

# The Incidence of Renal Cystic Masses in Kassala State: Sudan

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**Abstract:** This is analytical descriptive study deal with incidence of cystic renal masses in Kassala state, the role of u/s (ultrasound) in detection of cystic renal masses in symptomatic and asymptomatic patients, and how it can describe the type, size, and texture of different types of cystic renal masses, to identify if there is relation between renal cyst and other clinical indication (hypertension and symptoms), study include different hospitals and clinics in Kassala state. 790 patients scanned with ultrasound, hematuria, flank pain and palpable abdominal masses were considered as a basic clinical presentation of symptomatic patients. Study found that the incidence of renal cystic masses is 2.9%, the most common type of renal cystic masses in male, there was strong relation between age, and renal cyst, the high incidence of cyst was solitary and unilateral and there was no relation between prevalence of cyst and patient condition (symptoms and hypertension), so ultrasound should be the first save diagnostic test to it is safety and reliability.

**Keywords:** incidence, renal cystic masses, Kassala, ultrasound, Sudan

## 1. Introduction

Ultrasound is the excellent, non invasive modality, frequently used in diagnosis of renal cystic masses [1]. Renal cyst are the most common masses of the kidney, they can occur singly or in multiple numbers. Each kidney is about 11cm length, 6cm in breadth, and 3cm in antero-posterior dimension. In adult males the average weight about 150gram, in adult female 135gram [2]. The blood supply of the kidney is flourished by the wide board renal arteries, with blood flow is excess of 1 liter per minute [3]. The renal artery divides into four segmental arteries close to the hilus, the vein of kidney are very profuse and they tend to form venous arcades alone the basis of medulalry pyramids [4]. The ureters is 25cm in length [5].the kidneys perform their most important functions by filtering the plasma and removing substances form the filtrate at variable rates depending to the needs of the body [6]. The kidneys are the primary means for eliminating waste products of metabolism that are no longer needed by the body [7].

## 2. Materials and Methods

Study held from May 2009 – Oct 2009, in different hospitals and clinics in Kassala State. 790 patients, either symptomatic or asymptomatic refer to ultrasound department for abdominal scan. There were scanned for evidence of renal cystic masses, and to identify if there is correlation between the incidence of renal cystic masses and age and to know if there is relation between renal cysts and other clinical indication. Data had been collected with clinical data sheet and ultrasound.

## 3. Results and Discussion

Table (1) showed the incidence of frequency distribution, the total number of patients scanned from different regions and different age groups are 790 patients from which 23 cases 2.9% were diagnosed as cystic renal masses.

**Table 1.** Incidence distribution

Affected patient	23	2.9%
Not affected	767	97.1%
Total	790	100%

Table (2) showed the gender frequency distribution, cystic masses of the kidneys can be found in both sexes, study found that 65.2% of patient was male, 30.4% were female and 4.3% infantile. The study revealed that the high incidence of cystic masses is more in male patient 65.2% than female 30% and fewer incidences were observed in infantile 4.3%. this result agree with previous study which reported that high incidence of cystic renal masses in male 72% [8].

**Table 2.** Gender Frequency Distribution

Sex	Frequenc y	Percent
Male	15	65.2%
Female	7	30.4%
Infantile	1	4.3%
Total	23	100%

Table (3) showed the age (year) frequency distribution, examined patients ranged between weeks and 80 years old, the detection of cystic renal masses appeared in the third and fourth decade with 8.7% and 13% the incidence appeared to be high with increasing age 30.4% in five decay and 21% over that.

**Table 3.** Frequency distribution of numbers of the study sample according to the variable age.

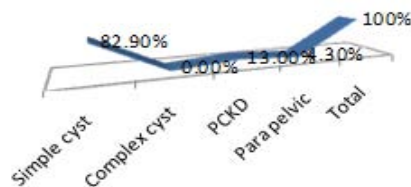
Age (year)	Percent
10	4.3%
10-20	8.7%
21-30	0.0%
31-40	0.0%
41-50	13.0%
51-60	30.4%
61-70	21.7%
71-80	21.7%

Table (4) showed the relation between age group and cystic masses, the probability value of chi square test (0.008) less than the level of significant (0.05) that means there is a relation between type of renal cysts and the age group, as the age increased, prevalence of renal cyst increased.

**Table 4.** Showed the Relation between Age Group and Cystic Masses

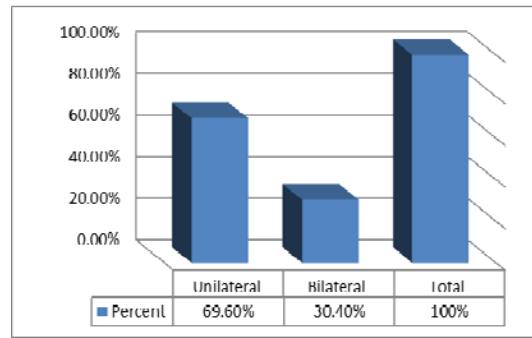
Age (year)	Cyst			Total
	Simple	PCKD	para	
Weeks 10	0	1	0	1
	20%	3.0%	0%	3.1%
31-40	0	2	0	2
	0%	7%	0%	6.3
41-50	0	0	0	0
	0%	0%	0%	0%
51-60	6	0	1	7
	37.5%	0%	0%	21.9%
61-70	5	0	0	5
	31.3%	0%	0%	15.6%
71-80	5	0	0	5
	31.3%	0%	0%	15.6%
Total	16	3	1	20
	56%	9.4%	3.1%	100%

Figure (1) showed the type of cystic renal masses distribution, simple cyst shown to be predominantly, the most common type of cystic renal masses and it was detected in (82.9%) of the patient, while polycystic kidney disease were detected in (13% and 4.3%), the result is agree with the previous study which reported that simple renal cyst is common form of cystic renal masses which represent 88% of cases.



**Figure 1.**Type of Cystic Renal Masses Distribution

Figure (2) showed that the site of the affected kidney frequency distribution, cystic masses of the kidney may bilateral (30.4%) but they are most common unilateral (69.6%) of the cases.



**Figure 2.** Showed that the Site of the Affected Kidney

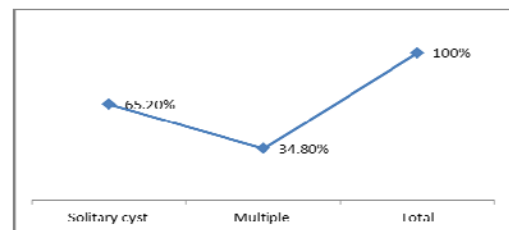
Table (5) showed the relation between type of cyst and site of the affected kidney, probability value of chi square test is (0.004), less than the level of significant (0.05) that means there is a relation between the type of the cyst and site of affected kidney, study find that most of the simple renal cyst is unilateral 69.6% and the polycystic kidney were all bilateral 13%.

**Table 5.** Relation between type of cyst and site of kidney which affected

Type of cyst	Site of which kidney affected		Total
	Bilateral	unilateral	
Para pelvic	1 4.3%	0 0%	1 4.3%
PCKD	3 13%	0 0%	3 13%
Simple cyst	3 13%	16 69.6%	19 82.6%
Total	7 30.4%	16 69.6%	23 100%

PCKD = polycystic kidney disease

Figure (3) showed the multiplication of the renal cysts frequency distribution, most common of cystic masses of kidney were solitary cyst (65.2%), other were multiple (34.8)



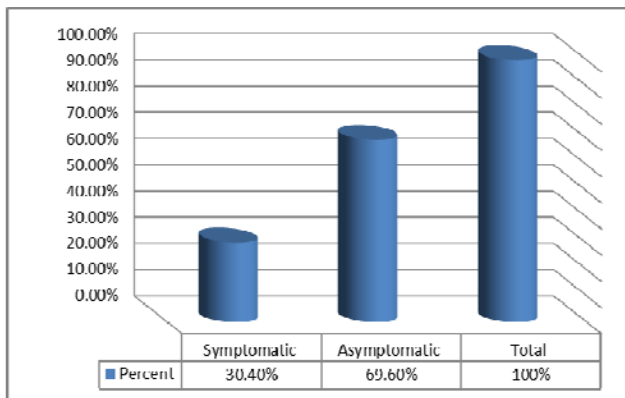
**Figure 3.**Showed the multiplication of the renal cysts

Table (6): Showed relation between type of cyst and multiplication of cyst, the probability value of chi square test (0.11) less than the level of significant (0.05) that means the relation between type of cyst and number of cyst.

**Table 6.** Relation between type of cyst and multiplication of cyst:

Type of cyst	Number of cyst		Total
	Multiple	solitary	
Para pelvic	1 4.3%	0 0%	1 4.3%
PCKD	3 13%	0 0%	3 13%
Simple cyst	4 17.4%	15 65.2%	19 82.6%
Total	8 30.8%	15 65.2%	23 100%

Figure (4) Showed the patient condition frequency distribution, most patient in the study with cystic renal masses are asymptomatic (69.6%) of the cases, and the diagnosis was made accidentally during routine abdominal scanning while the symptomatic patients are 30.4% of the cases.



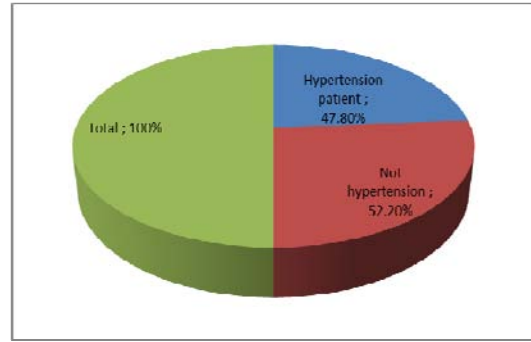
**Figure 4.** Patient Condition Distribution

Table (7) Showed the relation between the type of cyst and patient condition, the probability value of chi square test (0.071) greater than the level of significant (0.05) that means there is no relation between type of cyst and patient condition.

**Table 7.**Relation between type of cyst and patient condition

Type of cyst	Site of which kidney affected		Total
	Bilateral	unilateral	
Para pelvic	1 4.3%	0 0%	1 4.3%
PCKD	2 8.7%	1 4.3%	3 13%
Simple cyst	6 26.1%	13 56.5%	19 82.6%

Figure (5) Showed hypertension in frequency distribution (52.2% of cases) with hypertension and 47.8% are not.



**Figure 5:** Showed Hypertension in Frequency

Table (8): Showed the relation between type of cyst and hypertension, the probability value of chi square test (0.317) greater than the level of significant (0.05) that means there is no relation between type of cyst and patient condition.

**Table 8.** Relation between Renal Cyst and Hypertension

Type of cyst	Site of which kidney affected		Total
	Bilateral	unilateral	
Para pelvic	1 4.3%	0 0%	1 4.3%
PCKD	2 8.7%	1 4.3%	3 13.0%
Simple cyst	7 30.4%	12 52.2%	19 82.6%

**4. Conclusion**

Study found that ultrasound is the best, successful and quick investigation modality in diagnosis of cystic renal masses in both symptomatic and asymptomatic patients, using of ultrasound lead to early detection of cystic renal masses in different age groups, sonography used as one of the initial assessment of patients with renal pathology, ultrasound accuracy measure the sizes of cystic renal lesions can also differentiate between their types. 790 patients either symptomatic or asymptomatic refer to U/S department for abdominal scan, the incidence of renal cystic masses 2.9% of cases. Study found that the incidence of renal cystic masses is 2.9%, the most common type of renal cystic masses is the simple cyst, high incidence of renal cystic masses in male, so there was strong relation between age and renal cyst, high incidence of cyst was solitary and unilateral and there was no relation between prevalence of cyst and patient condition (symptom, hypertension).

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