Pattern of Renal Cell Carcinoma – A Single Center Experience in Nepal.

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ABSTRACT

Background

Renal tumor is the 13th most common malignancy in the world and more than 90% of renal tumors are renal cell carcinomas. As there is no data available on renal cell carcinoma in Nepal, hence this study was undertaken to analyze the patterns of renal cell carcinoma in patients with renal mass at a tertiary level hospital in Nepal.

Objectives

To analyze the patterns of renal cell carcinoma in patients with renal mass at a tertiary level hospital in Nepal.

Methods

The case records of 50 consecutive patients with renal cell carcinoma presenting at the Tribhuvan University Teaching Hospital, Kathmandu from July 2006 to June 2011 were retrospectively evaluated for presenting symptoms, physical finding, investigation and histopathology report.

Results

Out of 50 patients, 64% were male and 36% were female. The age ranged between 11 to 78 years (mean ± SD: 55 ± 15 years). Fifty four percent of patients were smokers. Incidentally tumor was detected in 40% cases by ultrasonography and the typical triad was present in only 4%. The tumor was occupying upper pole in 40% of cases. The tumor size ranged from 3 to 15 cm (mean ± SD: 7.3 ± 2.9 cm). Histopathologically, 76% of the patient had organ confined renal cell carcinoma (T1-2 N0 M0). Clear cell was the most common type seen in 86%. Fuhrman's nuclear grade 2 was found in 50%.

Conclusion

Many of the renal cell carcinoma are detected incidentally, at an early stage and are of clear cell subtype.

KEY WORDS

Incidental renal tumor, Nepal, Renal cell carcinoma.

INTRODUCTION

Worldwide, renal tumor is the 13th most common malignancy.[1] More than 90% of renal tumors are renal cell carcinomas (RCC) and the incidence continues to increase.[2,3] Cigarette smoking is considered to be the most common cause while many other causes have also been reported.[4,5] The commonest age at presentation ranges from 60-70 years and is more common in males than in females.[6-8] The most frequent presentation is haematuria followed by flank pain and a palpable mass on clinical examination.[9] The classical triad of symptoms are present in only limited number of cases. Majority of the lesions are now detected incidentally by an ultrasonography with high resolution probes.[10-12] So the dictum in recent years is that any solid mass in the kidney on ultrasonography should be considered as malignant until proven otherwise. Radiotherapy, chemotherapy, immunotherapy and tyrosine kinase inhibitors have all been used for patients with metastatic disease but their curative role has to be proven by larger randomized control trials.[13] Despite the innovations in the management of RCC in recent years, mortality rates have continued to rise.[3,14] As there is no data available on RCC in Nepal, hence this study was undertaken

to analyze the patterns of RCC at a tertiary level hospital in Nepal highlighting the patients demography, clinical presentation, diagnostic evaluation and pathological finding.

METHODS

This was a retrospective study done in the Urology unit, Department of Surgery at Tribhuvan University Teaching Hospital, Kathmandu, Nepal from July 2006 to June 2011. The medical records of 50 consecutive patients with histopathologically confirmed primary RCC were reviewed.

The individual patient factors like age, gender, smoking, symptoms, tumor location, size, TNM staging and histopathology reports were retrieved for analysis. The seventh edition of the American Joint Committee on Cancer TNM staging system was used to classify cancer stage and tumor spread.[15]

RESULTS

A total of 50 patients were diagnosed to have RCC in the past 5 years. The male to female ratio was 1.7:1. The age ranged between 11-78 years (mean ± SD: 55 ± 15 years) and 86% were aged more than 40 years. Fifty four percent of the patients were smokers. (Table 1)

Renal cell carcinoma was incidentally diagnosed by ultrasonography in 40% cases and rest 60% was symptomatic. The classical triad of flank pain, gross hematuria, and palpable abdominal mass was present in only two patients. Mean duration of symptom was 3.5 (0 – 24) months. (Table 1)

Table 1. Characterization of patients (n = 50).

Characteristics	No. of patients (%)
Age (in years)	
<40	7(14)
40 - 60	23(46)
>60	20(40)
Gender	
Male	32(54)
Female	18(36)
Smoking	
Smoker	27(54)
Non Smoker	23(46)
Symptoms	
Incidental	20(40)
Pain	14(28)
Hematuria	8(16)
Pain and mass	2(4)
Pain and hematuria	4(8)
Triad	2(4)

Table 2. Characterization of the tumors (n = 50).

Characteristics	No. of patients (%)
Laterality	
Right	26(52)
Left	23(46)
Bilateral	1(2)
Tumor Location (Pole)	
Upper	20(40)
Mid	9(18)
Lower	5(10)
Upper mid	7(14)
Mid lower	7(14)
Complete	2(4)
Size (in cms)	
≤4	8(16)
4.1 - 7	21(42)
7.1 - 10	14(28)
>10	7(14)
Operation	
Radical Nephrectomy (RN)	31(62)
RN with Lymphadenectomy	13(26)
RN with IVC Thrombectomy	3(6)
Not operated	3(6)

One case had bilateral RCC with positive family history of renal malignancy and was diagnosed to have von Hipple Lindau disease. The tumor was occupying upper pole in 40% of cases. On CT scan, 42% of the patient had tumor size of more than 7 cm, with the mean size of 7.3 ± 2.9 cm (range: 3 – 15 cm). Three patients had Nevus level-II infrahepatic inferior vena cava (IVC) thrombus extension and underwent IVC thrombectomy along with Radical Nephrectomy (RN). Three patients were not operated for advanced RCC, out of which one patient had bilateral RCC with von Hipple Lindau disease and refused further treatment. Other two patients had Nevus level–IV suprahepatic IVC thrombus, one of them succumbed due to tumor lysis syndrome and the other patient refused to undergo surgery. In all the above three cases diagnosis of RCC was confirmed by fine needle aspiration cytology. (Table 2)

Histopathologically, 86% of the patients had clear cell type of RCC, with Fuhrman Grade 2 being the most common. Eighty-four percent of the patients had tumor confined to the kidney i.e. T1-2 stage. (Table 3)

Only forty (80%) patients were on regular follow up (range: 6 – 66 months), out of which 37 (92.5%) has recurrence free survival and 3 (7.5%) patients had RCC related mortality.

DISCUSSION

The peak incidence of RCC in this study was in the fourth and fifth decades of life, in contrast to other studies in the

Table 3. Histopathologic features (n = 50).

Characteristics	No. of patients (%)
Type	
Clear cell	41 (82)
Multilocular Cystic Clear cell	2 (4)
Papillary	7 (14)
Fuhrmans Grade	
1	7 (14)
2	25 (50)
3	14 (28)
4	4 (8)
Necrosis	
Present	20 (40)
Absent	30 (60)
Sarcomatoid Changes	
Present	8 (16)
Absent	42 (84)
T Stage	
1a	6 (12)
1b	20 (40)
2a	11 (22)
2b	5 (10)
3a	2 (4)
3b	3 (6)
3c	2 (4)
4	1 (2)
N Stage	
0	45 (90)
1	5 (10)
M Stage	
0	47 (94)
1	3 (6)
Tumor spread	
Organ confined (T1-2 N0 M0)	38 (76)
Locally advanced (T3-4 N0 M0)	6 (12)
Metastatic (Tany N+ M0 or Tany N0 M+)	6 (12)

western world, where the majority of cases were in their sixth and seventh decades. This could be because of the wide application of ultrasonography as screening tests in older age and prolonged life expectancy. Patard et al also reported an increase in the mean age at diagnosis from 63 years in 1984 - 1992 to 65 years in 1998 - 2003.[16] In our study, the mean age at diagnosis was 55 years which is similar to the finding of choi et al and Pradhan et al.[17,18]

The incidence of incidental RCC ranged from 15 to 61% and recently reported to be as high as 72.7% from South korea.[17,19] Such a wide range of incidence in the literature could be related to differences in definition of incidental detection in various studies, as well as the referral pattern and health screening policies of different countries. Apparently, most of the major series included asymptomatic patients and patients with non-specific symptoms into the incidental detection group. Using same criteria, the present series showed an incidence of 40% which is similar to the finding of Siow WY et al.[19] All cases of incidental RCC was detected by ultrasonography in our study. As we found that in Nepalese population RCC occurred more in middle aged patients and has incidental detection. Therefore, liberal use of ultrasound abdomen will definitely help in early detection of the tumor.

Varicocele is often a late sign of RCC, carrying a very poor prognosis.[20] In the present study left side varicocele was found in only one (2%) patient having metastatic RCC with Nevus level II IVC thrombus.

The controversy of radical versus partial nephrectomy continues and the later treatment option is supported by the fact that 50% of the tumors are situated at either pole in our series. Prevalence of metastasis is reportedly higher, while cancer specific and disease free survival is lower with increasing size of tumor at presentation.[21] In our study, 86% had tumor size > 4cm with mean of 7.3 ± 2.9 cm and as frozen section facilities are not available in our center. Hence that limits our partial or nephron sparing surgery and justifies radical nephrectomy.

Histologically, the highest proportion of tumors was of the clear cell type (86%) and other was papillary subtype. Indian study by Pradhan et al also showed clear cell RCC to be the most common adult renal tumor in 74.8% cases.[18] Other subtypes like chromophobe and collecting duct were not detected in our series; it may be due to small case series. Fuhrman nuclear grade 2 is the most common which is similar to other studies.[16,18,19]

As our study was retrospective and a single-center experience, there were limitations in representing all aspects of RCC. It would be too early to state the different modes of presentation and pathological sub types. In future, multicentric study is needed to analyze the characteristics of RCC in Nepal.

CONCLUSION

Many of the renal cell carcinoma are detected incidentally, at an early stage and are of clear cell subtype. The age of presentation is one decade earlier than western population.

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