

Routine abdominal ultrasonography: an ideal tool for detection of renal tumours

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Abstract

Objective: To evaluate the role of routine of abdominal ultrasonography for detection of renal tumours.

Study design: Descriptive case series.

Setting and duration: The study was conducted at the Department of Surgery Bahawal Victoria Hospital, Bahawalpur from August 2006 to March 2007.

Methodology: 30 patients were included in this study. The mode of presentation of the tumor was noted and each patient was investigated according to predefined plan. Frequencies of different categorical variables with their percentages were calculated.

Results: Out of 30 patients, 8 patients (27%) presented with Haematuria, 3 (10%) with abdominal mass, 9(30%) with lumbar pain, one patient (3%) presented with paraneoplastic syndrome, only one patient (3%) presented with triad of symptoms (i.e., pain, Haematuria and abdominal mass), 8(27%) were diagnosed incidentally by USG.

Conclusion: The increased numbers of renal cell carcinoma are detected incidentally by ultrasound. Thus USG can be considered to be the primary imaging modality and screening test.

Keywords: Renal Cell Carcinoma (RCC), Incidental detection, Kidney Tumour, USG (Ultrasonography)

Introduction:

Patients with Renal cell carcinoma (RCC) present with a range of symptoms, but many are asymptomatic until the disease is advanced. Symptomatic presentations include flank pain, flank mass, haematuria, varicocele, constitutional symptoms, paraneoplastic syndromes symptoms and bone pain related to metastatic disease.¹⁻⁵ Symptomatic presentation usually correlate with aggressive histology and advanced disease. The mode of presentation is an independent predictor of adverse outcome.²¹⁻²³

Advances in imaging technology and the increasing practice of USG in clinical practice, have led to an increased number of incidental early renal cell carcinomas (RCC) diagnosis in developed countries.⁶⁻¹²

Apparently, most of the major series included,

asymptomatic patients or patients with non-specific symptoms, RCC detected incidentally on USG done for other conditions. In our study incidental tumours were discovered by USG examinations which were requested for the complaints of the patients not associated with the usual renal tumour signs or symptoms.

As local literature was lacking on the subject only one study has been published¹⁴. So this study was designed to list the different modes of presentation of renal tumours, and to evaluate the role of USG in their incidental diagnosis.

Materials and methods:

All patients of either sex presenting in the Department of Surgery, Bahawal Victoria Hospital, Bahawalpur from August 2006 to March 2007, with any symptoms or signs and proved to be suffering from renal tumour were included in

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the study. Their diagnosis was confirmed on histopathology.

We excluded any patient who lost during the investigations or not proved a case of renal tumour on histopathology or previously diagnosed case of renal tumour.

In each case the mode of detection of the tumour was documented. Incidental tumors were discovered by USG examination which was requested for complaints not associated with the usual renal tumour signs or symptoms. Each patient was investigated according to redesigned Performa. All nephrectomy specimens were subjected to histopathological examination or trucut needle biopsy if inoperable.

Main outcome measures:

1. Pain in loin
2. Haematuria
3. Mass in loin
4. Triad of symptoms/any combination of above symptoms
5. Para Neoplastic syndrome
6. Incidental diagnosis (On USG).

Data analysis procedure:

Frequencies of different categorical variables with their percentages were calculated. The data was analyzed by using software SPSS version.10.0.

Results:

Thirty patients of renal cell carcinoma of either sex were included in the study from August 2006 to March 2007 at the department of surgery, Bahawal Victoria Hospital, Bahawalpur, Pakistan. In each case mode of detection of the

tumour was documented. Among 30 patients, 8 patients (27%) presented with Haematuria, 3 (10%) with abdominal mass, 9(30%) with lumbar pain, only one patient (3%) presented with the triad of symptoms (i.e., pain, Haematuria and abdominal mass), one patient (3%) presented with paraneoplastic syndrome, 8(27%) were diagnosed incidentally by USG. Out of the 8 diagnosed incidentally, one patient showed a renal cyst with solid part in it (Bosniak type III), CT guided biopsy proved it to be Renbal Cell Carcinoma.

Discussion:

Haematuria was the presenting complaint in 8 patients [26.7%] While in international studies, Haematuria was the dominant presenting symptom in 48% to 50% of symptomatic patients (Mermersthain ,WH. John G).^{16,17} In the study conducted by Rafique M, Haematuria alone was present in 22% of patients while flank pain and Haematuria was present in 16%, flank mass and Haematuria was present in 2.7%, flank pain, flank mass and haematuria was present in 5.5%¹⁸. In the study conducted by Amanullah, haematuria was present in 48% of patients.¹⁴ Other published articles showed that Haematuria (microscopic or macroscopic) is a presenting sign in 50% of patients.¹⁹⁻²⁰ In this study haematuria was presenting symptom in 27% of patients. The difference in the results are probably due to the reason that other studies also included the patients with microscopic haematuria while in this study patients complaint was macroscopic haematuria (i.e. noticed by patients themselves).

Flank pain was the presenting symptom in 9(30%) patients in this study. Published literature shows that 30% to 40% patient present with flank pain.¹⁶⁻¹⁸

A flank mass was the presenting symptom in 3 patients (10%) in this study.

A palpable mass in the loin indicates advanced disease. In another study conducted on 209 patients 9% patients presented with a mass in flank.¹⁶ 10% to 16% patients presented with flank mass as evident from local studies¹⁴⁻¹⁸. The

Table: Frequencies

Valid	Frequency	Percent	Valid Percent	Cumulative
Haematuria	8	26.7	26.7	26.7
Loin mass	3	10	10	10
Flank pain	9	30	30	30
Triad of symptoms	1	3.3	3.3	3.3
Paraneoplastic syndrome	1	3.3	3.3	3.3
Incidental finding	8	26.7	26.7	26.7
Total	30	100	100	100

results of this study are similar. Only one patient (3%) presented with triad of symptoms (haematuria, flank pain and flank mass) in our study. The other studies showed frequency of 1.2%, to 5.5% of patients presented with triad of symptoms¹⁴⁻¹⁸.

Renal Cell Carcinoma is a unique and challenging tumor because of the frequent occurrence of paraneoplastic syndromes⁵. The frequency of hypoalbuminemia, weight loss, anorexia and malaise that has been cited is 19.9%, 22.9%, 10.6% and 19.1%, respectively²⁶. In this study only one patient (3.3%) presented with anemia.

The incidence of incidental RCC has been studied in a number of retrospective series as well as population surveys, and it ranged from 15 to 61%¹⁴⁻²¹. Most of the major series included asymptomatic patients and patients with non-specific symptoms detected incidentally through imaging studies for other conditions. In our study 27% patients were diagnosed incidentally on USG examination¹⁴.

In another study carried out in Singapore General Hospital, Singapore; a total of 64 cases (39%) of RCC were detected incidentally in a total of 165 cases diagnosed over the period 1990-1998. USG was the most commonly used first line imaging modality detecting the abnormal lesion (29/39) in 74%²⁵. Ghalay in his study discovered 26% patients incidentally¹⁵. Patard JJ published his study on prognostic significance of the mode of detection in renal tumour & reviewed the data of 400 patients which showed incidental tumour detection frequency of 38%.²⁵ All these studies conducted in different hospitals showed that renal tumours can be detected incidentally using noninvasive abdominal imaging methods mainly ultrasonographic examination carried out in asymptomatic patients or in patients having symptoms unrelated to the usual renal tumour symptoms.²⁷⁻²⁹

Conclusion:

This data show that there is an obvious trend towards increased numbers of renal cell carcinoma detected incidentally due to blessing of

routine USG. Thus, ultrasonography should be considered the primary imaging tool, with renal cysts evaluation based on Bosniak classification, for early RCC detection. Opportunities which arise for appropriate screening of the upper urinary tracts during routine urological or in non-urological investigations (e.g. ultrasonography) should be endorsed. Though, the numbers in this study are small, it effectively indicates the value of ultrasonography as a screening tool.

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