

Case Report

Renal cell carcinoma and acquired cystic disease of the kidneys in a patient on long term haemodialysis

Elfadil Mohamed Osman, MD, FRCP, Omsalama Saeed Ali, MBBS, Sara EEM Ahmed, MBBS, Abdelraouf Sharfi, CMS, MD

Department of Medicine & Surgery, University of Khartoum, Khartoum, Sudan

Abstract

A 65-year-old male Sudanese with end stage disease renal failure (ESRD) on regular haemodialysis (HD) for 5 years developed a painful swelling of his left kidney, which increased in size over a short period of time. He is anaemic and has acquired cystic disease of his native kidneys. Surgical removal and histology proved renal cell carcinoma (RCC).

This is the first case to be reported from Sudan, in a series of 350 haemodialysis patients over the last 14 years.

Keywords: Haemodialysis (HD), renal cell carcinoma (RCC), acquired cystic kidney disease (ACKD).

Introduction

Patients with ESRD, particularly those treated with dialysis, develop proliferative processes in their native kidneys that result in the formation of multiple cysts, adenomas and carcinoma⁽¹⁾.

RCC, the most important complication of acquired renal cystic disease, has a high prevalence and incidence, usually remains symptomless, and sometimes reveals itself with metastases. Therefore, regular screening of dialysis patients is appropriate.

Major complications of acquired renal cystic disease, malignancy and retroperitoneal bleeding, will become increasingly important because of the growing number of patients on long term dialysis⁽²⁾.

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A 59 years old Sudanese male was found to have hypertension and ESRD in 1995, the cause of his renal impairment was not known.

He was maintained on regular haemodialysis, 8 hours per week. Since then he has no complaints apart from unilateral sudden irreversible loss of vision that affected his left eye soon after starting haemodialysis, which was attributed to vitreous hemorrhage.

During this period, he was maintained on oral calcium carbonate, alfacalcidol, folic acid, and intravenous iron dextran, but was not taking erythropoietin on regular basis; His Hb was maintained at about 9.0 g/dl.

In March 2004, he complained of intermittent dull right loin pain, which was not associated with haematuria, and was found on clinical examination to have a right renal mass. An abdominal U/S scan revealed a right renal mass with no cystic changes or stones.

Abdominal CT scan showed a homogeneous rounded right renal mass with a well-defined margin, smooth outline, size 9.9×9.6 cm, almost occupying the whole kidney, with no calcification; the left kidney was found to be

Correspondent author:

Dr. Elfadil Mohamed Osman

Email: fmosman1@hotmail.com

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small in size with cystic changes, other abdominal organs were reported as normal (Fig 1).

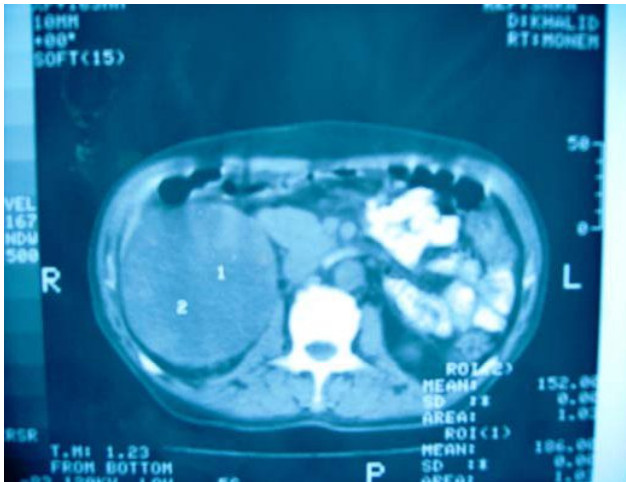


Fig. 1: CT scan showing right renal cell carcinoma

Urinalysis revealed a trace of albumin with microscopic haematuria and granular casts. CXR showed mild cardiomegaly with clear lung fields, ECG showed mild left ventricular hypertrophy, liver function tests were normal & clotting profile was normal. Right total nephrectomy was performed in June 2004, and he had uneventful post-operative course. Histological examination revealed renal cell carcinoma. (Fig 2).

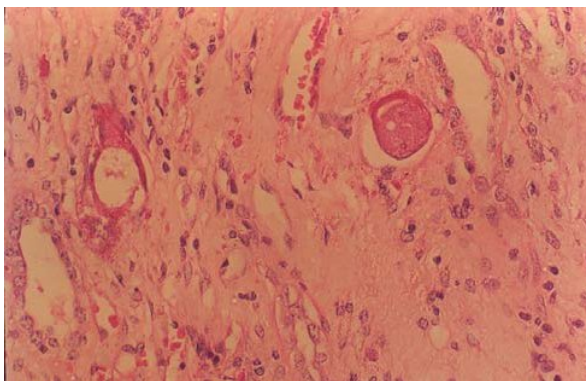
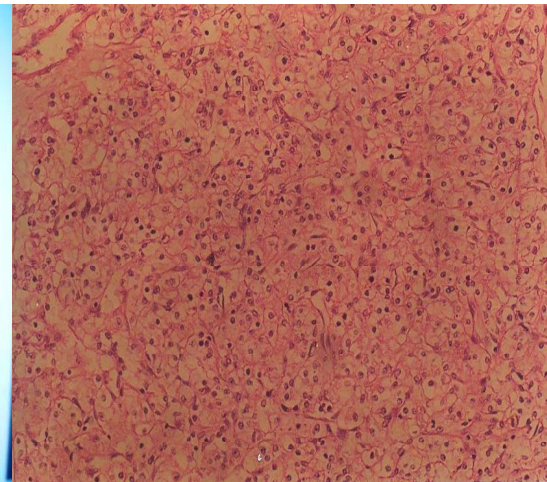


Fig. 2(a): Histopathology slides of renal cell Carcinoma

Fig. 2(b): Histopathology slides of renal cell carcinoma



He made a smooth recovery, and currently 6 months post surgery with no complaints.

Discussion

After a prolonged period of dialysis, many patients develop cysts in their native kidneys that could be detected by routine 6 monthly U/S examination.

For the most part, these cysts are benign and cause no symptoms. Occasionally, they could bleed or produce erythropoietin with a rise in hemoglobin. On rare occasions, they could become malignant.

Our patient had acquired cystic disease of his kidneys that were causing no symptoms, however, he developed pain and swelling of his right kidney over a short period of time, which turned out to be RCC. To our knowledge, this is the first case to be reported from Sudan. Since the first report in 1977 by Dunnill et al., a substantial number of articles have been written concerning the complications of acquired cystic disease of the kidneys (ACDK) and renal cell

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carcinoma developing in the native kidneys of patients undergoing long-term HD. In addition, renal cell carcinoma has been described in 4% to 7% of the ACDK. The etiology of ACDK and renal cell carcinoma (RCC) in the native kidneys of patients undergoing long-term HD remains unresolved⁽³⁾. However, patients with end-stage kidney disease, particularly those treated with dialysis, develop proliferative processes in their native kidneys that result in formation of multiple acquired renal cyst, renal adenomas, and carcinomas⁽⁴⁾. The fundamental pathological change characteristic of acquired cystic disease is epithelial hyperplasia, with the uremic milieu and duration of uremia being the most important factor of its development⁽¹⁾. In a Japanese study it was found that renal cystic disease may be associated with about

4% of renal carcinoma. Young male patients over along dialysis period are more susceptible⁽⁵⁾. There are several reports mainly from Japan confirming the association of RCC with (ACDK) describing the clinicopathological characteristics in renal cell carcinoma with end-stage renal disease⁽⁶⁾. Also the complications of renal cell carcinoma in acquired cystic disease of the kidney like spontaneous renal rupture had been described⁽⁷⁾. Our patient showed classical presentation of RCC in (ACDK) which is not different from reported cases in the literature, especially cases reported from Japan.

Regular U/S examination of native kidneys in patients on long-term HD should be undertaken to detect such cases. The most important thing is early detection as surgical treatment is very rewarding.

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