous TB are rare and usually caused by the rupture of a necrotic lymph node, direct extension from tuberculous osteomyelitis or arthritis, and hematogenous spread [1,3].

Although TB infection, especially in developing countries, is ubiquitous, only a few cases of abdominal wall tuberculous abscess have been reported. We an unusual case of abdominal wall TB abscess in an immunocompetent patient with no evidence of pulmonary, skeletal, or gastrointestinal TB.

Case presentation

A 27-year-old woman presented with painless, progressive swelling of the anterior abdomen over the last 2 months, accompanied by a low-grade fever and malaise. There was no

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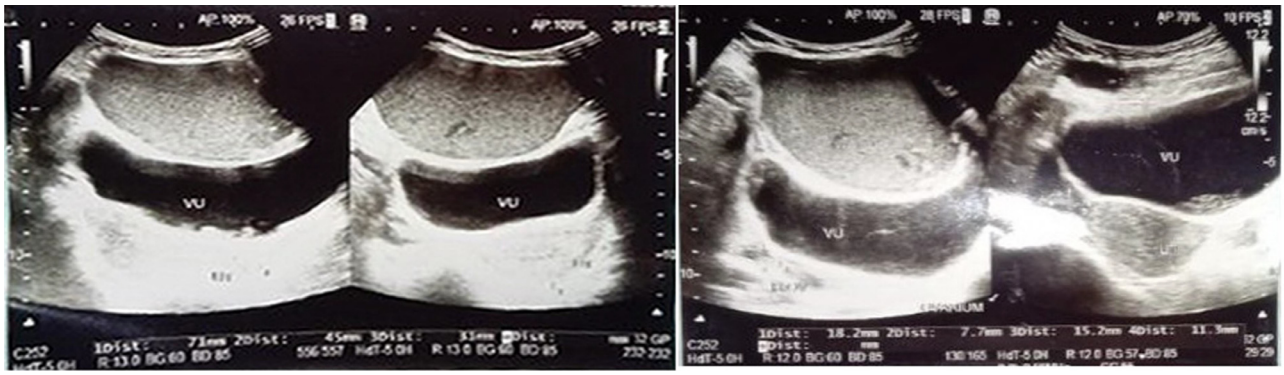

Fig. 1 – A and B showed a cystic, hypoechoic mass on anterior abdominal wall with dense internal echoes anterior to bladder.

history of preceding trauma and no previous history of tuberculosis.

Physical examination revealed a nontender lump on the suprapubic area, a few centimeters below the umbilicus in the midline, with a size of 7 × 8 cm. The lump was firm in consistency, moved with respiration, and had normal overlying skin. The cardiovascular and lung examinations were within normal limits.

Abdominal ultrasonography revealed a well-defined, hypoechoic mass with dense internal echo and calcification in the anterior abdominal wall and minimal vascularity on color Doppler examination. (Figs. 1A and B) Abdominal computed tomography (CT) scan showed a well-defined mass measuring 7.08 × 5.23 × 8.41 cm in the lower rectus abdominis muscle with multiple calcifications measuring about 4-6 mm scattered within the mass (Fig. 2) with an enhanced wall following intravenous contrast administration (Fig. 3) . The mass extended to the bilateral pectineus muscle and the right lower pectineus muscle on the inner right thigh (Fig. 4). On the right lower pectineus muscle, the mass measured 4.92 × 4.06 × 11.37 cm, with the same scattered calcifications measuring 4-8 mm and a thick enhancing wall following intravenous contrast administration. The central part of the mass was the hypodense component of fluid attenuation. Both central parts of the pubic tubercles were eroded (Fig. 5). The chest x-ray was unremarkable (Fig. 6).

Fig. 2 – Scattered calcifications (arrows) found in the central areas of the abscesses.

The patient underwent open drainage and wide debridement. Histopathology examination revealed tubercle with proliferative epithelioid cells, Langhans multinucleated giant

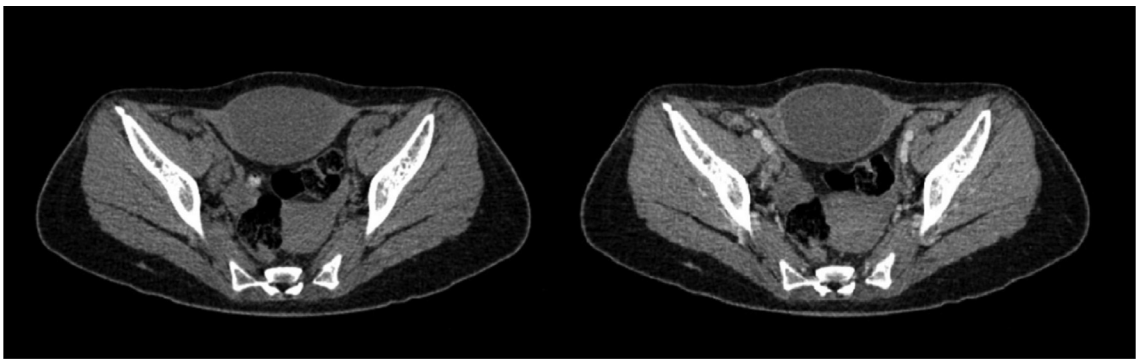

Fig. 3 – Abdominal CT showed a hypodense mass anterior to pubic tubercles with peripheral enhancement following intravenous contrast administration.

Fig. 4 – Sagittal view CT showed extension of the abscess to pectineus muscle.

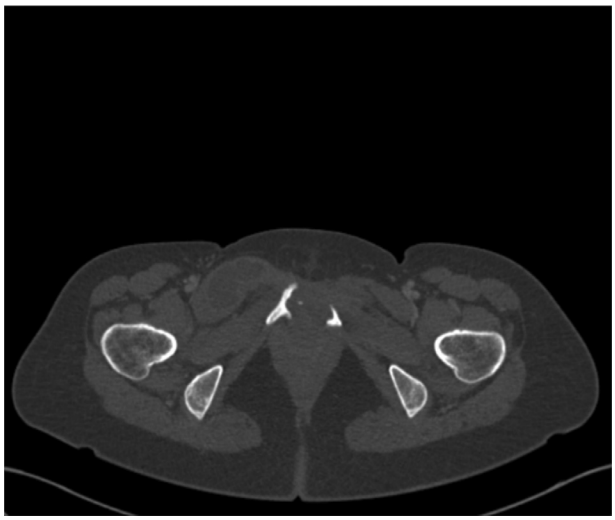

Fig. 5 – Bone window view showed erosion of both pubic tubercles.

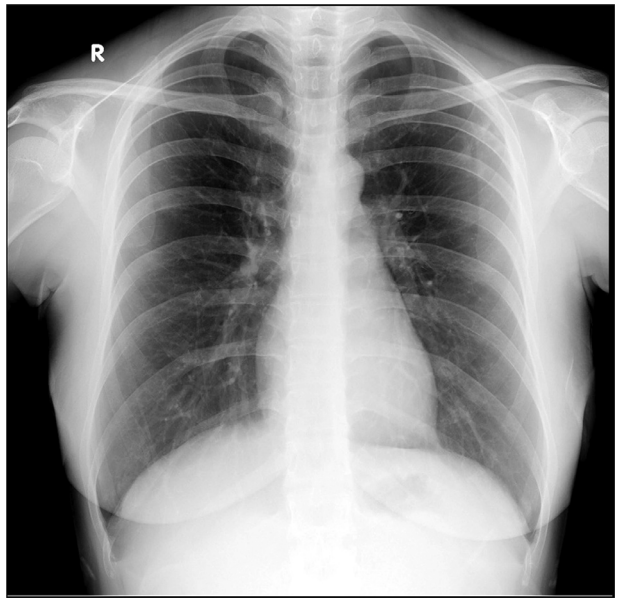

Fig. 6 – The chest radiograph was normal and showed no signs of pulmonary tuberculosis.

cells, and caseating granuloma, consistent with tuberculosis (Fig. 7) Thus, the patient was diagnosed to have multiple tuberculous cold abscesses of the lower anterior abdominal wall extending to the thigh. The patient was given antituberculosis drugs for 6 months and showed satisfying clinical improvement.

Discussion

Involvement of muscles in TB infection without active skeletal or extra-skeletal tuberculosis is rarely seen. Although TB is presumed to spread to the musculoskeletal system through a focus, the prevalence of active pulmonary tuberculosis coexisting with musculoskeletal TB is only about 29%. The rarity of muscular involvement in TB is due to high lactic acid, a lack of reticuloendothelial tissue in muscle, a lack of lymphatic tissue, an abundant blood supply, and the highly differentiated state of muscle tissue [3,4]. A tuberculous abscess usually presents as a complication of primary tuberculous infection but can also uncommonly present as an isolated form of primary tuberculosis. Abdominal tuberculous abscesses can involve muscles (paraspinal and psoas), the anterior abdominal wall, or the intraperitoneal cavity. The infection is usually restricted to a single muscle. The clinical manifestation includes constitutional symptoms like fever, malaise, progressive pain, and swelling of the affected site. Limitation of hip joint movement is usually found in cases with psoas muscle involvement [5]. The routes of infection to abdominal muscle are contiguous spread from adjacent structures like lymph nodes, joints, or bones and hematogenous spread [6].

Imaging plays an important role in the diagnosis, determination of anatomic origin, and extension of abdominal wall abscesses. CT has an advantage with its excellent spatial resolution and can depict internal organs, soft tissue, and osseous structures [7].

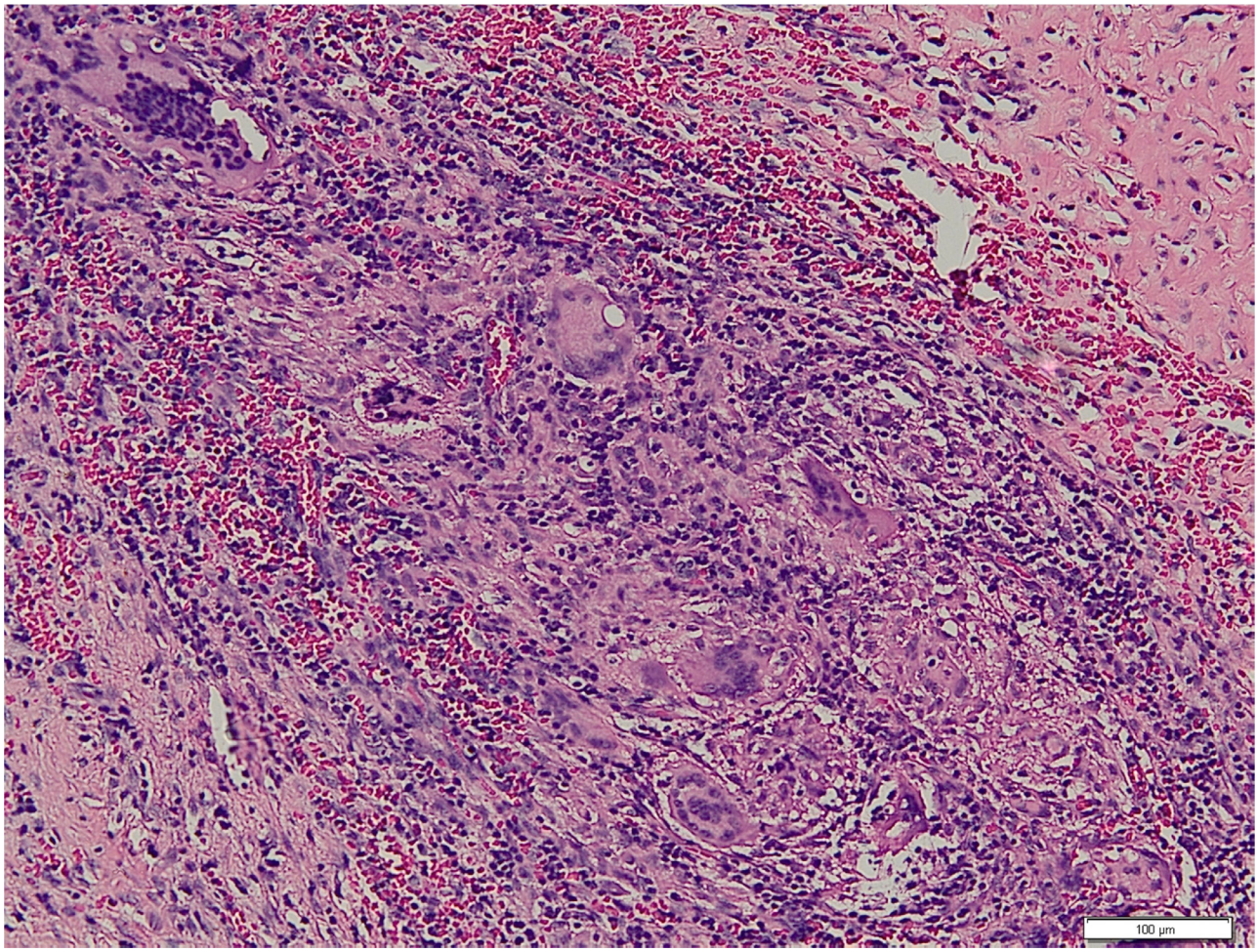

Fig. 7 – Microscopic histopathology picture showed tubercle with proliferative epithelioids cells, Langhans multinucleated giant cells, and caseating granuloma, consistent with tuberculosis.

Ultrasonography shows a cystic mass with internal echoes. CT shows peripherally enhanced mass with internal contents of fluid attenuation, suggesting an abscess. TB abscess in muscle usually shows no perilesional edema; myositis or adjacent cellulitis can be little or absent. The imaging differential diagnoses for an abdominal tuberculous abscess are other bacterial and fungal infections, tuberculoma, necrotizing fasciitis, hematoma, and soft-tissue tumors [1,3,5,6].

The antituberculosis drug is the main treatment, along with drainage, for patients with medical treatment failure or for symptomatic relief [3,6].

Conclusion

Although intramuscular abdominal wall tuberculous abscess is a rare entity, radiologists and clinicians should consider the possibility of tuberculosis in differential diagnosis, especially in tuberculosis-endemic regions.

Patient consent

The patient has seen a version of the manuscript to be submitted/published (including any pictures) and she gave her consent for her image or other information relating to her to be reported in the above named manuscript for consideration of publication in the *Radiology Case Report*.

The patient understands that protected health information such as identification number, billing information, address, will not be published and that efforts will be made to conceal her identity, however, images, including distinctive body markings and/or diagnostic images, may be published.

The patient understands that the material may be published in the Radiology Case Report Journal. As a result, she understands that the material may be seen by the general public. She understands that she may revoke consent at any time before publication, but once the information has been published revocation of the consent is no longer possible.

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