

# Incidental Detection of Renal Cell Carcinoma

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Study was conducted in the department of Urology Mayo Hospital, Lahore from April 1997 to August 1998. 30 patients of either sex were included in the study. Age ranges were between 25-72 years (mean 52.5). Male to female ratio was 1.4:1. Fifty five percent of tumors were of the left kidney while the right kidney was involved in 45% of cases. Tumor sizes varied between 2cm to 18 cm. Forty eight percent of patients were smokers and 52% were non-smokers. Stage I disease was present in 53% patients, 6% had stage II disease, 13% were in stage III and 26% had stage IV disease. All patients underwent nephrectomy. Surgery was accomplished by a retroperitoneal approach. Twenty six percent patients had no urinary symptoms but were diagnosed incidentally when ultrasonography was performed for non-renal symptoms. With the advent of ultrasonography cases of renal cancer are being detected at earlier stages. In our study, most of cases presented in stage I disease.

**Key Words:** Kidney neoplasm; carcinoma, renal cell

Renal cell carcinoma was first described in 1826, but natural history remains poorly understood and unpredictable. Renal cell carcinoma has an incidence of approximately 4/100,000 (Ritchie and Chisholm, 1983) and accounts for 3% of all malignancies.

The approach to the study of renal cell carcinoma has markedly changed in the last 10 years. In the past intravenous urography, angiography and needle aspirations were the accepted diagnostic procedures. Today cross sectional imaging modalities like ultrasound, computed tomography and magnetic resonance imaging have significantly improved preoperative diagnosis and staging of the disease.

Incidental renal cancer refers to renal cell carcinoma detected primarily as renal lesions unsuspected on unrelated occasions. Patients with a renal mass discovered during a diagnostic procedure like ultrasonography for unrelated diseases without suspicion of renal cancer. In recent years increasing numbers of renal cell carcinoma have been found incidentally on a variety of occasions, for example by ultrasonography performed as part of a routine health examination or for non-renal symptoms. These changes in mode of renal cell carcinoma presentation are responsible for early detection at earlier stages of tumor extension and perhaps improved prognosis of renal cancer. This prospective study was conducted to explore the number, method and occasion of incidental detection, and staging of tumor at the time of presentation.

## Materials and Methods

The study was conducted between April 1997 to August 1998 at the Department of Urology, Mayo Hospital, Lahore. 30 patients of either sex with solid renal mass who were detected on ultrasonography of any stage were included in the study. Alongwith history, physical examination and base line investigations, renal ultrasonography was performed to see the site, size and invasion of the adjacent viscera or renal vein. Intravenous Urography was performed to assess the function of opposite kidney. X-ray chest, isotope liver and bone scan

were performed in every case preoperatively to assess metastases.

The patients who were diagnosed incidentally on ultrasonography as a case of solid renal mass and were referred to our department were also included in the study and ultrasonography was repeated and further evaluation was carried out in our department for confirmation and diagnosis.

## Results

From April 1997 to August 1998, Thirty patients were included in the study. 18 were males and 12 were females. Male to female ratio was 1.4:1. Age ranges were between 25-72 years (Mean 52.5 years). Fifty five percent of tumors were of the left kidney while the right kidney was involved in 45% of cases. Tumor size varied between 2cm to 18cm. Forty eight percent of patients were smokers and 52% were non-smokers.

Table-1 Symptoms in patients with renal cell carcinoma

Symptoms	n=	%age
Haematuria	16	53
Abdominal Mass	7	23
Pain	13	43
Classical triad	1	3
Incidental	8	26

Table-2 Detection of incidental renal cancer-occasion and method (n=8)

Unrelated disease	n=	Method
Scrotal abscess	1	Ultrasonography
Diabetes	1	=
Gynecological	1	=
Alimentary	2	=
Miscellaneous	3	=

Of the thirty patients twenty two presented with urinary symptoms but 8 patients (26%) were detected incidentally when ultrasonography was performed for non-renal symptoms (Table-1 & 2). Of the 8 patients 5 were males and 3 were females. Of the thirty patients stage I disease

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was present in 53% patients, 6% had stage II disease, 13% were in stage III and 26% had stage IV disease. The patients who were detected incidentally had smaller size and an early stage tumors.

### Discussion

In last 10 years increasing number of renal cell carcinomas have been found incidentally on a variety of occasions, for example by ultrasonography performed as part of a routine health examination or for investigation of symptoms other than those of urinary tract. Incidental renal cancer refers to renal cell carcinoma detected primarily as renal lesion unsuspected on unrelated occasions (Yashio, 1992). This change in mode of presentation of renal cell carcinoma is resulting in detection at earlier stages of tumor extension and hence improved prognosis. In the study of Sweeney (1996) the rate of incidental detection was 15%; incidental tumors were of a lower stage and patients with incidentally detected tumors had a significantly longer disease-free and overall survival than those with symptomatic tumors. In our study 8 patients (26%) had no urinary symptoms but were diagnosed incidentally when ultrasonography was performed for non-renal symptoms, this contrasts with figure of 5.5% incidentally discovered renal cell carcinoma in the series reported by Khan (1907). Interestingly in both these studies, patients were recruited from the same geographical area with almost similar demographic characteristics. Why so much difference between the two studies from the same geographical area?. The most plausible explanation is the difference in time period between the two studies. Khan collected cases between 1990 to 1996, whereas our study encompasses period from 1997 to 1998. Recent 3 to 4 years have witnessed an almost explosive rise in the availability of ultrasound facility in our country. Even remote small cities and towns have ultrasound facility, this diagnostic modality is cheap and noninvasive, so its wider and more frequent use has resulted in earlier pick up of diseases like renal cell carcinoma. This will ultimately have a direct impact on subsequent survival of the patients.

Loizaga Iriarte (1995) reported that gastrointestinal symptoms most frequently led to the incidental discovery of the tumor, in our study 2 (25%) cases out of 8 cases were detected who went for ultrasonography because of gastrointestinal problems.

Skinner et al (1971) reported incidental detection in only 7% of 309 cases studied in 1971, most of these were diagnosed during surgery, whereas the incidence of incidentally discovered renal cell carcinoma in world literature is increasing day by day. Mevorach (1992) reported 67 patients diagnosed incidentally among 235 cases (28.5%). According to a survey on incidental renal cell carcinoma in Japan, in 1980 only 20 cases were diagnosed incidentally but in 1988 number increased up to 338 cases which were diagnosed incidentally (Yashio, 1992). Rodriguez (1996) reported 55 patients among 157 cases (35%) in his retrospective study, which were diagnosed incidentally. Recent advances and wider

application of diagnostic imaging techniques account for the increasing number of incidentally detected renal cancer. Therefore, abdominal ultrasonography should be performed with special attention to renal lesions, whether this is being performed for routine health examination or for evaluation of unrelated diseases.

Ultrasonography was the primary diagnostic tool employed in this series. In the study of Holmberg (1988) ultrasonography has diagnosed renal mass lesions with accuracy of 88%. In other study by Szabo' (1983) observations with diagnostic ultrasound in renal disease over a 10-years period were reviewed and preoperative ultrasound diagnosis of renal tumor proved to be correct in 91.8% of the respective surgical cases.

In our series, stage I disease was present in 53% patients, 6% had stage II disease, 13% were in stage III and 26% had stage IV disease. Tumors detected incidentally on ultrasonography were relatively smaller in size and early in stage (within the renal capsule). The results of our study regarding presentation of stage are almost equal to the study of Sene (1992). The incidental presentation would impact the surgical decision-making, an early stage tumor of small diameter could be managed by partial rather than radical nephrectomy (Herr, 1994).

### Conclusion

Incidental detection detects renal cell carcinoma at a relatively early stage, with smaller size. It is therefore essential for radiologists, ultrasonographers and urologists to investigate the both kidneys very carefully during abdominal ultrasound examination.

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