CASE REPORT

Adult Wilms' tumor masquerading as pyonephrosis: a diagnostic dilemma

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Abstract In the era of modern imaging, modalities like ultrasonography, computed tomography and magnetic resonance imaging diagnosis of renal mass lesions has become more accurate. Nevertheless, rare cases of renal adenocarcinoma and other primary renal tumors have been rarely reported to mimic pyonephrosis, renal abscess, perinephric abscess or tuberculosis. We report, for the first time in literature, a case of Wilms' tumor mimicking as a case of pyonephrosis. The incidence, possible causes and implications of such a misdiagnosis and the measures to avoid the same are discussed.

Keywords Perinephric abscess · Wilms' tumor · Pyonephrosis · Imaging

Introduction

Modern imaging modalities like ultrasonography (US), computed tomography (CT) and magnetic resonance imaging have made the preoperative diagnosis of renal mass lesions accurate. Nevertheless, primary renal tumors have very rarely been reported to mimic pyonephrosis, renal abscess, perinephric abscess [1–4] or tuberculosis [5, 6]. We report a case of an incidentally diagnosed Wilms' tumor (WT) in a patient presenting as pyonephrosis and discuss the pitfalls to avoid misdiagnosis. This is, perhaps, the first report of a Wilms' tumour masquerading as a case of pyonephrosis.

Case report

An 18-year-old girl presented to us with high grade fever, right loin pain and swelling. She had presented to a district hospital one year earlier with recurrent attacks of high grade fever and right flank pain where she was diagnosed to have right hydronephrosis. She had undergone right ureterolysis for the same. One month later the symptoms recurred and were treated with several courses of antibiotics. She presented one year later to the same hospital with high grade fever, right flank pain and right loin swelling and was diagnosed to have right pyonephrosis on ultrasound (US) and right nephrostomy was done. After draining about 200ml of pus, it was removed one week later. But the fever and flank pain persisted and therefore she was referred to us for further management. General physical examination revealed a pale, tachypnoeic patient with bilateral pedal edema. Examination of the chest revealed decreased air entry in the right basal region. Abdominal examination revealed a 7 × 5 cm tender and firm mass palpable in the

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right hypochondrium and lumbar regions. Hematological investigations revealed a hemoglobin of 5.9 g/dl, total leukocyte count of 18,500/mm³ and normal liver and renal functions. X-ray chest revealed a right pleural effusion. US showed a low echo density multiseptate right renal mass with intercommunicating spaces and internal echoes suggestive of pyonephrosis with perinephric extension. Contrast enhanced CT showed right renal enlargement with thin septa and focal areas of decreased attenuation suggestive of pyonephrosis (Fig. 1) and a large liver abscess in the right lobe. The left kidney was normal.

After resuscitation, antibiotics, chest tube drainage of the pleural effusion and aspiration of the liver abscess (300ml of pus) she was taken up for emergency exploration of the right kidney. At operation, the entire kidney was replaced by necrotic material with evidence of perinephritis. Right subcapsular nephrectomy was done. Her condition improved and she had an uneventful recovery. Histopathology revealed WT of unfavorable histology. The patient was given one cycle of combination chemotherapy and was thereafter lost to follow up. She came 3 months later with extensive lung metastases but she did not subsequently report for further treatment.

Discussion

The typical radiological appearances usually confirm the presence of a renal tumor in most instances but unusual presentations of WT are not rare. A presentation with fever, leukocytosis and radiological evidence of fluid collection suggestive of pus almost always diverts the mind of the attending physician towards an inflammatory pathology. Before the final diagnosis is made the patient is usually subjected to multiple interventions and the opportunity for treatment is lost.

Fig. 1 CT scan showing a septate right kidney with areas of decreased attenuation suggestive of pyonephrosis

Inflammatory and neoplastic signs on imaging may overlap and thus a high level of suspicion is required especially in cases where the patient with a diagnosis of an infection does not improve promptly. Experience from similar presentations of other primary renal tumors shows that the confusion is more likely to occur in the following circumstances:

- i) Where extensive multiple tumor necroses gives an appearance of intercommunicating sacs suggestive of pyonephrosis as in our patient.
- ii) Where due to extensive necrosis in the centre of the tumor there is no solid component seen.
- iii) US or CT show a solid component on one of the walls or a thickened wall apart from a hypoechoic/hypodense area suggestive of pus.

Though FNAC of an uncertain lesion is a recommended practice [7], obtaining cytology of the drained fluid in such cases has been reported to help [3]. Angiogram may be useful in demonstrating tumor neovascularisation and may be considered before surgical exploration in doubtful cases [3].

No case of WT has ever been reported to present as infective renal condition and less than 10 cases of primary renal tumors have been reported to present in such manner, as found on a PubMed search using search words “Wilms’ tumor, renal tumors and renal abscess”. None of the reports mention the impact of oncological violation due to drainage of these “abscesses” on the prognosis of the tumor or the need for adjuvant treatment. However, as the misdiagnosis results in delayed and oncologically inappropriate treatment the need for a high degree of suspicion in all cases of renal and perinephric abscess and pyonephrosis and their close follow up with appropriate radiological studies till complete resolution of the lesion cannot be overemphasized.

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