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Research Article

CLINICO-PATHOLOGIC STUDY OF ADULT RENAL TUMOURS IN A TERTIARY CARE HOSPITAL OF SOUTHERN INDIA

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Abstract- Background: RCC accounts for 2% to 3% of all malignant adult neoplasms and is associated with a mortality of 30 to 40%. Data relating to distribution and pathologic characteristics of renal tumours are limited in our country; therefore, we tried to look into the histopathologic characteristics of renal tumours in our population.
Methods: The study was prospective and retrospective in nature and materials for the study comprised of all the consecutive kidney tumour specimens received in the Department of Pathology of Father Muller Medical College Hospital, Mangalore, Karnataka, between Jan 2011 and April 2014. Altogether, 45 cases were studied.
Result: Of the 45 cases studied, 69% were males. Male: female ratio of renal tumours in our study was 2.21: 1. Most common age group affected in our study was 51 to 70 years. 57.7 % of cases belonged to this group. Most of the renal tumours were arising from left kidney in our study (55%). Mean size of tumour in our study was 6.25 cm. 11% of tumours were benign and the rest were malignant. Most common renal tumours in our study were Clear cell or the conventional renal cell carcinoma. 24 of 45 cases were clear cell (53.3% of all cases were clear cell type).
Conclusion: There is a predominant male distribution of renal tumours in our study. Most of the renal tumours were malignant. The mean age at presentation of renal tumours was lesser in our population as compared to western data. Most common renal tumour in our study was Clear Cell Carcinoma.

Keywords- Kidney tumours, Renal neoplasms, Adult renal tumours.

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Introduction

RCC accounts for 2% to 3% of all malignant adult neoplasms and is associated with a mortality of 30 to 40%. RCC is a highly aggressive tumour and the most lethal of all Urologic malignancies. With increasing use of imaging techniques in the evaluation of nonspecific abdominal complaints, currently more than 70% of RCC cases are diagnosed incidentally. There is a paucity of data regarding the clinical presentation of adult renal tumours and character of renal tumours in this part of the world. The aim of our study is to describe the clinical characters and histopathological types of adult renal tumours.

Materials and Methods

This study was conducted for a period of 3.5 years from January 2011 to April 2014 at the Department of Pathology, Father Muller Medical College, Mangalore. It was approved by the institution ethical and research committee. A total of 45 cases of adult renal tumours of patients above the age of 18 years were included. The clinical data were collected from the records and analysed. Sections from formalin fixed, paraffin embedded tissue sections were stained with hematoxylin and eosin stain. All the sections were examined in detail for histomorphological features. The World Health Organization (WHO) classification and Fuhrman nuclear grading [1] was used.

Results and Discussion

A total of 45 cases were studied in which male predominance was noted with 69% males and 31% females. Male: female ratio was 2.21:1. Most common age group affected was 51 to 70 years with the mean age being 55.64 years. 57.7% of the cases belonged to this age group. Flank pain was the presenting complaint in 50% cases followed by Heamaturia and mass per abdomen.
Left kidney was involved in 55% of the cases. 38% of the cases had tumour size between 4-7 cm. 31% of cases had tumour size greater than 7cm.
Malignant tumours accounted for 89% of the total cases. Most common histologic types of renal cell carcinoma (RCC) was clear cell RCC which accounted for 53.3% of total cases. This was followed by papillary RCC (16%). Fuhrman nuclear grade 2 was observed in 82% of the cases.
We found that most patients with renal tumour had A+ blood group followed by O+ and B+. The significance of this finding is not clear. Refer ([Tables 1 and 2] below):

Discussion: Renal carcinomas accounts for approximately 3% of adult malignancies. They usually affect the older age group. The mean age of presentation in our study was 55.6 years. SEER database [2], Singhamet al [3] and Hashmi et al [4] found that the mean age of adult renal tumour in their study

was 64, 57.1 and 56.3 years respectively. The presentation of renal tumours in our study was earlier as compared to other studies. The reason for this observation is not clear. The cause of this is probably because of the global trend of renal tumours to present early or due to availability of better imaging modalities, which diagnose tumours early.

Table-1 *Clinical characteristics*

Clinical characteristics	N=45(100%)
Age	
31-40yrs	06(13%)
41-50yrs	10(22%)
51-60yrs	13(28%)
61-70yrs	13(28%)
71-80yrs	01(02%)
81-90yrs	02(04%)
Male:Female ratio	2.21:1
Symptoms	
Flank pain	29(50%)
Hematuria	07(12%)
Mass per abdomen	06(10%)
Classic triad	01(02%)
Others	15(33%)
Size of tumour	
< 4 cm	14(31%)
4-7cm	17(38%)
>7cm	14(31%)

RCC are known to have a male predominance as shown in studies by Woldrich et al [5], SEER data base[2] and Hashmi et al [4]. In our study the males were affected two times more as compared to females. Only a Nigerian study by Tijani et al [6] found a female preponderance of renal tumours.

Table-2 *Histopathological characteristics*

Histopathologic features	N=45(100%)
Benign	05 (11%)
Malignant	40(89%)
Histologic type	
Clear Cell	24(53%)
Papillary	07(16%)
Chromophobe	03(07%)
Multilocular	3(07%)
Oncocytoma	2(05%)
Angiomyolipoma	1(02%)
Squamous Cell	1(02%)
Sarcomatoid	1(02%)
Metastatic	1(02%)
Cystic Nephroma	1(02%)
MEST	1(02%)
Fuhrman nuclear grade	
Grade 1	04(12%)
Grade 2	28(82%)
Grade 3	02(04%)

The most common mode of presentation in our study was flanked pain followed by heamaturia and mass per abdomen. The classic triad was seen only in one case. Narapureddy et al [14] found that most common presentation was hematuria (64.7%), followed by flank pain (54.1%). The classical triad of heamaturia, flank pain and abdominal mass was seen in 16.5% (20) of cases in their study. Tijani et al [6] found that clinical presentation included heamaturia in 26 patients (40.6%), loin pain in 55 (86%), a palpable abdominal mass in 58 (90.6%) and the triad consisting of heamaturia, flank pain and palpable mass in 23 (36%) patients. Heamaturia was the symptom at presentation in 16 patients (25%). Of all the cases, 1 patient (1.6%) was asymptomatic and had the tumour detected during abdominal imaging for unrelated symptoms. Badmuset al [10] found that symptoms included flank pain in 17 (94.4%), mass per abdomen in 15 (83.3%), weight loss in 13 (72.2%), heamaturia in nine (50.0%), fever in two patients (11.1%), generalized body weakness in two patients (11.1%) and one patient (5.5%) each had mucous diarrhoea and urinary frequency. Sidharth et al [11] found that 40% cases were incidentally detected. Flank Pain in 28% heamaturia in 16%, pain and mass in 4%, pain and heamaturia in 8% and triad in 4% cases.

Mean size of tumour in our study was 6.25 cm. Largest tumour in our study was 14 cm and the smallest was 2.5 cm. Singham et al[3] study had a renal tumour of mean size 8.12 cm. Hashmi et al[4] study had found that mean tumour size was 7.25 cm.

Benign tumours of the kidney are less common as compared to the malignant ones. In our study malignant tumours constituted eighty nine percent, which is comparable to other studies by Latif et al [7], Reddy et al [8] and Hashmi et al [4] which had malignant tumours comprising of 94%, 93.8% and 98.4% respectively.

Clear cell RCC was the most common histologic type of RCC in our study followed by papillary RCC. In a study by Singham et al [3], the most common renal tumour was the clear cell type, which accounted for 75.1% of cases. This was followed by Urothelial Cell Carcinoma (14%), Nephroblastoma (3%) and Sarcomatoid RCC (3%). In a study by Hashmi et al [4], the most common renal tumour was clear cell carcinoma. Latif et al [7] found that approximately 75% of cases with renal tumours were clear cell carcinoma. In a study by Thompson et al [9], the most common renal tumour was clear cell RCC. This was followed by papillary carcinoma and chromophobe tumours. Clear cell and papillary carcinoma accounted for 33% and 11% of renal tumours in a study by Badmus et al. al [10]. Tijani et al [6] found that 60% of renal tumours were clear cell in his study. Chromophobe adenoma was seen in 27% cases. In a study of 50 cases by Sidharth et al [11], clear cell accounted for 82% cases and papillary for 14% cases.

We also tried to look into the association between blood group and renal tumours. Most common blood group observed was A+. Significance of blood group has been examined by Joha et al [12]. The authors found no significant association between non-O blood group and increased risk of RCC in the cohorts, and this association was significant in women. Blood group has also been linked with prognosis of tumours. Kaffenberger et al [13] concluded non-O blood type was significantly associated with decreased overall survival. But our study, however did not look into this aspect.

Nuclear grade 2 was the most common. Sidharth et al [11] study had 50 % cases with nuclear grade 2.

Conclusion:

We found that most of the adult renal tumours are malignant with clear cell RCC and nuclear grade 2 being the commonest histologic type. Male predominance is seen. However, the age group affected is younger as compared to western data. Mean age of patients with renal tumours in our study was 55.64 years.

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