Kidney mass and osteolytic lesion: is it always malignancy?

**Case**

A 43-year-old man was referred to us on March 2005, for further evaluation of a ‘presumed renal tumour’ with two osteolytic lesions located in the right 11th rib and in the left 12th rib. On October 2004, this patient was seen in an emergency service with a tender and slightly erythematous protuberance located in the lower and posterior right hemithorax, measuring approximately 12 cm in its largest diameter. He did not experience fever or weight loss, and an abdominal ultrasonography reported a cystic mass in the left kidney. In the following weeks, there was a gradual regression of the protuberance, but in December 2004, a new and comparable tender protuberance developed in his left hemithorax, at the same level. Again, he had no evidence of fever. An abdominal CT scan disclosed a hypodense mass located in the lower half of the left kidney, with a more hypodense area near the lower kidney pole, leading to a suggestion of an ‘inflammatory/necrotic lesion’ (Figure 1). The physical examination on admission showed a healthy looking individual with a blood pressure of 120/70 mmHg, pulse rate of 102/min and an axillary temperature of 37.4°C. Lungs and heart were normal on auscultation. A well-defined erythematous protuberance was seen in the lower and posterior left hemithorax, with moderate pain on palpation. Laboratory tests provided the following results: normal urinalysis without proteinuria, serum creatinine 0.9 mg/dl and normal serum electrolytes. The haemogram indicated haemoglobin 13.1 g/dl, haematocrit 37.3% and white blood cell count 10 330/m. VDRL was positive (1:256) with a reagent FTA-abs test, and Anti-HIV, HBsAg and anti-HCV were negative. The chest X-ray showed only the osteolytic lesions as above described. Fine needle ultrasonography-guided biopsies of both the left costal lesion and kidney mass were performed.

**Question**

What is your diagnosis?
What is your differential diagnosis?
Tertiary syphilis with renal gumma and osteolytic lesions.

The combination of a left kidney mass with osteolytic lesions posed a challenging diagnostic exercise, particularly because this well-educated patient had a negative history for exposure to sexually transmitted disease (STD) or for other clinically related previous manifestation. However, the suggestion of ‘inflammatory/necrotic’ raised by CT and absence of other systemic signs of disease led us to request VDRL and FTA-abs tests, in sequence. A tentative diagnosis of syphilis was made, and histological analysis of the lesions by optic microscopy showed extensive coagulative necrosis (in sections of both the protuberance and mass), chronic granulomatous inflammation with profound mononuclear cell infiltration in the kidney interstitium, with global glomerular sclerosis in the area bordering the mass. He underwent intravenously administered penicillin therapy during 12 days, after initial desensitization. During follow-up, CT scans were obtained on March 2005, August 2005 and December 2005 (Figure 2). Patient is now asymptomatic, with regression of the chest protuberance and partial and slow but significant regression of the left kidney mass. Although the patient denied a previous history of skin rash, unexplained fever, or previous treatment for syphilis or STD, the combination of strongly positive titres of non-treponemal serological test, the histopathological findings, therapeutic response to penicillin therapy shown by slow and continuous regression of the renal and osteolytic lesions and decline of the titres of the serological test (VDRL 1:32) provide support for the diagnosis of tertiary syphilis.

Comment

The association between syphilis and renal disease has been known for more than 100 years [1]. According to Thompson [1], in his notable review of renal syphilis, Rayer, in 1840, was the first to recognize a clinical involvement of the kidney. Renal disease is currently attributed to immune complex deposition, the antigen of the complex being derived from Treponema pallidum, and the most frequent syphilitic glomerular disease is membranous glomerulonephritis [2–5]. Reports of renal involvement encompass a variety of presentations like proteinuria, nephrotic syndrome, acute glomerulonephritis, rapidly progressive glomerulonephritis, acute haemorrhagic nephritis, interstitial nephritis, renal gumma and amyloid kidney disease [2,3,6–10]. The identification of a causal relationship between systemic treponemal infection and glomerulopathy has been confirmed through elution of immune complexes and identification of treponemal antigens and antibodies [3–5,11]. However, the attempt to demonstrate the T. pallidum antigen may be unsuccessful [2]. Although the immunopathological documentation of this association strengthens the probability of the causal relationship between syphilis and glomerulopathy, the combination of partial or total resolution of the renal presentation, either spontaneously or by appropriate antibiotic therapy, strongly positive results of serological tests and absence of other causes of

Fig. 1. (A) Osteolytic lesion in the 11th left rib; (B) Axial contrast-enhanced abdominal CT scan demonstrates protuberance over right 12th rib, with a liquid collection; (C) and (D) CT scan with dishomogeneous, hypodense lesion in the lower pole of the left kidney.

Fig. 2. (A) and (B) CT scans demonstrate partial regression of the kidney lesion, 1 year after treatment.
kidney disease support syphilis as the cause of the kidney manifestation. Tertiary syphilis is usually diagnosed clinically and by abnormal non-treponemal serological test [Rapid Plasma Reagin (RPR), VDRL], with positive results confirmed using a treponemal-specific test [T. pallidum Particle Agglutination (TPPS), FTA-abs]. Patients may have persistently positive non-treponemal test results 36 months after treatment. Once the diagnosis of syphilis is confirmed and treatment is completed, non-treponemal test titers should decline within 6 months after treatment of primary and secondary forms of the disease, and within 12–34 months after treatment of latent or late syphilis [12]. The combination of a recent increase in reported cases and a possible under-reporting of cases in underdeveloped countries offers the opportunity to implement screening programmes for syphilis, in order to prevent an increased rate of kidney disease and other manifestations of this disease [13]. As a consequence, clinicians must be vigilant of the diagnosis of this disease and its complications, because treatment results in partial or complete recovery of the lesions.

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References


José Gastão Rocha de Carvalho¹
Edison Luiz Slongo²
Ana Cristina Sobral³

¹Department of Internal Medicine
²Department of Surgery, Urology Service
³Department of Pathology, Universidade Federal do Paraná, Curitiba, Paraná, Brazil

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