

## PATTERN OF RENAL CELL CARCINOMA IN KHYBER PUKHTUNKHWA

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### ABSTRACT

**Objectives:** To observe the common patterns of renal cell carcinoma in patients presenting with renal mass at the Institute of Kidney Diseases Hayatabad, Peshawar.

**Material and Methods:** 32 consecutive patients with renal tumours presenting at the Institute of Kidney Diseases Hayatabad Peshawar between June 2008 to June 2010 were enrolled and evaluated by history, examination, urine analysis, Complete Blood Count (CBC), ultrasound and CT-scan abdomen and pelvis. SPSS version 11.0 was used for the data entry and analysis.

**Results:** Out of 32 patients, 24 (75%) were male and 8 (25%) female. The age ranged between 18-76 years (Mean age = 50 years). Ten (31.2%) patients were smokers. The presenting complaints were flank pain, haematuria and palpable mass in 30 (93.8%), 24 (75%) and 18 (56.3%) cases respectively. The typical triad was present in 50% of cases. The tumour was occupying upper, middle and lower pole in 4 (12.5%), 4 (12.5%) and 6 (18.6%) cases respectively. The rest were involving upper middle pole or lower middle pole in 18 (56.3%) cases. In 14 (43.6%) cases the tumour was solid. The tumour size ranged from 3-20 cm (Mean = 7.4 cm). At presentation, tumor were T1a in 31.34%, T1b in 25%, T2 in 18.6%, T3 in 12.5% and T4 in 12.5% of patients. One patient needed right sided chest intubation due to pleural injury while two patients had wound infection which was controlled with wound opening, drainage and oral antibiotics.

**Conclusion:** Renal cell carcinoma is a lethal tumour. Hence treatment guidelines of international standards need to be developed locally.

**Key words:** Renal cell carcinoma, radical, nephrectomy.

### INTRODUCTION

More than 90% of renal tumors are renal cell carcinomas.<sup>1</sup> Cigarette smoking is considered to be the most common cause while many other causes have also been reported.<sup>2-4</sup> The commonest age at presentation ranges from 60-70 years and is more common in males than in females.<sup>5-7</sup> The most frequent presentation is haematuria, flank pain and a palpable mass on clinical examination.<sup>8</sup> The classical triad of symptoms is present in only limited number of cases. Majority of the lesions are now detected incidentally by an ultrasound with high resolution probes<sup>9-11</sup>. More and more incidental renal masses are now being detected challenging clinicians for their management to avoid radical nephrectomy as an over treatment for a benign lesion.<sup>12</sup> For accurate diagnosis of renal tumor MRI is the investigation of choice. Any solid mass in the kidney should be considered as malignant until proven otherwise. The role of a tru-cut biopsy is controversial yet has its

justifications, the most common indications being mass in a solitary functioning kidney, mass on both sides and renal mass in a patient with chronic renal failure. Fine needle aspiration may have a role in cases where mass is cystic. Size is also one of the most important indications of renal biopsy.<sup>12,13</sup> Size is directly proportional to the stage and prognosis. Prognosis also has a strong relationship with the T stage at presentation and Furhman grade. Radio therapy, chemotherapy, immunotherapy and tyrosine kinase inhibitors have all been used for patients with metastatic disease but there curative role has to be proven by larger randomised control trials.<sup>14</sup> The purpose of this study was to note the common patterns of renal cell carcinoma in Khyber Pukhtoon Khwah highlighting the epidemiology, clinical presentation and diagnostic evaluation.

### MATERIAL AND METHODS

This observational study (case series) was conducted at the Institute of Kidney Diseases Peshawar from 1<sup>st</sup> June 2008 to 1<sup>st</sup> June 2010. We got approval from the local hospital ethical committee and written informed consent from the patients. The inclusion criteria were adult patients presenting with haematuria, flank pain or mass palpable in flank and evidence of

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mass in kidney on radiological evaluation. The exclusion criteria were, patients above 80 years of age, patients with chronic renal failure or those with some other malignancy already diagnosed. Thus we included 32 consecutive adult male and female patients, presenting at the out patient department with renal tumours. All the patients were evaluated by history, clinical examination and relevant investigations such as urinalysis, complete blood count (CBC), renal function tests, X-ray chest, ultrasound abdomen and pelvis and CT scan abdomen and pelvis with and without contrast. After evaluation each patient was subjected to surgical treatment (Radical nephrectomy) and tissue was sent for histopathology. All the above information was noted in a proforma and the data was analyzed using computer software SPSS version 11.

## RESULTS

A total of 32 patients were included in the study. Out of these 24 (75%) were male and 08 (25%) female with male: female ratio of 3:1. The age ranged between 18-76 years (Mean age = 50 years). Ten (31.2%) of the patients were smokers. The hemoglobin ranged from 7.0-15.1 Gm/dl (Mean Hb = 10.9 Gm/dl). The presenting complaints were flank pain, haematuria and palpable mass in 30 (93.8%), 24 (75%) and 18 (56.3%) cases respectively. The typical triad was present in one half of cases. All patients had a normal chest X-ray. On ultrasonography the tumour was present on left side in 20 (62.5%) cases and on right side in 12 (37.5%) cases. The tumour was occupying upper, middle and lower pole in 4 (12.5%), 4 (12.5%) and 6 (18.6%) cases respectively. Tumour was also occupying the upper-middle pole and middle-lower pole in 18 (56.3%). Fourteen (43.6%) and 18 (56.3%) tumours were solid and mixed (Solid-Cystic) in consistency respectively. Ten (31.3%) cases were having lymph node enlargement on CT-scan and 2 (6.3%) had renal vein extension (Thrombus). The tumour size, on CT-scan, ranged from 3-20 cm (Mean = 7.4 cm). 10 (31.3%) tumours were T1a at presentation, 25% T1b, 18.6% T2, 12.5% T3 and 12.5% T4. In one patient the tumour was irresectable while others underwent radical nephrectomy. One patient needed right sided chest intubation due to pleural injury while 2 had wound infection which was controlled with wound opening, drainage and antibiotics.

## DISCUSSION

Renal cell carcinoma is a disease of the elderly; male population is affected more than females. In our study the male to female ratio was 3:1 with a mean age of 50 years which is slightly lower than that in the study by Karakiewicz et al.<sup>15</sup> Majority of our patients belonged to elderly population with more than half of the patients having age > 50 years. Majority of our patients were anemic. 68.8% of the cases were having

a hemoglobin (Hb) level below 12 Gm/dl. This is supported by the evidence of anemia observed in a study by Ramsey et al in UK where 77.1% of the cases were found to have an Hb below 12 Gm/dl.<sup>16</sup>

We observed that nearly half of the patients were having a solid mass and about 1/3<sup>rd</sup> had mass in the polar region and yet they underwent radical nephrectomy. According to Touijer et al, radical nephrectomy makes the patient prone to develop chronic renal failure and thus young, male patients having small cortical tumours should undergo partial nephrectomy rather than radical nephrectomy.<sup>17</sup>

The controversy of radical versus partial nephrectomy continues and the later treatment option is supported by the fact that about 1/3<sup>rd</sup> of the tumours in our study were < 4 cm in size. Malcolm et al supported partial nephrectomy/nephron sparing surgery (NSS) for smaller tumours but their study showed 14.4% of the masses to be benign and also showed no major survival benefit of radical nephrectomy<sup>18</sup> while our study confirmed all of them to be renal cell carcinoma and justifies radical nephrectomy. Radical nephrectomy in our series is defensible in that Tariq S et al also concluded that larger tumours have poorer prognosis<sup>19</sup> and majority of our cases were having tumours more than 4 cm in greatest dimension.

In contrast the observations of Amanullah et al showed the classical triad of symptoms to be present in only 4% of the cases.<sup>20</sup> A study conducted at the Armed Forces Institute of Urology Rawalpindi (AFIU) and Combined Military Hospital (CMH) Kharian showed that haematuria and flank pain were the most common forms of presentation<sup>21</sup> and these findings are almost similar to our observations.

Abdul Rahim Khan et al, at Pakistan Institute of Medical Sciences (PIMS) Islamabad, published a series of 30 patients with renal cell carcinoma and noted venous extension of the tumour in 4 cases.<sup>22</sup> In our study out of 32 cases we found 2 cases of venous extension.

A study conducted in Lahore by Amanullah et al showed stage I to be the most common stage at presentation<sup>23</sup> and this is exactly the case in our study where more than half of the cases are of stage I at presentation. The rates of immediate postoperative complications of radical nephrectomy were quite acceptable in our study with only 2 patients developing wound infection which was controlled by minimal manipulation whereas 2 cases of splenic injury and one case of pancreatic injury was noted in a series by Yao et al.<sup>24</sup> One patient's tumour was irresectable as it was very huge right sided tumour and was badly adherent to liver and psoas muscle.

## CONCLUSION

Renal cell carcinoma is a common urological malignancy found in elderly males who are or have been smokers. Clear cut guidelines should be developed locally to improve the outcome of its management by standardizing these guidelines with the international ones.

## REFERENCES

1. Jemal A, Siegel R, Ward E, Murray T, Xu J, Thun MJ. Cancer statistics, 2007. *CA Cancer J Clin* 2007; 57: 43-66.
2. Gallus S, Schiaffino A, La Vecchia C, Townsend J, Fernandez E. Price and cigarette consumption in Europe. *Tob Control* 2006; 15: 114-19.
3. Hu J, Ugnat AM. Active and passive smoking and risk of renal cell carcinoma in Canada. *Eur J Cancer* 2005; 41: 770-78.
4. Hunt JD, Van der OL, McMillan GP, Boffeta P, Brennan P. Renal cell carcinoma in relation to cigarette smoking: meta-analysis of 24 studies. *Int J Cancer* 2005; 114: 101-08.
5. Ferlay J, Autier P, Boniol M, Heanue M, Colombet M, Boyle P. Estimates of the cancer incidence and mortality in Europe in 2006. *Ann Oncol* 2007; 18: 581-92.
6. Jemal A, Siegel R, Ward E, Murray T, Xu J, Smigal C, Thun MJ. Cancer statistics 2006. *CA Cancer J Clin* 2006; 56: 106-30.
7. Ljungberg B, Hanbury DC, Kuczyk MA, Merseburger AS, Mulders PF, Patard JJ et al. Renal cell carcinoma guideline. *Eur Urol* 2007; 51: 1502-10.
8. Gibbons RP, Monte JE, Correa RJ Jr, Mason JT. Manifestations of renal cell carcinoma. *Urology* 1976; 8: 201-06.
9. Chow WH, Devesa SS, Warren JL, Fraumeni JF. Rising incidence of renal cell carcinoma in the United States. *JAMA* 1999; 281: 1628-31.
10. Hock LM, Lynch J, Balaji KC. Increasing incidence of all stages of kidney cancer in the last 2 decades in the United States: an analysis of surveillance, epidemiology and end results program data. *J Urol* 2002; 167: 57-60.
11. Jayson M, Sanders H. Increased incidence of serendipitously discovered renal cell carcinoma. *Urology* 1998; 51: 203-05.
12. Frank I, Blute ML, Chevillie JC, Lohse CM, Weaver AL, Zinke H. Solid renal tumours: an analysis of pathological features related to tumour size. *J Urol* 2003; 170: 2217-20.
13. Van Poppel H. Partial nephrectomy: the standard approach for small renal cell carcinoma? *Curr Opin Urol* 2003; 13: 431-32.
14. Escudier B, Eisen T, Stadler WM, Szczylik C, Oudard S, Siebels M et al. Sorafenib in advanced clear-cell renal-cell carcinoma. *N Engl J Med* 2007; 356: 125-34.
15. Karakiewicz PI, Suardi N, Capitanio U, Jeldres C, Ficarra V, Cindolo L et al. A preoperative prognostic model for patients treated with nephrectomy for renal cell carcinoma. *Eur Urol* 2009; 55: 287-95.
16. Ramsey S, Lamb G W.A, Aitchison M, McMillan DC. Prospective study of the relationship between the systemic inflammatory response, prognostic scoring systems and relapse-free and cancer-specific survival in patients undergoing potentially curative resection for renal cancer. *BJU Int* 2008; 101: 959-63.
17. Touijer K, Jacqmin D, Kavoussi LR, Montorsi F, Patard JJ, Rogers CG et al. The expanding role of partial nephrectomy: a critical analysis of indications, results, and complications. *Eur Urol* 2010; 57: 214-22.
18. Malcolm JB, Bagrodia A, Derweesh IH, Mehrazin R, DiBlasio CJ, Wake RW et al. Comparison of rates and risk for developing chronic renal insufficiency, proteinuria and metabolic acidosis after radical or partial nephrectomy. *BJU Int* 2009; 104: 476-81.
19. Tariq S, Ahmed R, Butt WT, Ali TS, Butt MU, Bukhari MH, Munir M. Renal cell carcinomas: Correlation of size with tumor grade and extracapsular extension. *Pak J Med Health Sci* 2007; 1: 143-45.
20. Amanullah, Saleem MA, Khan JH, Khan FA. Clinical presentation of renal cell carcinoma. *Biomedica* 1999; 15: 9-11.
21. Mehmood A, Shah SS, Burney R. Presentation and evaluation of renal masses. *Pak Armed Forces Med J* 2008; 58: 31-35.
22. Khan AR, Anwar K, Fatima N, Khan SF. Comparison of CT scan and colour flow Doppler ultrasound in detecting venous tumour thrombus in renal cell carcinoma. *J Ayub Med Coll Abbottabad* 2008; 20: 47-50.
23. Amanullah, Saleem MA, Khan I, Qadri MW, Khan FA. Incidental detection of renal cell carcinoma. *Ann King Edward Med Coll* 1999; 5: 196-98.
24. Yao XD, Ye DW, Zhang SL, Dai B, Zhang HL, Shen YJ et al. Experiences of open transperitoneal radical nephrectomy for large renal masses. *Zhonghua Yi Xue Za Zhi* 2010; 90:1117-19.