# MALIGNANT RENAL TUMORS IN IRAQ (CLINICAL & EPIDEMIOLOGICAL STUDY)

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## ABSTRACT

**Purpose:** The purpose of this study is to highlights any changes in the clinical and epidemiological aspects of malignant renal tumors in Iraq in the last ten years.

**Methods:** 86 patients included in this study , 30 patients in Tikrit center and 56 of them in Basra center, All have renal tumors and radical nephrectomy done for them.

**Results:** The highest incidence is in age group 40-60 years old with younger age group in Basra. The commonest presenting symptom is haematuria and cigarette smoking is the major risk factor.

**Discussion:** The male: female ratio is 1.3:1 in Iraq this may give better prognosis. Regarding age of the patients younger age in Basra and that might be attributed to higher exposure to radiation. The smoking increased the incidence of Renal Cell Carcinoma .We have in Iraq higher incidence (40%) of Renal Cell Carcinoma in comparism to European countries and this, unfortunately, may have poorer prognosis. The incidental finding of Renal Tumors (19%) in this study in comparism to 50% in European countries, this percent can affect the prognosis and can be improved by improving the health care system and population health education.We have higher incidence of big tumors (10-15 cm) in comparism with other studies and also may affect the prognosis.


## INTRODUCTION:

Renal cell Carcinoma compromise up to 85% of all solid renal masses with steady increases incidence of detection [1] and smaller average size of diagnosis due to, particularly, to the increased use of cross-sectional imaging.[2,3] renal cell carcinoma account for 3% of all human neoplasm and it is bilateral in 4% [4]. And it's incidence in Iraq is 1.4 % [5].At presentation about 2 third of tumors are localize and one third are disseminated disease [6]. In several large series the majorities of renal cell carcinoma were asymptomatic [7, 8, 9] and found incidentally on non invasive imaging. In fact the classic Grawitz Triad[3,4] of flank pain, gross haematuria and palpable mass is now uncommon and is indicative of advanced disease. Willm's Tumor is the most common solid renal tumor of childhood, counting for 5% of childhood cancer[4]. Angiolipoma is a rare benign tumor of the kidney. It may occur as an isolated phenomenon or as a part of tuberous sclerosis [4, 10.] The increasing indications of abdominal C.T, M.R.I and sonography had led to increase in the detection of incidental renal masses [11]. It is estimated that 84% of renal tumors are detected incidentally on cross-sectional imaging [12]. During the past 20 years,

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marked advances have been made in histology techniques including the development of monoclonal antibodies that have improved the diagnostic yield of imaging-guided biopsies. In this study we are trying to assess the epidemiological and clinical views of renal tumors in Iraq, taking in consideration the increasing incidence of renal tumors in this country and all over the world.

## PATIENTS & METHODS

Patient with renal tumors documented by nephrectomy at Tikrit Teaching Hospital and Al_Mawani General Hospital from December 2003 to January 2010 were included in this study. Data collection including patient's age, sex, history of cigarette smoking, history of renal stone and clinical presentation at time of diagnosis were made. All patients were examined in the Ultrasound unit and spiral C.T unit in both above mentioned centers.

## SCANNING TECHNIQUE:

Ultrasonic scanning technique were performed for adult using 3, 5 MHZ electronic convex array transducer sonoline versa pro Siemens. For children and thin adult we used a 5 MHZ transducer. No specific preparations were required for both ultrasound and C.T examination.

All spiral C.T examinations were performed on asomatom plus 4, Siemens. KV=120, MA=200, 360 according to body weight.

## RESULTS:

Eighty six patients were diagnosed as R.C.C, the highest incidence in age group 40_60 years old **table no.1**.More in *males* (54%) comparing to (46%) in females **table no.1**.

86 Patients:47 were males & 39 were females

Age range: 3_68 years old **Table no. 2**

Clinically labeled cases as renal masses referred to radiology department for Ultrasound and C.T evaluation.

The major risk factor is *cigarette smoking* (75%) comparing to (25%) in non smokers. **table no. 4**

Those 86 patients presented with many complain. The most frequently presenting symptom was: *Haematuria* (55%). **Table no.5**

Followed by:

Palpable masses (40%).

Loin pain (20%).

Incidental finding on routine ultrasound examination (19%)

Fever (12%).

Less common presentation like; weight loss (9%).

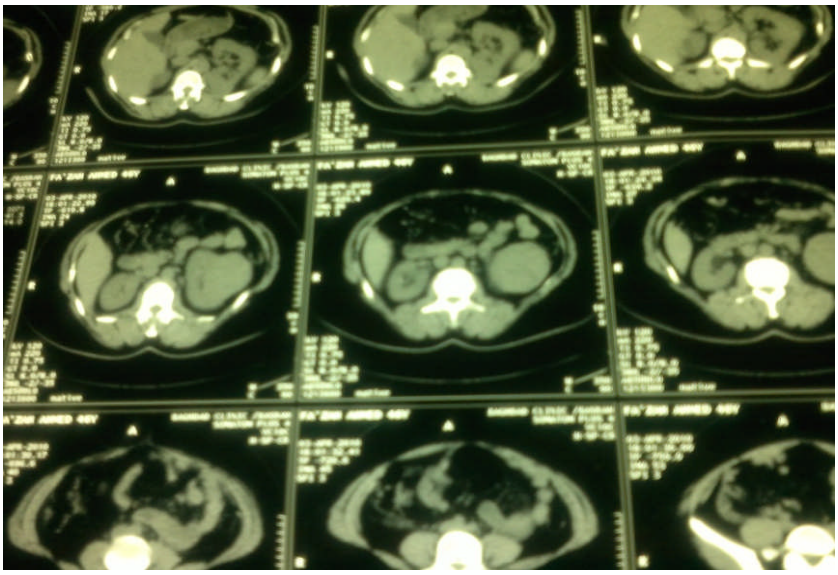
The size of renal masses which assessed in our study range from 1 cm up to 22cm.

The renal masses range from 10 t0 15 cm in 51 cases.

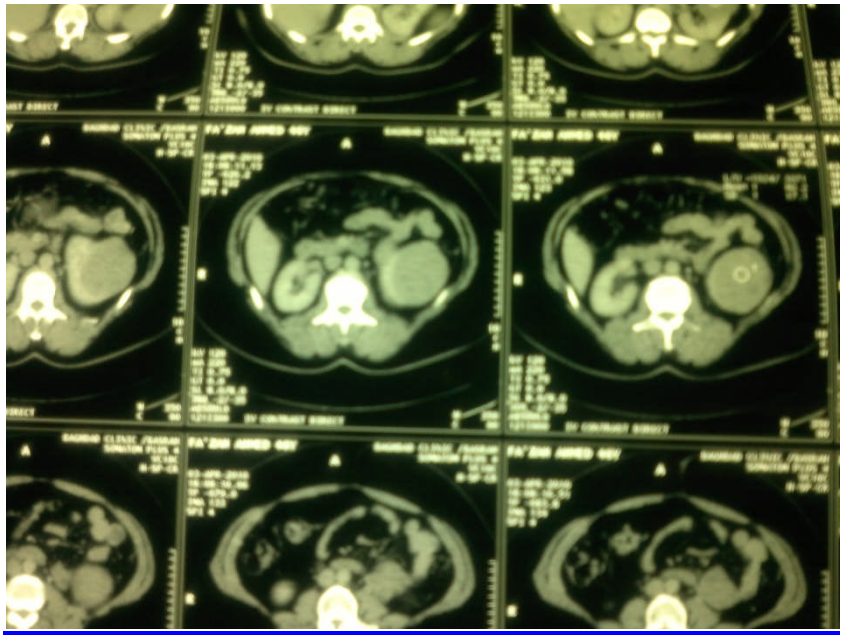
From 5 to 10 cm in 20 cases.

From 15 to 20 cm in 9 cases.

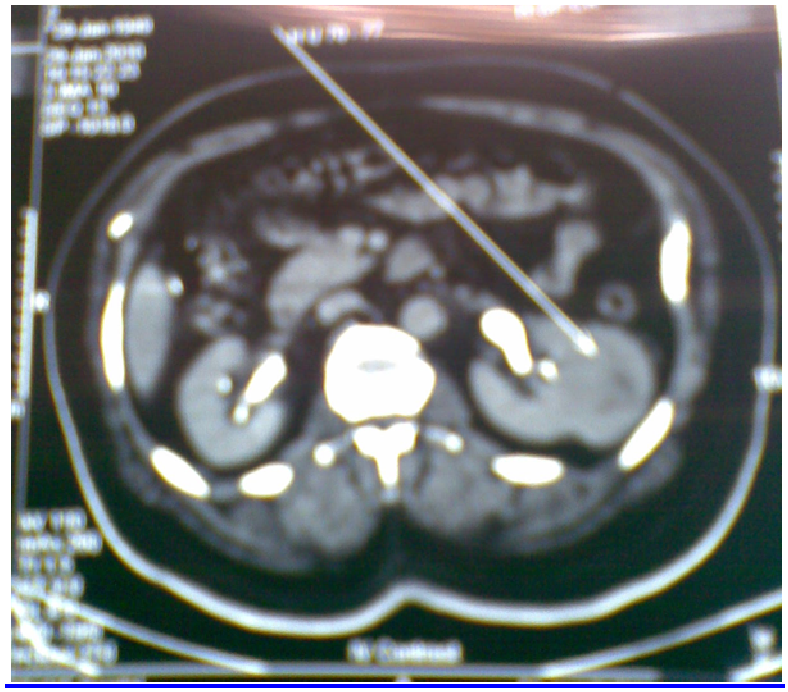
Small range (< 5 cm) only in 6 cases….**Table no.6.**



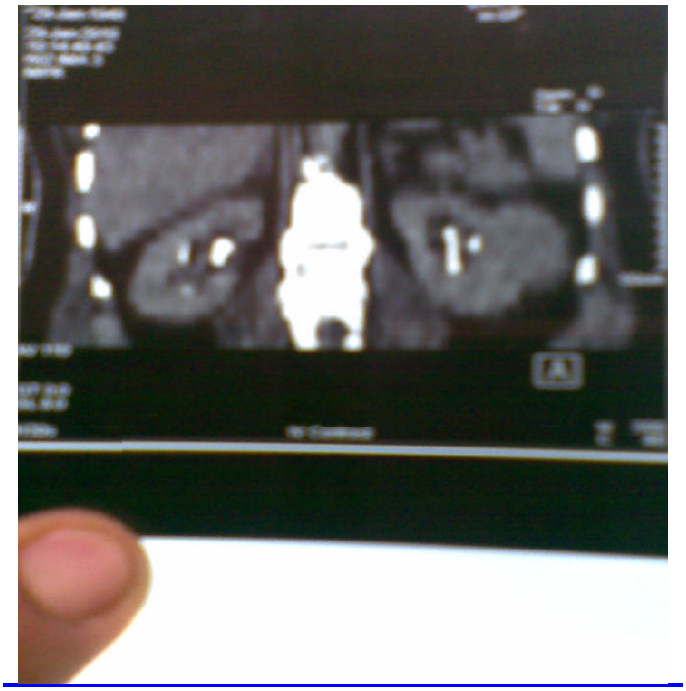
Picture (1) : CT scan of patient with left renal tumor



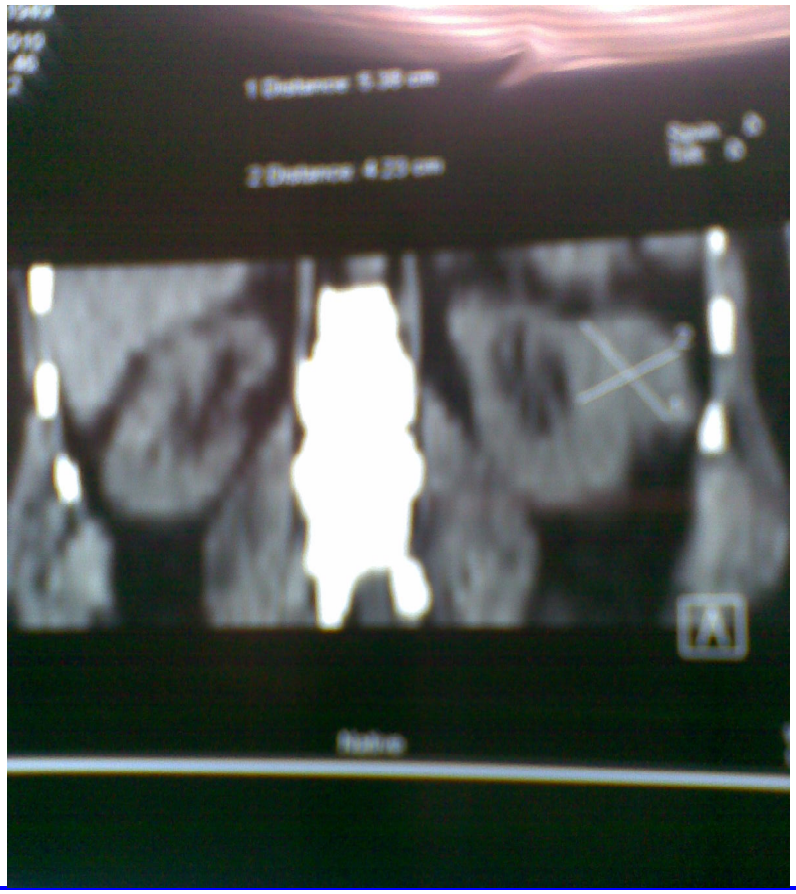
Picture (2) : CT scan of patient with left renal tumor



Picture (3): CT scan of left renal tumor



Picture (4: CT scan of left renal tumor



Picture (5): CT scan of left renal tumor

# DISCUSSION:

***The gender distribution*** as shown in table 1 shows that the highest distribution among males 54% to 46% in females in a ratio of 1,3 : 1 . While in the United States the ratio of males to females is 3:1 [15]. And in the European countries is 1.5: 1 [14]. So we have also different ratios in this study. The significance of this data can be explained in the view of some articles that reveals the prognosis is signif icantly better in women than men with R.C.C. [16, 17]. and since we have in Iraq a smaller ratio of males to females we hope this will improve our prognosis of Renal Cell Carcinoma. This need larger studies in the future to asses this evidence. In this study the analysis of ***age group*** reveals that the renal tumors reported at age group in other studies (sixth & seventh decade) [4, 14]. This is a very important observation and mainly younger age group recognized in Basra cases in comparism to Tikrit cases. This may attributed to the changes that occur in environmental factors in Iraq that considered as a risk factor to the development of renal tumors and the effects of Gulf War on Iraq like the effect of depleted uranium and its hazard of radiation mainly at the south of Iraq "the battle field" that may result in appearance of renal cell carcinoma in a younger age group. This observation needs many further studies to be certain. In this study we found that the smoking increases the incidence of renal cell carcinoma **as shown in table 4** where the smokers are 75% most of them are males and this could be a factor for the increased incidence of renal cell carcinoma in males. Other studies showed the same results and revealed that cigarette smoking is the only ***risk factor*** that consistently linked to renal

cell carcinoma [18]. with most investigations demonstrating at least a 2 folds increase in risk of development of R.C.C in smokers [19] is due to the effect of carcinogens that present in the nicotine which excreted in urine like ά & β naphthylamine [20]. ***About the clinical presentation at time of diagnosis***. The commonest presenting symptom was *haematuria* in 55% and this is in comparable to other studies that reveal haematuria in 60% [21]. While 40% of cases had palpable masses and loin pain with haematuria which is considered as a high percent in comparism to American and European studies (6_10%) [22, 23]. these studies reveals that this constellation of findings almost always denotes advanced disease and some refer to it as ***Too Late Triad***, So unfortunately in this study we have high percentage of patient presented with this triad. The incidental finding of renal tumors by routine U. /S. in this study only 19% and this is smaller percentage than what was documented by other studies. That showed today more than 50% of renal tumors are detected incidentally using non invasive imaging [22, 23]. this is may be explained by advanced health care system in the developed countries that include regular, periodic routine check up and the high awareness of the educated population towards any abnormal symptom. But the other parameter that may attributed to this observation is the rapidly growing renal tumors that may be symptomatic in Iraq due to environmental factors (pollution) especially in the south. This observation need more focused high lights and more advanced studies to explain all the hidden facts that might result in advanced renal tumor at time of presentation and consequently poorer prognosis. The percent of patient presenting with metastatic disease i.e. fever and weight loss both together about 21%, however other patients discovered incidentally and found to have a metastatic disease by C.T scan. So these observations need analysis and larger number of patients to be discussed and in comparism to European countries (25-30%) of the patients had symptoms of metastatic disease at time of presentation [23]. The tumor size in this study was 10_15 cm in majority of the cases while in other studies shows that 78% of renal tumors of 3 cm and less [24]. the size of the tumor consider one of the prognostic factors of renal cell carcinoma Giuliani & colleagues at 1990 reported that the 5 years survival rate is 84% for patients with tumor size less than 5cm. 50% for tumors between 5_10 cm and 10% for tumors more than 10 cm [4]. In our study the higher percent of renal tumor size is 10_15 cm, this mean poorer prognosis according to what mentioned previously, so early detection of smaller size tumor might improve the prognosis and make the surgical work easier, safer and fruitful for the patient post operatively. All the patients had Ultra Sound and the diagnosis certained by doing C.T. scan pre operatively and the results compared by the operative findings i.e. radical nephrectomy and histopathology. Regarding Willm`s tumor in this study, the number of patients are 5 only which is a small sample to be discussed but generally we have male: female ratio of 2:3 **as shown in table no.3.** While other studies showed equal male: female ratio [4, 25]. The size of the tumor also of larger sizes at time of presentation and they are presented as abdominal masses, this is similar to other articles. [25]

Table no. 1

Gender Distribution of the study sample

| *Sex Distribution* | *Frequency* | *Percentage* |
|---|---|---|
| Males | 47 | 54% |
| Females | 39 | 46% |
| Total | 86 | 100% |

Table no. 2

Gender distribution by age group

| *Groups of age* | Tikrit Group | | Basra Group | | |
|---|---|---|---|---|---|
| | *Males* | *Females* | *Males* | *Females* | |
| 0_9 Years | ***1*** | ***-*** | ***1*** | ***3*** | |
| 10_19 Years | ***-*** | ***-*** | ***-*** | ***-*** | |
| 20_29 Years | ***-*** | ***-*** | ***2*** | ***1*** | |
| 30_39 Years | ***2*** | ***1*** | ***4*** | ***3*** | |
| 40_49 Years | ***4*** | ***2*** | ***8*** | ***6*** | |
| 50_59 Years | ***7*** | ***6*** | ***8*** | ***5*** | |
| 60_69 Years | ***2*** | ***3*** | ***5*** | ***8*** | |
| > 70 Years | ***1*** | ***1*** | ***1*** | ***1*** | |
| Total | **17** | **13** | **29** | **27** | ***86*** |

Chi squared test

Value 395

df 1

P_value 0.53

***Comment;***

no significant statistical difference between the two samples

**Table no. 3**

**The relation between the disease and gender**

| *Diseases / Gender* | *Men* | *%* | *Women* | *%* | *Total* | |
|---|---|---|---|---|---|---|
| **R.C.C** | **45** | | **36** | | **71** | |
| **Willm`s tumor** | **2** | | **3** | | **5** | |
| **Total** | **47** | | **31** | | ***86*** | |

Chi squared test

Value: 460

df: 1

P_value 0.50

***Comment;***

There is no significant association between gender and type of tumor.

Table no.4

**The distribution of 81 cases with R.C.C according to history of smoking**

| *Variable* | *Men* | *%* | *Women* | *%* | *Total* | *Total %* |
|---|---|---|---|---|---|---|
| **Smokers** | **36** | **58%** | **23** | **22%** | **59** | |
| **Non smokers** | **8** | **5%** | **14** | **15%** | **22** | |
| **Total** | **44** | | **37** | | **81** | |

Chi squared test

Value 3.9

df 1

P_value 0.048

***Comment;***

There is significant statistical deference between the two groups

**Table no.5**

**Frequency distribution of the study sample by clinical presentation of the renal tumors**

| Symptom | No. of the cases | percentage |
|---|---|---|
| **Haematuria** | **52** | **55%** |
| **Loin mass** | **30** | **40%** |
| **Pain** | **19** | **20%** |
| **Incidental finding** | **15** | **19%** |
| **Fever** | **10** | **12%** |
| **Weight loss** | **8** | **9%** |

**N.B:** some patients presented with more than one symptom

**Table no. 6**

**Distribution of Renal Tumors according to the size**

| Size | <1cm | 1_5 cm | 5_10 cm | 10_15 cm | 15_20 cm | total |
|---|---|---|---|---|---|---|
| **R.C.C** | - | ***5*** | ***18*** | ***49*** | ***9*** | ***81*** |
| **Willm`s Tumor** | - | ***1*** | ***2*** | ***2*** | - | ***5*** |
| **Total** | - | ***6*** | ***20*** | ***51*** | ***9*** | ***86*** |

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