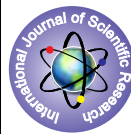


Scattered Calcification in Psoas Due to Renal Tuberculosis: A Rare Entity



Medical Science

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ABSTRACT

Tuberculosis remains a serious public health issue worldwide. Even in the era of effective chemotherapy, TB still accounts for a substantial number of deaths annually. Early diagnosis is challenging, even in areas with abundant medical resources¹. In 2012, there were an estimated 12 million TB cases globally, including 8.6 million new cases, and 1.3 million fatal cases². Renal tuberculosis "autonephrectomy" is the end stage of chronic renal tuberculosis infection and results from the caseous necrosis and progressive cavitation of the kidney. Resultant calcification may mimic the appearances of a renal calculus on plane film X-ray. The IVU has been considered as one of the most useful tests for obtaining anatomical and functional details of the kidneys.

INTRODUCTION

Tuberculosis (TB), is the commonest worldwide cause of mortality from infectious diseases³. Approximately 95% of cases occur in developing countries³. In India, more than 1000 lives are lost every day due to TB despite the availability of modern diagnostic aids and treatment³. Tuberculosis kills over 1.7 million people worldwide every year and nearly 40% of patients with active tuberculosis remain undiagnosed because of the poor sensitivity of the current, century old diagnostic method⁴. The situation is further exacerbated with the increasing incidence of drug resistant TB.⁵ Early diagnosis of TB remains an elusive challenge, especially in individuals with disseminated TB and HIV co-infection.⁶

Genitourinary tuberculosis is the second most common form of extrapulmonary tuberculosis after peripheral lymphadenopathy⁷. The insidious onset and non specific constitutional symptoms of genitourinary tuberculosis often lead to delayed diagnosis and rapid progression to a non -functioning kidney. A relative increase in extra-pulmonary TB has been reported due to a significant decline in pulmonary tuberculosis (PTB) and an only modest decline in extra-pulmonary TB.⁸ Genito- urinary TB accounts for 15-20% of cases of extrapulmonary TB of these about 25 % will have had known pulmonary TB at some stage. The kidney is the most common site of GUTB. The dramatic reduction in incidence following the success of antituberculous therapy has meant that new surgeons have little experience of the management of tuberculosis of the kidney.

CASE PRESENTATION

Shanti, 62 years female, resident of -----came to us with complaints of recurrent abdominal pain and occasional episodes of burning micturition. On examination, no abdominal mass could be palpated. She was subsequently sent for ultrasonography of abdomen and microscopic examination of urinary specimen. USG showed calcification of left kidney. Microscopic examination of urinary specimen showed few pus cells with sterile culture report. Biochemical and haematological report show no abnormality. Patient was sent for intravenous urography which showed non functioning left kidney and normal functioning right kidney with scattered calcification in left psoas muscle. Psoas calcification secondary to renal TB is very rare as seen in our case. Patient didn't give any previous history of TB.

FIGURE 1



FIGURE 2



Patient underwent open left total nephrectomy and calcified mass in the psoas was also removed. Biopsy revealed chronic granulomatous inflammation and caseous necrosis consistent with TB.

FIGURE 3



DISCUSSION

Renal tuberculosis “autonephrectomy” is the end stage of chronic renal tuberculosis infection and results from the caseousnecrosis and progressive cavitation of the kidney. Resultant calcification may mimic the appearances of a renal calculus on plane film X-ray. There are two types: (1) the caseo-cavernous autonephrectomized kidney, i.e., an enlarged kidney converted into a caseous filled sac, with or without calcification; and (2) the shrunken, fibrotic, and often calcified kidney. In both instances, there is usually obstruction of the ureter at some point, but this is not essential in type (1).⁹ However, both types will be non-functional on the IVU

The upper and lower poles of the kidney are more commonly affected than other areas.¹⁰ Cortical granulomas enlarge and coalesce, with the bacilli spilling down the nephrons and getting trapped in the narrow segment of the loop of Henle, establishing new foci of infection within the renal pyramid. These papillary lesions caseate and cavitate, frequently forming ulcero-cavernous lesions as they erode into the pelvicalyceal system (PCS).¹¹

Hypercalcemia may occur, usually secondary to abnormal cortisol production by granulomatous tissue.¹² Although calcification is unusual in the early stages of the disease, nearly every end-stage tuberculous kidney contains calcification. Renal calcification can take a variety of patterns, varying from few minute ar-

reas of calcification to a complete cast of the kidney. Initially, the calcifications are faint and punctate, but eventually coalesce.^{13,14}

Early calcification may be amorphous, granular, or curvilinear, occurring typically within the renal parenchyma.^{15,16} Calcified caseous tissue characteristically appears to be very homogeneous and only moderately dense, looking like ground glass; this is often referred to as ‘putty kidney’. Premkumaret al.¹⁷ labeled calcification ‘putty-like’ if any area of faint calcification of uniform density was greater than 1 cm in diameter.¹⁷ A lobar pattern of calcification, with calcific rims outlining the periphery of distorted renal lobes, is pathognomonic of TB.

Gow¹⁸ believed that calcification in renal TB has an unfavorable prognosis and, if left alone, would result in an increase in the size of the calcification and deterioration of renal function. Renal or ureteric calculi have been noted in up to 19% of cases.

A plain abdominal X-ray may show enlargement of a kidney and calcification of the kidneys and lower urinary tract. Computed tomography (CT) may help to detect renal TB and any extra-renal spread. It is also the most sensitive method of identifying renal calcification. However ultrasound can also reveal calcifications, renal contractions and scars.

The IVU has been considered as one of the most useful tests for obtaining anatomical and functional details of the kidneys. It can show a broad range of findings, depending on the severity of infection. In a series of 45 patients, the IVU pointed to the diagnosis of urinary TB in 88%. However, approximately 10-15% of patients who present with active renal TB may have normal urographic findings. The earliest urographic change occurs in the minor calyces, with subtle initial signs such as minimal calyceal dilatation. and mild loss of calyceal sharpness due to mucosal edema.

With the development of antituberculous drugs nephrectomy has become less important. However a nephrectomy may still be valuable in the following circumstances: (i) if the kidney is calcareous, destroyed and subsequently causing pain or an abscess; (ii) the patient has hypertension alongside a unilateral renal lesion; (iii) recurrent UTI's causing persistent symptoms; (iv) suspicion of malignancy in one of the kidneys which has been damaged by renal TB.

Hence we conclude that renal TB resulting in calcified caseous kidney which descend in psoas muscle often require nephrectomy for treatment.

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