

RADICAL NEPHRECTOMY IN THE MANAGEMENT OF LOCALIZED RENAL CELL CARCINOMA

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ABSTRACT

Background: Renal cell carcinoma is the 7th most common cancer among men and 12th among females. This study was undertaken to share our experience regarding the outcome of radical nephrectomy in the management of localized renal cell carcinoma.

Material & Methods: This cross-sectional study was carried out at the Department of Urology, Lady Reading Hospital, Peshawar, Pakistan from January 2005 to December 2009.

A consecutive sample of 150 patients with localized renal cell carcinoma scheduled for radical nephrectomy was included. Patients with age more than 75 years, chronic renal failure and other significant co-morbid diseases were excluded. All these patients underwent transperitoneal radical nephrectomy through subcostal/ hemi-chevron incision. Resected tumors were sent for histopathology. All these patients were followed for five years. Sex and age in years were demographic variables. Mode of presentation, laterality, hemoglobin level, per op complications, post op complications, blood transfused, surgical time, tumor size, specimen weight, and hospital stay were research variables.

Results: Out of the 150 patients, 100 (66.66%) were males and 50 (33.33%) were females. Mean age was 56 (35-68) years. The laterality of tumor was left in 87 (58%) and right in 63 (42%) cases. Mode of presentation was classic triad of pain in flank, palpable mass and hematuria in 12 (8%), pain in flank in 40 (26%), palpable mass in 8 (5.33%), hematuria in 20 (13.33%), and non-specific symptoms in 70 (46.66%) patients.

Conclusion: Renal cell carcinoma is a disease of the elderly with a male predominance. Radical nephrectomy for localized disease is the treatment of choice.

KEY WORDS: Renal Cell Carcinoma; Hematuria; Flank Pain; Renal Pelvis; Nephrectomy.

This article may be cited as: Jan MA, Hamid H, Shah FU. Radical nephrectomy in the management of localized renal cell carcinoma. *Gomal J Med Sci* 2015; 13: 199-201.

INTRODUCTION

Renal cell carcinoma (RCC) accounts for 2% of all malignancies in the United States.¹ It's the 7th most common cancer among men and 12th among females.² It was first described by Grawitz in 1883, and observed the striking resemblance of the yellow renal tumor to the adrenal cortex and thus suggested that it might be derived from the adrenal rests.³ Gradually both urologists and pathologists came to the realization that the majority of these renal tumors arise from renal tubular epithelial cells. RCC accounts for 85 % of all the renal tumors and the rest originates from the renal pelvis or the renal capsule.

The classic triad of RCC includes flank pain, abdominal mass and hematuria. However few patients present in this manner and most are discovered incidentally on radiological investigations.⁴ Other

common presenting features may be non specific, such as fatigue, weight loss, or anemia. Because of its multiple presenting signs and symptoms, renal-cell carcinoma is called the "internist's tumor". Twenty-five to 30 percent of patients have metastatic disease at diagnosis. Common sites include the lung parenchyma (50-60%), bone (30-40%), liver (30-40%), and brain (5%). Two percent of male patients present with a varicocele, usually left-sided, due to obstruction of the testicular vein.⁵ Risk factors for renal-cell carcinoma include smoking, obesity, and hypertension⁶, as well as acquired cystic kidney disease associated with end-stage renal disease.

Male predominance of 1.6:1.0 exists² and the peak incidence is in the sixth and seventh decades. To confirm the diagnosis, CT scan of the abdomen is the investigation of choice. Renal vein thrombi can be studied with Doppler ultrasound or CT angiography. CT scan of chest and Bone Scan are used in suspected cases of pulmonary or bony metastasis. Radical Nephrectomy is the treatment of choice for localized RCC.⁷

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This study was undertaken to share our experience regarding the outcome of radical nephrectomy in the management of localized renal cell carcinoma.

MATERIAL AND METHODS

This cross-sectional study was carried out at the Department of Urology, Lady Reading Hospital, Peshawar, Pakistan from January 2005 to December 2009.

A sample of 150 patients was selected through consecutive non-probability technique. All the patients with localized renal cell carcinoma scheduled for radical nephrectomy were included in this study. Patients with age more than 75 years, chronic renal failure and other significant co-morbid diseases were excluded from this study. Informed consent was obtained from all the study participants.

After diagnosis and proper staging, all the patients were admitted in the urology unit. All these patients underwent transperitoneal radical nephrectomy through subcostal/ hemi-chevron incision. Abdomen was looked for any evidence of metastatic spread. Access to the retroperitoneum was gained by mobilizing the colon through an incision in the line of Toldt's. Renal vessels were identified and ligated. Kidney was removed inside the fascia of Gerota. Visible lymph nodes were removed. Venous thrombectomy was done when needed. Resected tumors were sent for histopathology. All these patients were followed for five years.

Sex and age in years were demographic variables. Mode of presentation, laterality, hemoglobin level, pre op complications, post op complications, blood transfused, surgical time, tumor size, specimen weight, and hospital stay were research variables. Numeric data was analyzed by mean and range, and categorical data by frequency and percentage. Data was collected on a structured Proforma and analyzed on SPSS version 11 (SPSS Inc., Chicago, IL).

RESULTS

Out of the 150 patients, 100 (66.66 %) were males and 50 (33.33%) were females. Mean age of the sample was 56 (35-68) years. The laterality of tumor was left in 87 (58%) and right in 63 (42%) cases. Mode of presentation was classic triad of pain in flank, palpable mass and hematuria in 12 (8%), pain in flank in 40 (26%), palpable mass in eight (5.33%), hematuria in 20 (13.33%), and non-specific symptoms in 70 (46.66%) patients. Those with non-specific symptoms were incidentally diagnosed on radiological investigations. Mean hemoglobin level was 10.2 (6.2-15.5) g/dl. Mean surgical time was 2.3 (1.5-5) hours. Mean tumor size was seven (4-16) cm. Mean blood transfused during the surgery was 300 ml. Mean specimen weight was 550 (152-1,441) gm. Mean hospital stay was five (3-10) days.

One patient (0.66%) died on table due to cardiac arrest. One (0.66%) patient developed a small tear in inferior vena cava which was primarily repaired without any postoperative complication. Five (3.33%) patients suffered from extensive hemorrhage requiring multiple blood transfusions secondary to accidental injury to renal vessels during the dissection. Two (1.33%) patients suffered from minor colonic injuries which were primarily repaired without any post-operative complications.

Post operatively two (1.33%) patients developed deep venous thrombosis requiring anticoagulants. Four (2.66%) patients developed deep wound infection which was treated with wound drainage and antibiotics. One (0.66%) patient went to acute renal failure requiring four sessions of hemodialysis until his solitary kidney started to function. Four (2.66%) patients developed pulmonary infection and recovered with intravenous antibiotics, bronchodilators and chest physiotherapy. Five (3.33%) patients went into prolonged ileus and were successfully treated with conservative measures.

One patient developed incisional hernia requiring mesh repair. One patient presented with local recurrence requiring surgical resection. Six patients developed pulmonary metastasis and four patients presented with hepatic metastasis.

DISCUSSION

Renal cell carcinoma is a disease of the elderly. The mean age of our study group was 56 years which falls in the same age group as reported in the literature.⁸ Majority of our study group (66%) were male patients which is similar to international data.⁹

RCC is rightly called as an "internist tumor" as majority presents with specific symptom to physician and are incidentally diagnosed during radiological investigations. In our study, 46% patients were diagnosed incidentally during workup for non-specific symptoms. It is similar to data reported by Smith and Colleagues.¹⁰

Only a small percentage of patients presents with the classic triad. Eight % cases presented with the classic triad of palpable mass, hematuria and pain in flank in our study. This is similar to four % reported by Amanullah et al.¹¹ Gross hematuria and flank pain are the two most common presenting complaints in our study. Similar results were obtained in a study done by Mehmood and Colleagues.¹² Majority of our patients were anemic at presentation with a mean hemoglobin level of 10.2 g/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 Hb below 12 g/dl.¹³

The perioperative mortality rate of our study is 0.66% which is a bit low from 2.04% reported by Indhudara and Colleagues.¹⁴ This difference may be due to the fact that our unit has a very high case load of renal tumors resulting in a greater amount of surgeries performed. Four percent of our surgeries were complicated by intraoperative vascular injuries. Similar results were reported by Corman and Colleagues.¹⁵

Our study group developed postoperative complications in 10.64% cases in the form of deep venous thrombosis, prolonged ileus, acute renal failure and deep wound infection. This result is comparable to a study by Scott and Selzman.¹⁶ Duque and Colleagues¹⁷ also published similar results for surgical morbidity.

During the follow up period, one patient developed incisional hernia. This is quite less than reported in the international literature¹⁸ which shows an incidence range from four to 20%. This may be attributed to better surgical skills of the surgeons in our study.

In our study 8.6% of the patients were found to have disease recurrence during the follow up period while the remaining 91% of the patients were disease free at 5 year follow up period. Similar results were reported by Butler and Colleagues¹⁹ from Ohio, USA.

CONCLUSION

Renal cell carcinoma is a disease of the elderly with a male predominance. Disease diagnosis at an early stage gives best chance of surgical cure. Radical nephrectomy for localized disease is the treatment of choice.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.
GRANT SUPPORT AND FINANCIAL DISCLOSURE
None declared.