

ORIGINAL RESEARCH

Clinical presentation and histopathologic patterns of renal cell carcinoma at a tertiary hospital in Addis Ababa, Ethiopia: A retrospective study

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Abstract

Background

Renal cell carcinoma (RCC) accounts for 2% to 3% of all adult malignancies. It is the seventh most common cancer among men and the ninth most common among women. More than 70% of all cancer deaths now occur in low- and middle-income countries. This study aimed to describe the clinical presentation and histopathologic features of renal cell carcinoma among patients presenting to Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia.

Methods

In this hospital-based, retrospective study, we analysed medical record data of patients who underwent surgery for RCC between 1 June 2017 and 31 May 2018. All charts of patients registered with a diagnosis of RCC were retrieved from the hospital archive and carefully evaluated, with data collection guided by a semistructured pro forma. The data were double-checked before being analysed using SPSS, version 20.

Results

The records of 64 patients (33 men and 31 women) were identified and analysed. Flank pain, mostly described as discomfort and reported by 94% of patients, was the commonest presenting symptom. The classic triad of flank pain, haematuria, and a palpable flank mass was present in 25% of patients. The most common postoperative histopathologic RCC type in this cohort was the clear cell type (55%), followed by the chromophobe (20%) and papillary (18%) types.

Conclusions

Flank pain is an important feature of RCC, and flank discomfort should not be taken lightly, as it can signify serious underlying disease. The triad of flank pain, haematuria, and a palpable flank mass was observed in a quarter of the patients in this series; this is evidence that many RCC patients present late in the disease course in our setting. Postoperative histopathologic examination revealed that more than half of the cases were associated with clear cell RCC and that chromophobe RCC and papillary RCC each accounted for about one-fifth of the cases.

Keywords: renal cell carcinoma, flank pain, haematuria, kidney neoplasms, nephrectomy, histopathology, Ethiopia

Introduction

Renal cell carcinoma (RCC), of which there are several subtypes with varying characteristic clinical courses and outcomes, accounts for 2% to 3% of all adult malignancies. RCC is the seventh most common cancer among men and the ninth most common among women. Worldwide, there are about 209 000 new cases and 102 000 deaths per year. RCC is the most common solid kidney lesion and accounts for over 90% of all kidney malignancies among

adults. According to the World Health Organization, there are 3 major histologic RCC types: clear cell RCC (ccRCC), papillary RCC (pRCC), and chromophobe RCC (chRCC), which account for 80% to 90%, 10% to 15%, and 4% to 5% of RCCs, respectively. These major histologic types account for 85% to 90% of renal cancer diagnoses; the other 10% to 15% include a variety of uncommon and familial carcinomas, unclassified carcinomas, and some benign tumours.^{[1]-[3]}

Table 1. Age at initial presentation among patients who underwent surgery for renal cell carcinoma treatment between 1 June 2017 and 31 May 2018 at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia

Age, years	n (%)
20-29	3 (4.7)
30-39	8 (12.5)
40-49	15 (23.4)
50-59	23 (35.9)
≥60	15 (23.4)
Total	64

The classic triad of RCC presenting symptoms is comprised of haematuria, flank pain, and a palpable flank mass. However, about 40% of patients present with systemic symptoms, such as fever, anorexia, weight loss, and abdominal pain. About half of all RCC cases are associated with erythrocyte sedimentation rate elevation, and about one-third are associated with normocytic anaemia unrelated to haematuria. Even without liver metastases, RCC may be associated with coagulopathy, hepatosplenomegaly, as well as serum liver enzyme and alpha-2-globulin concentration elevations; tumour resection may ameliorate these features. Major RCC risk factors include hypertension, obesity, and cigarette smoking.[4]-[8] Genetic factors, including kidney cancer in a first-degree relative and various hereditary conditions, can also predispose individuals to increased RCC risk.[2],[9]

Ultrasound, computed tomography (CT), or magnetic resonance imaging can be used to detect and characterize renal masses. CT is the standard modality for diagnosis, local staging, and detecting distant metastases; images should be captured before and after contrast administration.[10]

Surgery is the mainstay of RCC treatment. The typical procedure is radical nephrectomy, involving removal of the kidney, renal fascia, and ipsilateral adrenal gland.[10]

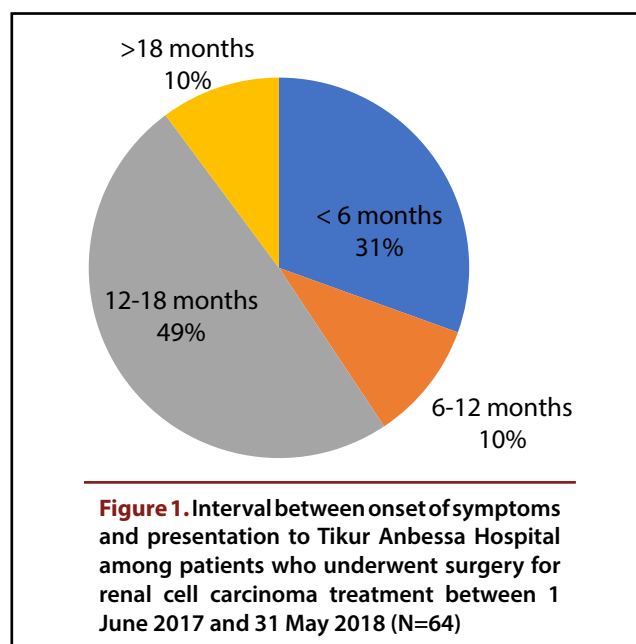
We aimed to describe the clinical presentations and histopathologic features of RCC among patients presenting to Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia.

Methods

For this hospital-based, retrospective study, we analysed medical record data of patients who underwent surgery for RCC between 1 June 2017 and 31 May 2018 at Tikur Anbessa Specialized Hospital. All diagnoses were preoperatively substantiated by CT, magnetic resonance imaging, or both.

A semistructured English-language data collection form guided the retrieval of data regarding sociodemographic characteristics, presenting symptoms, and other relevant variables. After data collection, each form was checked for completeness, and then the data were analysed using SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, NY, USA).

Our department's research and publications committee granted ethical approval to conduct this study.



Results

The records of 64 patients (33 men and 31 women; median age at presentation, 53.4 years; age range, 24-70 years) were evaluated and analysed (Table 1). Of the evaluated risk factors, hypertension (n=19, 30%) was most commonly identified, followed by obesity (n=8, 12.5%), and end-stage renal disease (n=4, 6%). There were no smokers among the included patients, and none of the patients reported any familial history of renal malignancy.

Thirty-eight patients (59%) presented to our hospital at least 1 year after the initial onset of symptoms. Only 20 patients (31%) presented within 6 months of the onset of symptoms (Figure 1).

Flank pain (n=60, 94%), which was mostly described as discomfort, was the most common presenting symptom, followed by haematuria (48%), anorexia (48%), weight loss (42%), and fever (26.5%). Flank masses were identified as palpable in 39% of patients. The classic triad of flank pain, haematuria, and a palpable flank mass was observed in 25% of patients. Eight per cent of patients were referred to our institution after incidental renal mass detection via imaging performed for unrelated complaints. Nine per cent of patients had mild to moderate anaemia (haemoglobin <11 g/dL), and 1% had severe anaemia (haemoglobin <8 g/dL) (Figure 2).

Unilateral RCC accounted for over 99% of the cases, with a slight right-sided preponderance. At the initial diagnostic CT scans, 51% of the patients had localized disease confined to the kidney, and 22% had regional disease with lymph node involvement. T2 tumours accounted for 64% of the cases. Inferior vena cava thrombosis was seen in 12.5%, and adrenal gland involvement was observed in 6% of patients. Seventeen per cent of patients had metastatic disease at presentation, with the liver (12.5%) being the most commonly involved organ, followed by the lungs and bone (6% and 3%, respectively) (Table 2).

Table 2. Initial imaging findings for patients who underwent surgery for renal cell carcinoma treatment between 1 June 2017 and 31 May 2018 at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia

Characteristic	n (%)
Size	
<4 cm	7 (11)
4-7 cm	15 (24)
7-10 cm	26 (40)
>10 cm	16 (21)
Tumour extension	
Within renal fascia	56 (87.5)
Regional lymphadenopathy	14 (21.9)
Renal vein thrombosis	11 (17.2)
Inferior vena cava thrombosis	8 (12.5)
Ipsilateral adrenal gland	4 (6.3)
Distant metastasis site	
Liver	8 (12.5)
Lung	4 (6.3)
Bone	2 (3.1)
Brain	1 (1.6)

Forty patients underwent surgical treatment, with radical nephrectomies performed for 39 kidneys and partial nephrectomies performed on 3 kidneys.

The most common postoperative histopathologic RCC type was ccRCC (55%), followed by chRCC (20%), and pRCC (18%) (Figure 3).

Discussion

The approximately 1:1 male-to-female ratio was somewhat unexpected, as RCC is generally known to be more common among men.[2]

The peak incidence of RCC occurs between the ages of 60 and 70 years,[2],[11] but RCC seems to affect younger patients in Africa and Asia, where patients are typically in their mid-fifties at diagnosis.[12] In our study, the median age at presentation was 53.4 years, and the majority of patients (59%) were between 40 and 60 years of age. Notably, nearly 40% of the patients in our study presented before reaching 50 years of age.

Among the RCC risk factors evaluated in our study, hypertension was the most common. Hypertension is known to more commonly afflict black individuals, and poor hypertension control has been associated with a higher risk of RCC among black patients than among white patients. Relative risk estimates range between 1.2 and 2 (or greater) for RCC associated with either recorded high blood pressure or reported hypertension.[6],[7]

Flank pain or discomfort was the most common presenting symptom in our study, followed by haematuria and anorexia. The classic triad of flank pain, haematuria, and a palpable flank mass was reported for 25% of our patients, and this was far more common than the 10% reported globally.[13] RCC patients often present with nonspecific symptoms; moreover, RCCs are commonly incidental radiologic findings.[13],[14]

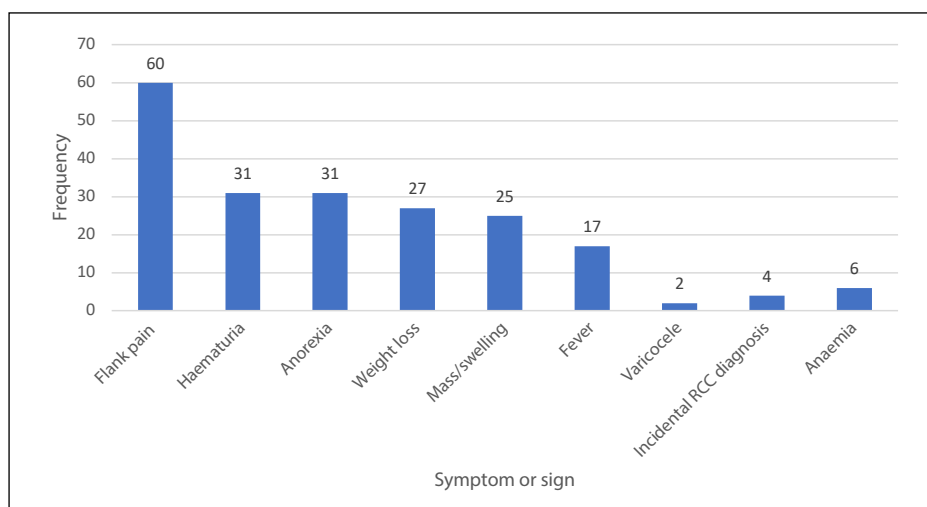


Figure 2. Presenting symptoms and signs of patients who underwent surgery for renal cell carcinoma (RCC) treatment between 1 June 2017 and 31 May 2018 at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia (N=64)

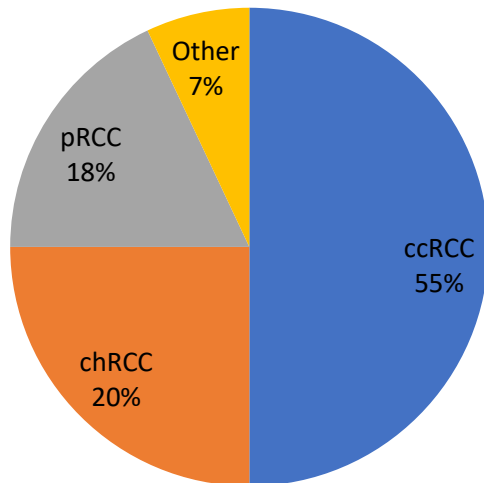


Figure 3. Postoperative histopathologic diagnoses among patients who underwent surgery for renal cell carcinoma treatment between 1 June 2017 and 31 May 2018 at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia (N=64)

ccRCC, clear cell renal cell carcinoma; chRCC, chromophobe renal cell carcinoma; pRCC, papillary renal cell carcinoma

About half of the patients in our study had localized disease confined to the kidney according to the initial diagnostic CT scan, and about one-fifth had regional disease with lymph node involvement. Nearly two-thirds of the patients had T2 tumours. Surveillance, Epidemiology, and End Results (SEER) registry prevalence data from 2002 through 2008 regarding the extent of RCC spread at presentation are as follows: localized disease (confined to the kidney), 62%; regional disease (spread to regional lymph nodes), 17%; and metastatic disease, 17%. [15] SEER reports generally disclose metastatic disease proportions of about 17% among RCC patients. Similarly, 17% of the patients in our study had metastatic disease at presentation, with the liver being the most commonly affected organ, followed by the lungs and bone. [15]

Our data suggest that the patients in our study tended to present with relatively advanced-stage disease and large tumours; however, the number of patients with operable disease was comparable to what has been reported elsewhere. [11], [15], [16] Surgery is curative for most RCC patients without metastatic disease and is, therefore, the preferred treatment for patients with stage I, II, or III RCC. Radical nephrectomy remains the standard surgical procedure [12], [16] and was the most commonly performed procedure for our study patients.

The most common postoperative histopathologic diagnosis was ccRCC (55%), followed by chRCC (20%) and pRCC (18%). These proportions differed from those reported by the World Health Organization (ccRCC, 80%-90%; pRCC, 10%-15%; chRCC, 4%-5%), [1] but ccRCC was indeed the most common histopathologic finding.

Conclusions

RCC occurred in men and women at equal rates at our institution during the period under study. Patients commonly presented with advanced-stage disease and large tumours, which suggests that this patient population would benefit from public educational efforts to increase awareness. Flank pain is an important feature of RCC, and even mild flank discomfort should not be taken lightly, as it can signify serious underlying disease. The triad of flank pain, haematuria, and a palpable flank mass was observed in a quarter of our patients, which aligns with the observation that late presentation was common. The most common postoperative histopathologic diagnosis was ccRCC, followed by chRCC and pRCC. Radical nephrectomy remains the mainstay of treatment for nonmetastatic disease, and surgery is the only chance of cure.

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