Renal Cell Carcinoma: a Clinico-Pathological Characteristics and Evaluation of Twenty Four Patients


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Aim of the Work: To evaluate survival of patients with renal cell carcinoma postoperatively and the age of discovery.

Materials and Methods: 24 patients were retrospectively included in our study during the last 3 years (2005-2007). The full history including age, sex, geographic distribution, special habits, exposure to carcinogens & renal disease was assessed for all cases. Clinical examination was performed followed by laboratory and radiological evaluations & CT scan. Midline transperitoneal incision was done in 16 cases, thoraco–abdominal approach in 2 cases because of large upper pole renal mass and a classic flank incision with rib resection in 4 cases. Radical nephrectomy was done in all cases except enucleation of a small renal mass less than 4cm in diameter was done for one case. All cases were localized at the time of presentation.

Results: All cases showed unilateral renal mass except one patient who had an asynchronous bilateral renal mass. The mean age was 48 years with 10 patients below 45 years. The male to female ratio was 2:1. laterality was equal between right & left sides while the lower pole was affected in 20 cases (83.4%) the upper pole in 4 other cases (16.6%). The presenting symptoms were dull ache in 8 cases (33.3%) with presentation of gross haematuria in 6 cases (25%) and having a palpable flank mass in 6 of them (25%). However two cases were presenting with paraneoplastic syndrome. Laboratory investigations done were normal apart from the 2 cases of paraneoplastic syndrome. The follow up, done every 3 month in the 1st year and every 6 months in the 2nd year where, 16 cases (66.7%) showed good prognosis for 2 years disease free survival. The other 8 cases showed local recurrence and one of them developed neoccurrence in the contra lateral side 6 months after surgery and died one year later. The Histopathological diagnosis was renal cell carcinoma: 18 conventional RCC, 4 cases were papillary renal cell carcinoma and 2 cases were chromophobe RCC.

Conclusion: Renal cell carcinoma occurred in young age group in 41.9% of our patients (below 45 years) but with a good prognosis. Follow up is needed for the new occurrence of renal cell carcinoma in the contra lateral side.

Key Words: Carcinoma renal cell, Nephrectomy, Age, Adult

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INTRODUCTION

Renal cell carcinoma (RCC) is the most malignant solid renal tumor accounting for 90% of all renal masses and 3% of adult neoplasm. Tumors of kidney and renal pelvis are account-
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3% of all new cancer diagnosed and 3% of cancer death (Mindrup, et al. 2005). Its increasing incidence is partially related to the modern diagnostic techniques that facilitated early accurate discovery (Cao, et al. 2005).

The number of renal masses, both benign and malignant, discovered only at autopsy is declining, possibly because of better detection before death. However, the rate of occult kidney cancer per 100 autopsies did not change significantly between the periods, suggesting a true increase in the frequency of clinically detected kidney cancer (Mindrup, et al. 2005).

Many times, the tumor is asymptomatic and may be observed as an incidental finding on radiological studies. In other cases, constitutional symptoms in the form of fever, weakness, weight loss and malaise may occur. In the medical literature, it has often referred to as the great mimic of medicine, since it may present with a variety of symptoms that may not be traced to kidney. Unfortunately, such tumor may also present with metastasis before the tumor is detected. Metastasis is found by radiological examinations in 25% of newly diagnosed cases (Rodriguez Rubio, et al. 1996).

Adult renal neoplasms have a predilection for older patients and are clinically distinct from renal neoplasms found in pediatric age groups (Cao, et al. 2005). Relatively rare tumors occur in younger adults (18 – 45 years of age). Recent modification on the World Health Organization and the American Joint Committee on cancer staging system of adult renal tumors further highlight the need for case analysis in this age group (Cao, et al. 2005). The aim of this study is to evaluate post operative survival of patients with RCC and the age of discovery.

MATERIALS AND METHODS

Twenty four patients were retrospectively included in our study within the last 3 years (2005-2007). All cases were assessed through full history including age, sex, geographic distributions, special habits, exposure to carcinogens and renal disease. Clinical examination was done followed by laboratory and radiological evaluations including spiral CT.

Operative Approach:

Midline transperitoneal incision was done in 16 cases, thoraco–abdominal approach in 2 cases because of large upper pole renal mass and a classic flank lumbar incision with rib resection in 6 cases. Radical nephrectomy was done in all cases except enucleation of small renal mass less than 4 cm in diameter was done for one case. All cases were localized at the time of presentation.

RESULTS

The mean age of presentation was 48y. The most common age of presentation among our cases was above 45 years in 14 cases (58.1%), however younger adults below 45 years, were in 10 cases (41.9%). Male to female ratio 2:1 with upper pole masses in 4 cases while 20 cases had lower pole masses

Table 1: Age and sex distribution in relation to RCC

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patient Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age: 28 – 45 y</td>
<td>10</td>
<td>41.9</td>
</tr>
<tr>
<td>46 – 65 y</td>
<td>14</td>
<td>58.1</td>
</tr>
<tr>
<td>male</td>
<td>16</td>
<td>66.7%</td>
</tr>
<tr>
<td>female</td>
<td>8</td>
<td>33.3%</td>
</tr>
</tbody>
</table>
Table 2: Clinical features of 24 patients with RCC

<table>
<thead>
<tr>
<th>Clinical features</th>
<th>Patient Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asymptomatic</td>
<td>2</td>
<td>8.1%</td>
</tr>
<tr>
<td>A variety of symptoms may not be</td>
<td>6</td>
<td>25%</td>
</tr>
<tr>
<td>related to the kidney</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dull ache loin pain</td>
<td>8</td>
<td>33.3%</td>
</tr>
<tr>
<td>Gross haematuria</td>
<td>6</td>
<td>25%</td>
</tr>
<tr>
<td>Palpable flank mass</td>
<td>6</td>
<td>25%</td>
</tr>
<tr>
<td>Para neoplastic syndrome</td>
<td>2</td>
<td>8.1%</td>
</tr>
<tr>
<td>Laterality:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rt</td>
<td>12</td>
<td>50%</td>
</tr>
<tr>
<td>Lt</td>
<td>12</td>
<td>50%</td>
</tr>
<tr>
<td>Site:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper pole</td>
<td>4</td>
<td>16.6%</td>
</tr>
<tr>
<td>Lower pole</td>
<td>20</td>
<td>83.4%</td>
</tr>
</tbody>
</table>

The most common presenting symptoms were dull ache loin pain in 8 cases (33.3%). Gross haematuria in 6 cases (25%), a palpable flank mass in 6 patients (25%), 4 of them were associated with dull ache loin pain while the 2 other cases were associated with gross haematuria.

Incidental finding in 2 cases (8.1%), while 6 cases (25%) had a variety of symptoms which may not be related the kidney. However 2 cases (8.1%) were presenting with paraneoplastic syndrome. All cases showed unilateral mass except one female patient aged 60 y had bilateral asynchronous mass.

Laboratory investigations were normal apart of 2 paraneoplastic patients and the other 6 patients with gross haematuria who had RBCs intheir urine analysis and microcytic hypochromic anemia.

Hypernephroma is a synonym to adenocarcinoma of the kidney and also to renal Cell carcinoma of the kidney. This classifications and subtypes of RCC are according to Kuhn, et al. (2006), Rakocy, et al. (2002), Cheville, et al. (2003) and Amin, et al. (2002). Histopathological findings were RCC in the all 24 patients of our study.

The pathological subtypes of our patients are subdivided into: Conventional RCC in 18 cases (75%), 10 cases of them were clear cell RCC (41.46%) while the other 8 cases were clear RCC with granular area (33.6%), 4 cases (16.35%) were papillary RCC type I (basophilic) and 2 cases were chromphobe (8.15%).

Follow up was done for all cases every 3 months in the 1st year while every 6 months in the 2nd year and yearly after that with CBC, serum calcium, serum phosphorus, liver and renal functions, complete urine analysis, abdominal ultrasonography, spiral CT and chest x-ray.

Follow up investigation provided good prognosis of 16 patients (66.7%) for 2 years disease free survival. The other 8 cases showed local recurrence and one of them developed neo-occurrence in the contra lateral side 6 months after surgery and died one year later.
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Fig. 1: CT scan of the abdomen with contrast showed contrast enhancement of right renal mass

Fig. 2: CT scan of the abdomen of patient showing huge left renal mass

Fig. 3: CT scan of the abdomen with contrast showing a solid mass at the lower pole of the left kidney

Fig. 4: CT scan of the abdomen of patient showing huge left renal mass
DISCUSSION

RCC has incidence of 5 per 100,000 and accounts for 1% - 2% of all cancer death. At this study, about 2/3 of the tumor is localized and radical nephrectomy done for those patients. Although apparent cure by surgery, up to 40% will subsequently develop metastasis and die from these Griffith et al. (2002), and this may coincide with our study as 66.7% of our patients have 2 years disease free survival. Predicting which patient will relapse is notoriously difficult and presenting available prognostic indicator do not satisfactory allow selection of high risk patient for trial adjuvant therapy (Griffith et al. 2002). The incidence of male to female in our study was 2:1 which is comparable with other published researches (Cao, et al. 2005; Motzer and Hitt, 2006).

In this study, the incidence of upper pole tumor was 16.6% while that of lower pole tumor was 83.4%. This does not coincide with Kim, et al. (2004) and Rodriguez Rubio, et al. (1996) who found that the upper pole tumor is slightly most common and this may be attributed to the difference in the number of cases between this study and the other studies. Also in this study the incidence of RCC was 41.9% in young adult patient which is correlated with the results of Cao, et al. (2005) who reported that the likelihood of RCC was significantly reduced from 65% in older adult to 53% in younger adult and this showed that renal neoplasm have a predication for adult patient with increasing incidence in younger adult.

Yusim et al. (2002) claimed that RCC may exhibit a more favorable prognosis in young patients, possible due to the lower stage at the time of diagnosis which correlates with this study as RCC is diagnosed at lower stage and localized in young patients than in the older patient.

The clinical features were dull ache pain in 8 cases (33.3%), gross haematuria in 6 cases (25%) and 6 cases have a palpable flank mass (25%). These coincide with the result of Rampal et al. (2006) who described that haematuria, loin pain and flank mass are common clinical features in patients with localized RCC.

Eight cases were incidentally discovered during imaging for unrelated urogenital symptoms, two of them were asymptomatic and the other had a variety of symptoms not related to the kidney and these similar to the results of Rodriguez Rubio, et al. (1996) who showed that the incidence of incidentally detected RCC was 35%. However the high percent of incidental RCC may by attributed to that mild loin pain may pass unnoticed by the patient.

The Histopathological features of our patients were sub-classified into:

Conventional RCC (75%) which is subdivided into 10 cases that were clear RCC (41.4%) and 8 cases (33.6%) were clear RCC with granular areas, papillary RCC (basophilic type I) in 4 cases (16.35%) and this coincides with the results of Leroy et al. (2002) who said that type I papillary RCC is the most frequent subtypes of papillary RCC and have a better prognosis than type
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The clinical courses and survival of our patients post operatively, a longer free disease was correctly with better survival in chromophobe RCC and papillary (type I) than clear RCC especially clear RCC with extensive necrosis. These results coincides with Argani et al. (2001) and Brinker et al. (2000) studies.

One patient with clear RCC with extensive necrosis and sarcomotides elements develop asynchronous RCC on the contra lateral side with metastasis to the right lung and died one year later and these results are parallel with the results of Cheville et al. (2004). He claimed that patients having RCC with extensive necrosis exhibit poor prognosis.

Enucleation was done for one case, because the tumor was localized at the lower pole and was about 3 x 3 cm in diameter and had plane of cleavage and fortunately the pathology result of this case (post operative) was low grade papillary RCC (Type I).

However the free disease survival for the patient is good and this agrees with the results of Leroy et al. (2002) who reported that papillary RCC (Type I) seems to have better prognosis than clear cell RCC of the same stage and grade for lower stages and grade but almost the same for high stage and grade (Onishi, et al. 1999).

Ten patients < 45 years, 6 of them have good prognosis and this coincides with the result of Yussim et al. (2002) who said that RCC may exhibit a more favorable prognosis in young patients possibly due to early discovery at lower stage before being advanced during diagnosis time which correlates with the results of this study that showed that younger patient had lower stage & grade tumor while in older patient, the prognosis is more worse as the stage is advanced with late discovery.

CONCLUSION

Prognosis of RCC is more favorable in young patients due to early discovery at an earlier stage before being advanced, however, the prognosis in older patients is worse because of late discovery at an advanced stage. Renal neoplasm have predication for adult patient with increasing incidence in younger adult and these need further highlight the need for case analysis in this age group. Follow up is needed for the new occurrence of RCC in the contra lateral side.

REFERENCES


