

VERTEBRAL TUBERCULOSIS PRESENTING AS A LARGE RETROPERITONEAL CYST

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Tuberculosis is on the rise and can infect virtually every organ in the body. Extrapulmonary tuberculosis lacks specific clinical manifestation and can mimic many diseases. Vertebral tuberculosis may not have significant symptoms initially. It can invade the neighboring tissue and form a big cyst with manifesting clinical symptoms. Many modalities are available to diagnose tuberculosis; however, a tuberculous cyst might not be readily diagnosed when the initial polymerase chain reaction test for *Mycobacterium tuberculosis* (TB-PCR) is negative.

A 43-year-old unmarried female had a painful mass over the right flank region, which impaired her ability to bend for several weeks, at which time she sought evaluation in our clinic. She denied any sexual activity and admitted to having a pelvic cyst for 5 years. No tuberculosis exposure history was mentioned. On physical examination, a soft mass measuring 5 cm in diameter protruded from the right flank region. Laboratory results were all negative except for an elevated serum CA-125 (40.84 U/mL). A chest film revealed fibronodular opacities over both upper lungs. A pelvic ultrasonography revealed a huge pelvic mass, extending from the right flank region down beyond the right inguinal ligament, a left ovarian tumor, and a uterine myoma (Figures 1 and 2).

An abdominal computed tomography revealed a large retroperitoneal cyst (34 × 10 × 10 cm; Figure 3) extending posterior to the subcutaneous fat layer of the right posterior flank region and downward to the right groin region, with multiple osteolytic lesions over the vertebral bodies and pedicles (Figure 4). Some fluid had accumulated in the cul-de-sac. Two nodules, about 10 and 8 mm in diameter, over the right lower pleura space were noted and were thought to be reactive lymph nodes.



Figure 1. Left ovarian tumor with multiple septa and a solid nodule.



Figure 2. Large retroperitoneal cyst over the right abdomino-pelvic region.

Aspiration of the cyst under sonographic guidance yielded a dense, milky fluid. Results of acid-fast stain and TB-PCR were negative, although tuberculosis was suspected radiographically. A laparotomy was performed based on the findings, including a total hysterectomy and bilateral salpingo-oophorectomy. Frozen section of the ovarian tumor was benign. Because of the negative acid-fast stain and TB-PCR findings, an attempt was made to excise the retroperitoneal cyst. However, its large size obviated a complete resection. Thus, a partial enucleation was performed and sclerotherapy with tetracycline (10 g in 200 mL of normal saline) was administered. Pathology of the cyst revealed granuloma and



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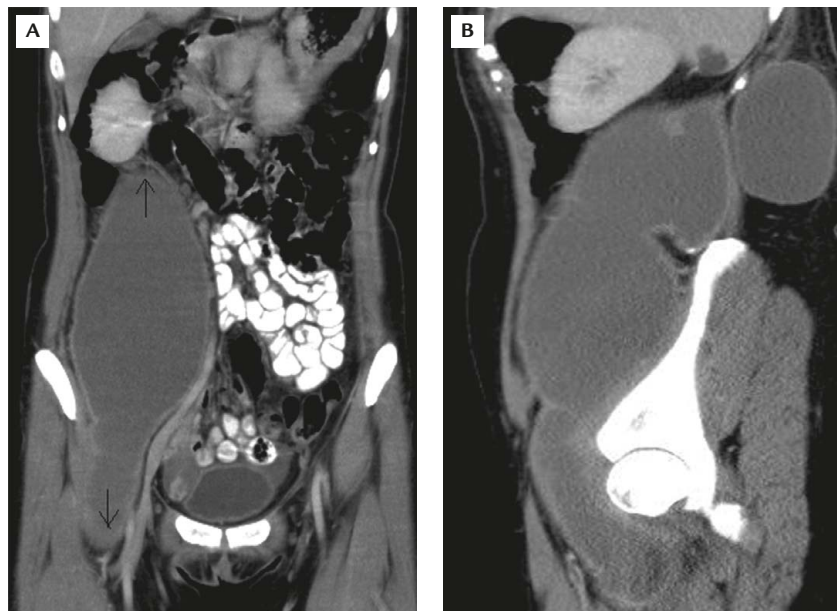


Figure 3. (A) Coronal and (B) sagittal planes of the abdominal computed tomography. Two large communicating retroperitoneal cysts extending from the right flank subcutaneous region to the right groin.

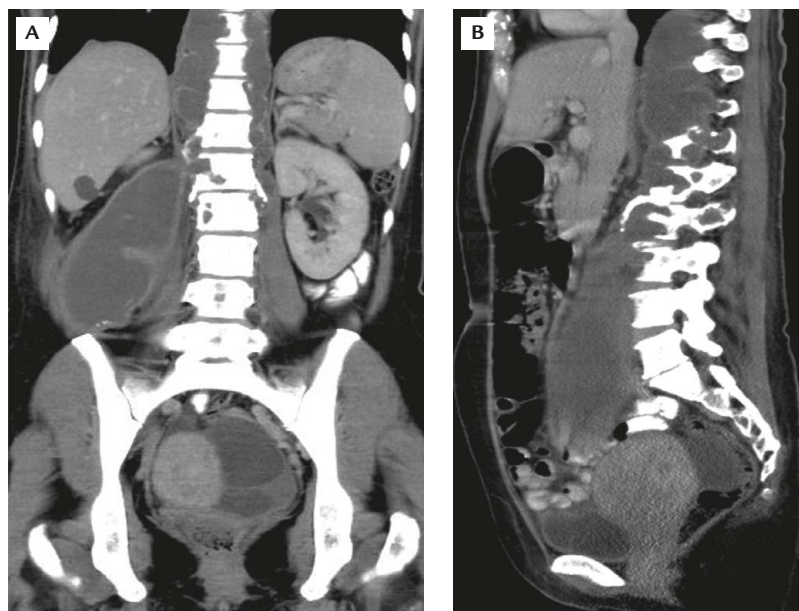


Figure 4. Vertebral osteolytic lesions: (A) coronal and (B) sagittal views. A cystic mass encroaching on the bilateral and anterior aspects of the vertebral bodies from T8 to L1. Osteolytic lesions over the vertebral bodies and right-side pedicle from T12 to L3. Disk narrowing of L1-2 and L2-3.

giant cells with necrotic tissue. Cytology result was negative.

Because of the persistence of the cyst, we performed another sclerotherapy and aspiration 13 days later. Meanwhile, culture from the first aspiration specimen grew *Mycobacterium tuberculosis*. Laboratory results from the last aspiration were positive for acid-fast stain and TB-PCR. A diagnosis of vertebral tuberculosis impinging on the adjacent structures with a psoas muscle abscess tracking down to the groin was rendered. Antituberculous

medication (rifampicin 120 mg, isoniazid 80 mg, pyrazinamide 250 mg, and ethambutol 400 mg) was given for 9 months. The cyst gradually subsided and disappeared 1 year later.

Retroperitoneal tuberculosis cysts are rare entities [1,2]. The most common presenting symptoms and signs of abdominal tuberculosis are shown in Table 1 [3,4]. The disease primarily targets the elderly and multidrug users [3]. In most of these cases, the patients had a family history [4] or a personal history of exposure

Table 1. Presenting signs and symptoms in patients with abdominal tuberculosis ($n = 17$)

Signs and symptoms	n (%)
Pain	13 (76)
Weight loss	11 (64)
Fever	6 (35)
Nausea/emesis	5 (29)
Fatigue	4 (24)
Abdominal distension	4 (24)
Anorexia	3 (18)
Abdominal mass	3 (18)
Night sweat	3 (18)
Abdominal tenderness	3 (18)

to tuberculosis. Tuberculosis may be detected by chest X-ray (33%) [3] and abdominal computed tomography (88%), which are the most frequently used imaging modalities (Table 2) [3,4]. Acid-fast stains of ascites or body fluid are generally negative and tuberculin skin test is positive in 18–42% of patients, and are, therefore, not sensitive for diagnosis [3,4].

The polymerase chain reaction is a rapid and reliable test [4,5], and the results are available within 6.5 hours, even for contaminated specimens, with reasonable sensitivity (76.4%) and excellent specificity (99.8%). Tissue and body fluid specimens [6] have not been validated as reliable in large case series [7].

Chest radiography is not always useful in skeletal tuberculosis, because greater than 50% of such patients do not have evidence of active chest disease [7]. The typical pathology of tuberculosis is granuloma formation with giant cells in a necrotic background, most of which stain negative for *Mycobacterium tuberculosis* [1,3].

Thakur et al [8] proposed that patients with elevated CA-125 and pelvic masses of unknown origin are suspected of having tuberculosis. Although laparoscopy plays a major role in the diagnosis of pelvic masses of unknown origin, a laparotomy may be needed in complicated cases [3,4].

Because of the large cyst in our patient, we performed sclerosing therapy during and after the operation with tetracycline (10 g and 5 g, respectively), which was as effective as streptomycin and minocycline according to Yamamoto et al [9]. Hassan et al [3] recommended that antituberculous medications be administered for at least 6 months.

In this case, tuberculosis was highly suspected at the outset regardless of the negative result of the initial TB-PCR. A large retroperitoneal cyst with an ovarian tumor and a solid nodule has an inherent risk of malignancy

Table 2. Computed tomography (CT) scan characteristics of patients with abdominal tuberculosis*

CT findings	No. of patients ($n = 16$) [3]	No. of patients ($n = 11$) [4]
Ascites	6 (37)	11 (100)
Pelvic mass		5 (45)
Retroperitoneal lymphadenopathy	5 (31)	4 (36)
Mesenteric stranding	4 (25)	4 (36)
Omental stranding	4 (25)	3 (27)
Bowel wall thickening	2 (13)	2 (18)
Mesenteric lymphadenopathy	3 (19)	2 (18)

*Data are presented as n (%).

and mandates a laparotomy. Tuberculosis cyst should be highly suspected whenever there are focal destructive bony lesions and a chest film that revealed old or active tuberculosis. Antituberculous treatment should be administered unless proven otherwise.

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