



RETROSPECTIVE STUDY OF YOUNG ADULTS PRESENTING WITH RENAL MASS

Urology

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ABSTRACT

Introduction: Renal mass in young adults is rare and not extensively studied. We retrospectively studied young adults operated for a renal mass at our institution.

Materials and methods: Patients aged 16 to 40 years operated for a renal mass during the period of January 2012 to December 2013 were analysed for their clinical presentation, radiological findings, treatment and pathological characteristics

Results: Mean age of eight young patients in our study was 23 yrs. Male: female ratio was 5:3. Flank pain was the common presentation. Ratio of Clear cell RCC to Other conditions was 2:6. Favourable pathological stage(T1, T2) was found in 6 out of 8 cases(75%)

Conclusion: This small series suggests a higher incidence of non-clear cell RCC and benign conditions in young Indian population. However we need a larger study population to clearly define the renal mass in younger patients.

KEYWORDS

Renal mass; young adults; benign tumor; RCC

Introduction

RCC is the most common renal parenchymal malignancy and accounts for 3% to 6% of all adult malignancies¹. Although the incidence of renal cell carcinoma has increased during recent years, patients are generally older than 40 years at diagnosis and the disease occurs predominantly in the sixth decade of life¹. Only 3% to 5% of all RCC are found in patients younger than 40 years². Renal mass in young adults is rare and not extensively studied. We retrospectively studied young adults operated for a renal mass at our institution. We report on clinical characteristics at presentation, radiological findings and pathological characteristics of these patients.

Materials and methods

Patients aged 16 to 40 years operated for a renal mass at our institution during the period of January 2012 to December 2013 were analysed for their clinical presentation(including age, sex and symptoms at presentation), radiological findings, treatment and pathological characteristics. The pathological tumor stage was adapted according to the 2002 TNM classification¹. Patients were evaluated preoperatively by physical examination, laboratory studies, ultrasonography and radiographic staging including chest x-ray, computerized tomography or magnetic resonance imaging. Data were analyzed using SPSS® software version 11.5.

Results

Mean age of eight young patients (16 to 40 years) in our study was 23 yrs.

Male: female ratio was 5:3. All eight patients were symptomatic, common symptom being flank pain of varying durations. Ratio of Clear cell RCC to Other conditions was 2:6.

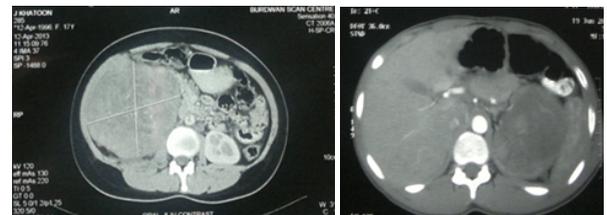
Favourable pathological stage(T1, T2) was found in 6 out of 8 cases(75%) Females were found to have lower tumor stage. Nodal metastasis was seen in only one patient. None had distant metastasis.

Table below lists the clinical, radiological and pathological characteristics of patients.

| AGE/SEX | PRESENTATION | CECT FINDINGS | CLINICAL STAGE | HISTOPATHOLOGY |
|---------|---------------|---|----------------|------------------------------|
| 16/M | Pain 12 weeks | 12 *11cm enhancing mass | T2bN0M0 | Synovial/Ewing's Sarcoma |
| 17/M | Pain 2 weeks | 13*11cm enhancing mass infiltrating the Psoas fascia with multiple hilar nodes and necrosis | T4N1M0 | Ewing's sarcoma |
| 28/F | Pain 12 weeks | 4.5 *3.5cm enhancing mass | T1bN0M0 | Clear cell RCC Furhman Gr II |

| | | | | |
|------|--------------|---|----------|------------------------------------|
| 30/F | Pain 4 weeks | 5.2 * 6cm enhancing mass | T1bN0M0 | Xanthogranulomatous Pyelonephritis |
| 38/M | Pain 4 weeks | 3 * 4cm enhancing upper pole exophytic mass | T1aN0 M0 | Epithelioid Angiomyolipoma |
| 40/M | Pain 6 weeks | 5.8 * 3.8cm enhancing mass | T3aN0M0 | Clear cell RCC Furhman Gr II |
| 40/F | Pain 7 weeks | 6.2 * 7.8cm enhancing Mass | T2bN0M0 | Chromophobe RCC |
| 40/M | Pain 4 weeks | 4*4.5cm upper pole enhancing mass | T1aN0M0 | Oncocytoma |

Figure: Contrast CT showing Renal Mass



Discussion

Published literature shows that only 5–10% of all kidney tumours in adults occur below the age of 40 years^{3,5,6}. Benign tumours occur in about 9-11% of the cases. Most studies show clear cell RCC as the dominant histopathology. Thompson et al in their study have reported the incidence of clear cell RCC as significantly lower in younger adults than in older adults. Our small series show a higher occurrence of non Clear cell RCC and benign tumours.

Recent studies have revealed that the incidence of RCC over the last years has increased about 2% annually. The age standardized incidence is currently at 5 to 6 per 100,000 individuals⁷. One explanation for the increased incidence is the increased detection rate of RCC because of the widespread use of modern imaging techniques such as ultrasonography and computerized tomography. Also the increased incidence of potential etiological causes including hypertension, smoking, diet, obesity^{7,9}.

We found a favourable pathological stage(T1, T2) in 6 out of 8 cases(75%), which is in common with several other studies which have shown a significant higher incidence of favourable pathological stages in young adults with RCC^{5,6,10,11}. S. Siemer et al. found a significantly higher incidence of favourable pathological stages (pT1a_b, pT2) in the younger group (73.6% less than 40 years vs 59.3% more than 40 years)⁶. Gillett et al also found in his study a significantly higher

incidence of pT1-2 tumors in patients 18 to 40 years old compared with those 60 to 70 years old (82.7% vs 69.9%)⁵. A high rate of pT1, pT2 tumors was also reported by Eggener et al (89%) and Abbou el Fettouh et al (75%)^{10,11}. This could explain a superior survival rate amongst young adults with RCC.

However Superior survival rate in younger adults is attributed by some authors to distinct histopathological subtypes and growth patterns. Our study shows a higher occurrence of non Clear cell RCC and benign tumours. This finding is similar to studies done by Gillett et al as well as Cao et al who noticed a significantly lower number of conventional clear cell RCCs in younger patients^{4,5}.

All the seven cases in our study were symptomatic. Which is in common with other studies which have found that young adults are more likely to present with symptoms than older adults (49.5% vs 33%, p < 0.05). In accordance with our observation, Eggener et al found a rate of 55.9% with symptomatic presentation in young adults with renal tumors¹⁰. A high rate of symptomatic tumours seems contradictory to the relatively better prognosis of young RCC patients as several authors reported a less favourable outcome for symptomatic RCC at presentation^{9,12,13}.

Conclusion

This small series suggests a higher incidence of non-clear cell RCC and benign conditions in young Indian population. Although more likely to be symptomatic at the time of presentation, RCC in young adults is usually organ confined and the prognosis is more favourable. However we need a larger study population to clearly define the renal mass in younger patients.

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