CASE REPORT

Extrapulmonary tuberculosis: an unusual presentation in an immunocompetent patient

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SUMMARY

A 50-year-old Brazilian woman was admitted to our department because of pelvic pain irradiated to the lower left limb, ipsilateral ankle swelling and progressive weight loss. Doppler ultrasound demonstrated deep venous femoropopliteal thrombosis, while a thorax–abdomen CT scan showed multiple solid hypodense pulmonary lesions, a large hypodense lesion in the iliopsoas muscles bilaterally and a complex cystoid lesion at the hepatic hilum. These findings were better characterised as active inflammatory colliquated lymph nodes by positron emission tomography and echo-guided percutaneous fine-needle aspiration of the left iliopsoas abscessual lesion finally allowed the diagnosis of tubercular infection with positive cultures for *Mycobacterium tuberculosis* complex.

BACKGROUND

Starting in the 1980s, after a decline in developed countries, there has been a resurgence of tuberculosis, in particular disseminated and extrapulmonary disease, in line with AIDS and migratory spreads. Extrapulmonary forms account for 10–20% of tuberculosis in immunocompetent patients and more than 40% in HIV-positive individuals. Lymph nodes are the most common site of infection, although any organ can be involved. Since clinical presentation is aspecific, diagnosis can be elusive.¹ We report an unusual presentation of extrapulmonary tuberculosis in an immunocompetent patient, resident in a developed country but with contacts with the homeland, where the disease is endemic.

CASE PRESENTATION

A 50-year-old Brazilian woman was admitted to our department because of pelvic pain irradiated to the lower left limb, associated to ipsilateral ankle swelling. She reported a 4-year history of postprandial abdominal pain causing progressive weight loss due to a reduced amount of food intake.

The patient had lived in Italy for 10 years and her last trip to Brazil was 6 months before hospitalisation.

On admission, the only significant clinical findings were mild hypogastric tenderness, normocytic anaemia (haemoglobin 10.5 g/dL), leucocytosis (white cell count 13 000/mm³), C reactive protein 6 mg/dL and increased D-dimer concentrations (923 mg/dL). Chest X-ray demonstrated a nodule in the upper right lung and Doppler ultrasound revealed left deep venous femoropopliteal thrombosis.

Figure 1 Abdomen CT scan showing bilateral lesions in the iliopsoas muscles, especially a large hypodense cyst on the left.

INVESTIGATIONS

Screening for the main forms of thrombophilia (factor V Leiden, prothrombin mutation) and autoimmunity (antinuclear antibodies, antiphospholipid antibodies, rheumatoid factor) gave negative results.

In order to rule out the coexistence of pulmonary thromboembolism and to investigate the thrombosis aetiology, a thorax–abdomen CT scan was performed with evidence of multiple solid hypodense lesions in the upper and inferior lobes of the right lung, characterised by contrast enhancement, a large hypodense lesion in the iliopsoas muscles bilaterally (figure 1) and a complex cystoid lesion at the hepatic hilum, between pancreas, vena porta and inferior vena cava (figure 2). These findings were better characterised as active inflammatory colliquated lesions by positron emission tomography.

Serology for *Toxoplasma gondii*, *Taenia solium*, cysticercosis, *Trypanosoma cruzi*, *Trichinella spiralis*, *Histoplasma capsulatum* and HIV was negative,

Figure 2 Abdomen CT scan showing a complex cystoid lesion at the hepatic hilum, between pancreas, vena porta and inferior vena cava.

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apart from previous echinococcal infection. The sample obtained from the echo-guided percutaneous fine-needle aspiration of the abscess was stained with the conventional Ziehl-Neelsen stain and gave negative results. The specimen was, moreover, inoculated into an automated radiometric detection system (BACTEC, Becton Dickinson) and allowed the isolation of *Mycobacterium tuberculosis* complex.

The BACTEC radiometric method is based on the measurement of $^{14}\text{CO}_2$ produced by bacteria when ^{14}C labelled palmitic acid present in the media of the culture is metabolised. Numerous comparative studies have demonstrated that the BACTEC system, used in conjunction with conventional solid media culture such as Lowenstein-Jensen medium, detected mycobacterial growth sooner and more often than conventional methods. This technique, however, requires appropriate laboratory infrastructure, including nuclear waste disposal. In addition, the need for radioisotopes limits its use to reference laboratories.²

DIFFERENTIAL DIAGNOSIS

Owing to the young age and gender of the patient, we decided to first rule out genetic causes of thrombophilia and autoimmunity.

Another hypothesis was a neoplastic aetiology that could be responsible for deep venous thrombosis because of compression with consequent venous stasis and hypercoagulability.

In consideration of the geographical origin of the patient and because of the increase in inflammatory markers, we finally looked at the possible presence of infectious diseases with special interest for parasitosis and mycobacterial infection.

TREATMENT

Drug susceptibility testing ruled out resistance to the first-line antitubercular drugs, namely, isoniazid, rifampin, pyrazinamide and ethambutol. Consequently, standard quadruple antitubercular therapy (ethambutol 1200 mg, isoniazid 250 mg, rifampin 600 mg and pyrazinamide 1500 mg orally once daily) was started and the patient was referred to an infectious disease outpatient clinic.

At discharge, occasional abdominal pain responsive to paracetamol was still present, but no ankle swelling was seen. Doppler ultrasound showed partial resolution of the deep venous femoropopliteal thrombosis.

OUTCOME AND FOLLOW-UP

Two weeks later the patient was admitted again to our department because of severe left lower limb pain and local paresthesias. CT scan demonstrated an increase in diameter of the left iliopsoas abscess, which was percutaneously drained with complete collapse. Electromyography diagnosed left femoral nerve suffering with active denervation, consequent to compressive psoas abscess injury. Methylprednisolone was immediately started, antitubercular drug dosages were reduced and ethambutol stopped. At discharge only mild paresthesias were still present, which gradually decreased to complete recovery. The patient was then referred to an outpatient clinic specialised in tubercular infection.

DISCUSSION

Tuberculosis accounts for millions of cases of active disease and deaths worldwide. Its epidemiology has been modified by the introduction of effective chemotherapy, the HIV epidemic and immigration spreads.¹ In our case report, we discuss a very rare presentation of extrapulmonary tuberculosis in a Brazilian immunocompetent subject, characterised by abdominal lymphadenitis and bilateral involvement of iliopsoas muscles, causing

long-lasting non-specific symptoms and late complications. To the best of our knowledge, this is the first case in the literature of nodal tuberculosis involving skeletal muscles without a bone focus.

In developing countries such as Brazil, where tuberculosis is endemic, extrapulmonary forms account for up to 60% of patients with HIV infection with tuberculosis and frequently show pulmonary involvement.¹ Lymphadenitis is the most common presentation of extrapulmonary tuberculosis, usually due to disease reactivation in a site haematogenously seeded during primary infection. Clinical manifestations depend on lymphadenopathy site and immune status. Abdominal lymphadenitis most commonly involves periportal, peripancreatic and mesenteric lymph nodes, as in our patient, and may occur via inhalation of sputum or ingestion of milk infected with *M. tuberculosis* or *M. bovis*, respectively.¹ In developed countries, the majority of tubercular lymphadenitis cases occur among adult immigrants from endemic countries or in travellers to endemic areas. Previously, tubercular lymphadenitis was considered a childhood disease; however, the peak age of onset in developed countries has shifted from childhood to the third and fourth decades. In contemporary series, the median age was approximately 40 years in developed countries.¹

Muscular tuberculosis is a rare disease and is caused by haematogenous or lymphatic spread from a primary focus, which has been identified in multiple nodal tuberculosis in our case. Usually, *M. tuberculosis* spread from lumbar vertebral osteomyelitis is the leading cause of psoas muscle abscess in developing countries.³ Muscular involvement is rare because of high lactic acid content in muscles, absence of reticuloendothelial/lymphatic tissue, rich blood supply and high-differentiated state of muscle tissue.⁴ Psoas abscesses may be difficult to diagnose because of the insidious onset and aspecific presentation, with diagnostic delays also due to their rarity, resulting in high morbidity. Complications of psoas abscesses include: septic shock (about 20% of cases in 2 series); deep venous thrombosis due to extrinsic compression of the iliac vein; hydronephrosis due to ureteric compression and bowel ileus.⁵

In our case, the presence of an extended suppurated muscular lesion caused deep venous thrombosis by compression. Later,

Learning points

- ▶ In the last few years tuberculosis has regained importance in high-income countries because of epidemiological changes such as HIV epidemic, immigration spread, chemotherapeutic regimes, immunosuppressive drugs and biotherapies.
- ▶ Tuberculosis itself is a risk factor for thrombosis because of direct compression from tubercular lymphadenopathies and abscesses, endothelial damage and hypercoagulability state connected to the infection.
- ▶ *Mycobacterium tuberculosis* spread from lumbar vertebral osteomyelitis is the leading cause of psoas muscle abscesses. We described an unusual presentation of nodal tuberculosis in a Brazilian immunocompetent patient, characterised by skeletal muscle involvement without a bone focus.
- ▶ Extrapulmonary tuberculosis can present with protean clinical manifestations and therefore requires a high index of suspicion, not only in immunocompromised patients but also in immunocompetent patients who have lived in endemic areas.

the patient reported of left leg pain and paresthesias, due to femoral nerve compression by the liquefied psoas abscess in response to antitubercular therapy as seen in the paradoxical reaction mediated by the immune system during bacterial lysis. Tuberculosis itself is a risk factor for thrombosis in any site. Other than compression from tubercular lymphadenopathies and abscesses, bacilli directly cause endothelial damage by foreign body reaction. Overall, during tubercular infection, a hypercoagulability state is observed with a decrease in protein C, protein S and antithrombin III levels, and an increase in plasminogen activator inhibitor-1, fibrinogen and factor VII. Finally, *M. tuberculosis* itself stimulates macrophages to secrete proaggregating cytokines (interleukin 6 (IL-6), IL-1 and tumor necrosis factor).⁶

In conclusion, our case report showed that extrapulmonary tuberculosis can present with protean clinical manifestations because of several organ involvement, and it therefore requires a high index of suspicion, also in immunocompetent foreign subjects born in endemic areas.

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REFERENCES

- 1 Fontanilla JM, Barnes A, von Reyn CF. Current diagnosis and management of peripheral tuberculous lymphadenitis. *Clin Infect Dis* 2011;53:555–62.
- 2 Wilson ML, Stone BL, Hildred MV, *et al.* Comparison of recovery rates for mycobacteria from BACTEC 12B vials, Middlebrook 7H11-selective 7H11 biplates, and Lowenstein-Jensen slants in a public health mycobacteriology laboratory. *J Clin Microbiol* 1995;33:2516–18.
- 3 Mückley T, Schütz T, Kirschner M, *et al.* Psoas abscess: the spine as a primary source of infection. *Spine (Phila Pa 1976)* 2003;28:E106–113.
- 4 Perez-Alonso AJ, Husein-Elahmed H, Duran CP, *et al.* Isolated muscle tuberculosis. *Med Mal Infect* 2011;41:559–60.
- 5 Mallick IH, Thoufeeq MH, Rajendran TP. Iliopsoas abscesses. *Postgrad Med J* 2004;80:459–62.
- 6 Naithani R, Agrawal N, Choudhary VP. Deep venous thrombosis associated with tuberculosis. *Blood Coagul Fibrinolysis* 2007;18:377–80.

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