

Clinicopathological study of adult malignant renal tumours in Kashmir

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ABSTRACT:

A wide variety of both benign and Malignant tumours arise from different components of the renal parenchyma, notably tubular epithelium[1-4]. Renal tumours comprise a diverse spectrum of neoplastic lesions with patterns that are relatively distinct for children and adults[1-4].

A wide variety of both benign and Malignant tumours arise from different components of the renal parenchyma, notably tubular epithelium[1-4]. Renal tumours comprise a diverse spectrum of neoplastic lesions with patterns that are relatively distinct for children and adults[1-4]. Worldwide, renal tumor is the 13th most common malignancy[5]. 99 percent of renal neoplasms are malignant, with renal cell carcinoma and Wilm's tumor being the most common [6].

More than 90% of renal tumors are renal cell carcinomas (RCC) and the incidence continues to increase.[7,8]

Renal cell carcinoma accounts for approximately 2 percent of adult malignancies and 80-85 percent of malignant kidney tumors.[9] Renal cell carcinoma occurs twice as commonly in men than in women, it is primarily a disease of elderly patients, typically presenting in the fifth to seventh decades of life; however, it has been reported in much younger patients as well.[10].

Cigarette smoking is considered to be the most common cause while many other causes have also been reported.[11,12].

The most frequent presentation is haematuria followed by flank pain and a palpable mass on clinical examination.[13]. 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.[14-16] 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.[17]

Radical or partial nephrectomy is the treatment of choice for a great proportion of patients with renal tumors.[18].

The objective of study was to analyze the patterns of RCC at a

tertiary level hospital in Kashmir highlighting the patients' demography, clinical presentation, diagnostic evaluation and pathological finding.

MATERIALS AND METHODS

The present study was conducted in the Department of Pathology in collaboration with the Department of Surgery, Government Medical College, Srinagar, and included all nephrectomies done for malignant renal tumors received in the department over a period of five years (March 2011 to, Feb 2016).

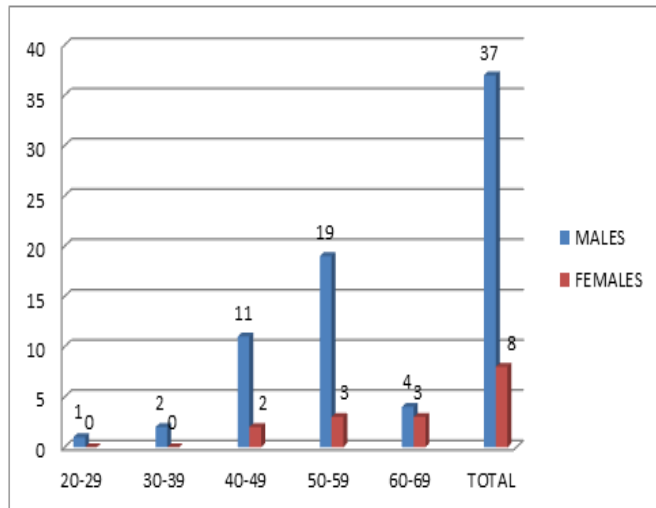
For this study, the cases of renal tumors were searched from records maintained in the department of Pathology at GMC Srinagar. The histopathological reports of all such cases diagnosed during the above mentioned period, were collected. The required clinical details were sought from the medical records department. Name, age, parentage, address, and MRD number and Lab number of patients was checked in the record section of the Department. The nephrectomy specimens for renal tumors received by the department of pathology after proper labeling were subjected to gross and detailed histopathological examination. The specimens were fixed in 10% buffered formalin. After the gross examination of the specimens a minimum of four sections were taken from the tumor. Sections were taken from Pelvis, ureter, renal vessels, capsule and lymph nodes if present.

The tissue was processed as per standard procedure. 4-5 micron sections were cut on microtome and stained by Haematoxylin and eosin stain and special stain like PAS was done where required. All the cases of malignant renal tumors were included. Benign tumors and patients less than 12 years were excluded from the study.

RESULTS

A total of 45 patients were diagnosed to have RCC in the past 5 years. In our study, males constituted 88.22 percent (37 cases) and females, 17.77 per cent (8 cases), of 45 patients who underwent nephrectomy; hence, the male to female ratio was 4.6:1. The age ranged between 28-69 years with mean age of 53.045 years. The highest percentage of patients belonged to the age group of 50-59 years followed by 40-49 years (FIG 1

Fig 1 showing Age and Sex distribution of renal carcinomas.



Renal cell carcinoma was incidentally diagnosed by ultrasonography in 31% cases and rest 69% were symptomatic. The classical triad of flank pain, gross hematuria, and palpable abdominal mass was present in only 11% patients. Mean duration of symptom was 3.5 (0 – 24) months. (Table 1)

Table 1. Clinical presentation of patients (N=45)

Presenting symptoms	Number of patients	%age
Pain abdomen	11	24.44
Hematuria	8	17.77
Pain and mass	3	6.66
Pain and hematuria	4	8.88
Triad	5	11.11
Incidental	14	31.11
Total	45	

Out of total 45 patients 62.22% had history of smoking and rest 38% were non smokers. (fig 2)

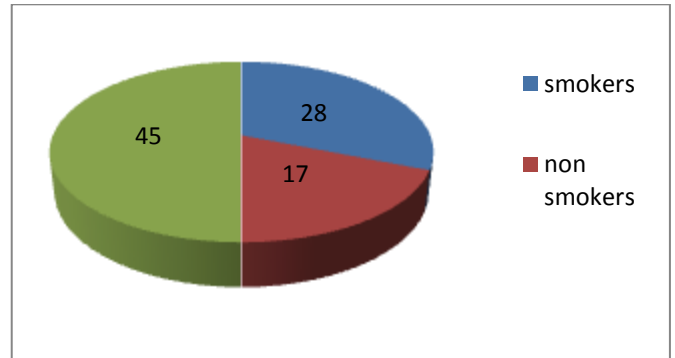


Fig 2

In present study among 45 patients left kidney(53.33%) was involved more than right(46.66%).(fig 3)

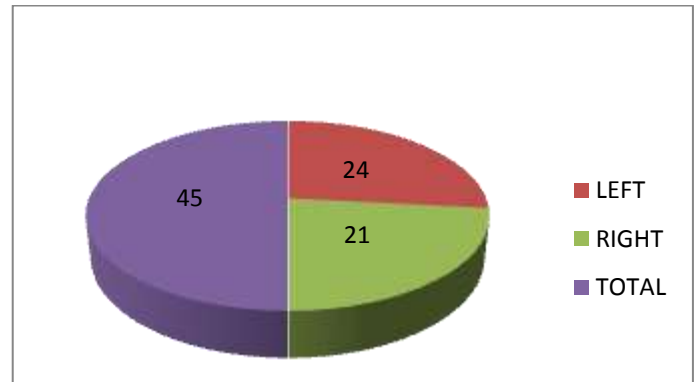


Fig 3

The tumor was occupying upper pole in 37.77 of cases followed by lower pole 33.77% and whole kidney was occupied by 28.88% of cases. C

Table 2 location of tumor (N=45)

Tumor location	Number	%age
Upper pole	17	37.77
Lower pole	15	33.33
Whole kidney	13	28.88
Total	45	

The size of tumor ranged from 3 to 12cms (mean size 7.2cms).(Table 3).

Table 3 Size of tumor (N=45)

Size	Number	%age
<5cms	11	24.44
5-10cms	26	57.77
>10cms	8	17.77
Total	45	

Histopathologically, 91% of the patients had clear cell type of RCC, with Fuhrman Grade 2 being the most common seen in 44.44% of renal cell carcinoma. Papillary renal cell carcinoma was seen in 6.66% of patients and only one case of chromophobe renal cell carcinoma was seen among 45 patients.

Table 4 Histopathological types of renal cell carcinomas (N=45)

Histological type	Number	%age
Clear cell renal carcinoma	41	91
Papillary renal cell carcinoma	3	6.66
Chromophobe renal carcinoma	1	2.22
Fuhrman's nuclear grade		
Grade I	11	24.44
Grade II	20	44.44
Grade III	8	17.77
Grade IV	6	13.33
Total	45	

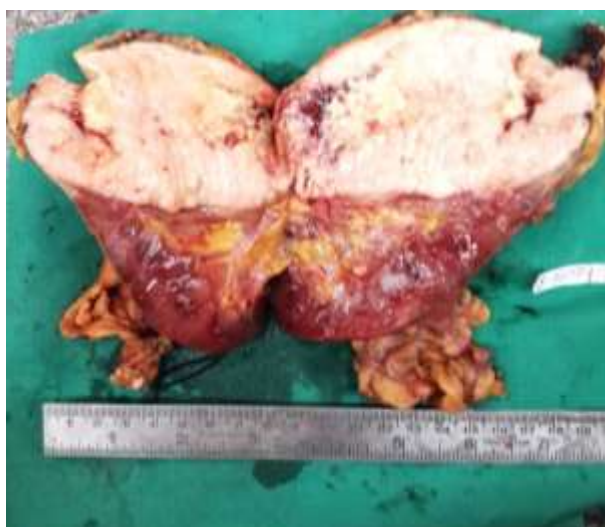


Fig 4 Macroscopic morphology of Clear cell renal carcinoma showing variegated appearance with solid cystic and haemorrhagic areas.

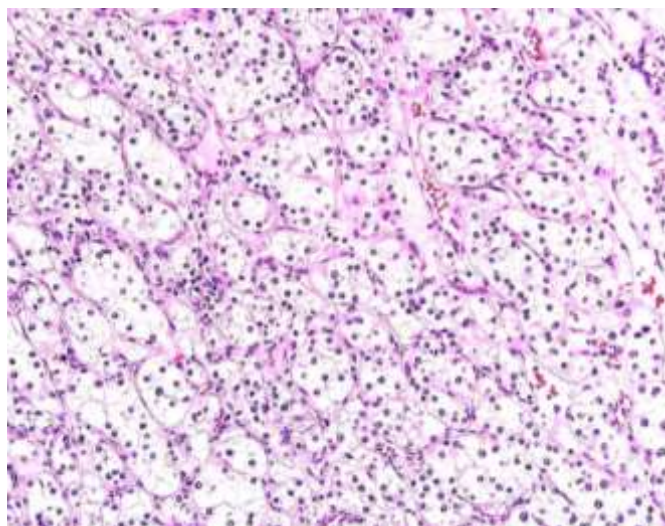


Fig 5 Microscopic picture of same tumor showing clear cells. (200X H&E stain).



Fig 6 Macroscopic morphology of Papillary renal cell carcinoma having solid cut surface.

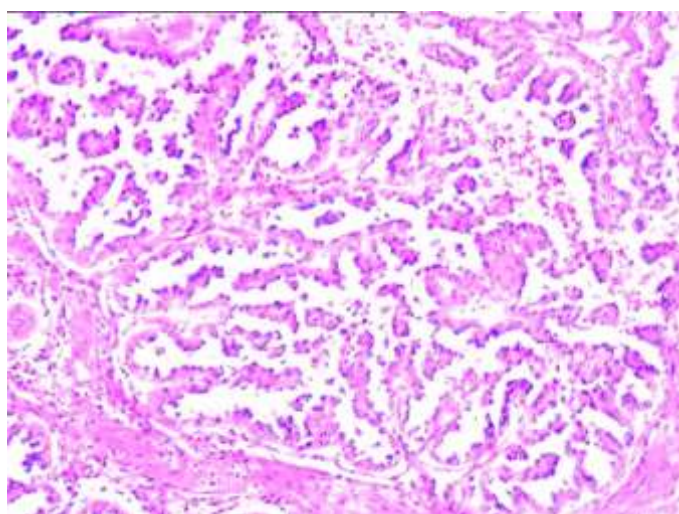


Fig 7 Microscopic picture of same tumor showing papillae with fibrovascular cores. (100X H&E stain)

DISCUSSION;

In present study of 45 cases M:F ratio in our study was 4.6:1. Male preponderance was also noted in studies by Latif et al [19] and Hashmi et al [20]. The peak incidence of RCC in this study was in the fourth and fifth decades of life, in contrast to other studies in the 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[21].

In our study, the mean age at diagnosis was 53.045 years which is similar to the finding of Choi et al and Pradhan et al.[22,23]. Renal cell

carcinoma usually presents with a classical triad of flank pain, hematuria and abdominal lump. In our study, classical triad was noted in 11.11% cases which was slightly higher than 4% as observed by Siddharth et al [24] and similar to 10.67% observed by Anitha Padmanabhan et al [25]. In our study majority 31.11% cases of renal cell carcinoma were diagnosed incidentally. The incidence of incidental RCC ranged from 15 to 61% and recently reported to be as high as 72.7% from South Korea.[22,26]. 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 31% which is comparable to the finding of Siow WY et al [26]. In our study upper pole was involved by 37.77%, 33.3% cases involved lower pole, and 28.88% involved whole kidney. This was similar to the observations made by V Popat et al [27]. In our study majority of the cases involved left kidney 53.8% and right kidney was involved in 46.1% cases. This was similar to observation made by TA Badmus et al [28] who found majority of cases involving left kidney.

Right kidney was involved more than left in studies done by Anitha Padmanabhan et al [25], Siddharth et al [24] and Freitas AMS et al [29]. In our study majority of cases tumor size was in the range of 4-10cms with mean size of 7.23cms which was comparable to other studies by Latif et al [19] and Siddharth et al [24]. Histologically, the highest proportion of tumors was of the clear cell type 91% and other was papillary subtype 6.66% which is comparable to many other studies. Pradhan et al also showed clear cell RCC to be the most common adult renal tumor in 74.8% cases.[23]. Mohammad Rafique also observed that majority of malignant neoplasms 97% of the kidney were renal cell carcinoma [30]. Furhman nuclear grade was applied only to clear cell RCC and tumors were grouped from grade I to grade IV. Majority of our tumors were in Grade II 44.44 and a similar trend was observed by Latif et al [19] and Hashmi et al [20].

CONCLUSION. Renal cell carcinoma is most common malignant tumor of kidney in adults. The relative incidence of sub-types of renal cell carcinoma is relatively consistent the world over. 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. It is mandatory for every nephrectomy specimen to be subjected to a details of histopathological examination for a

clinico-morphological correlation to ensure proper management.

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