

# PERCUTANEOUS ASPIRATION OF SIMPLE RENAL CYST COMBINED WITH 95% ETHANOL SCLEROTHERAPY

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## ABSTRACTS

**Objective:** To assess the efficacy of percutaneous aspiration of simple renal cyst combined with 95% ethanol injection at urology department, Gajju Khan Medical College, Swabi in one-year duration.

**Methods:** A descriptive case series study was done at Urology department, Gajju Khan Medical College, Swabi from February 2018 to January 2019. Sample size was 70 patients and technique was non-probability convenient sampling. Objectives were assessed with proforma and data was analyzed in SPSS version 22. Patients of age 40 years to 80 years, having symptomatic renal cyst confirmed by Ultrasound and CT scan Abdomen and pelvis were included in this study.

**Results:** After receiving one injection, 80% patient's cyst was ablated while the remaining needed further 2-3 injections. In some cases, extra care was needed because of low grade fever and hematuria after the procedure.

**Conclusion:** Most of the renal cysts were ablated with injection ethanol, thereby, improving quality of life of the patients. The most effective and the least invasive treatment is the percutaneous aspiration followed by sclerotherapy with ethanol injection. This procedure has least complications which subsided in few days.

**Keywords:** Renal Cyst, Injection Ethanol, Percutaneous Aspiration

## INTRODUCTION

The sacs of fluid which form in the kidney is called renal cysts. They simple cysts are the ones which comprises of thin wall and watery fluid in them. Renal cysts are common in old ages and usually have no symptoms. In Bosniak classification they are categorized as simple cysts, if they comprises subtle wall and non-malignant.

In general population the renal cysts are detected frequently on incidental basis because of increasing usage of the medical imaging.<sup>1</sup>

In few studies it's been shown that increasing age,<sup>2</sup>smoking,<sup>2</sup> male gender, renal dysfunction and hypertension<sup>3</sup> have association with renal cysts.

Usually simple cysts are asymptomatic and need no treatment, though they may cause flank pain, hematuria, hypertension and pelvi-calyceal system compression.<sup>4-6</sup>

Intervention is needed if the simple cysts are large causing hematuria, hypertension, progressively impairing renal functions and pain in the back or flanks.<sup>7</sup>

Majority of the simple cysts are asymptomatic and short-term while the incidence of the simple cysts noted is 1 in 1100 (0.09%) in fetuses during early pregnancy

(14-16 weeks gestation).<sup>8</sup>

The age related prevalence of Stage I renal cysts (simple cyst) of 0% (15–29 years); 1.7% (30–49 years); 11.5% (50–70 years) and 22.1% (over 70 years) is noted in normal renal function individuals of Australian population on ultrasonic study.<sup>9</sup>

Cases of stage I renal cysts were noted in the population of UK<sup>10</sup> and the USA<sup>11</sup> in two studies and were detected by CT scan. The least invasive procedure is percutaneous aspiration and sclerotherapy with the sclerosing agents have less complication. The local inflammation resulting in adhesion of the cyst walls.

The commonly performing procedure is percutaneous aspiration with alcohol sclerotherapy.<sup>12,13</sup> The complete ablation of the renal cyst was noted in 15(88%) patients and partial resolution in 2 (12%), in a study performed by Mohamed Awany Labib with a mean follow-up of 19 months (range 14–40).<sup>14</sup> Percutaneous aspiration and sclerotherapy with injection 95% ethanol is simple, less invasive, fast and cost effective treatment.

Urology department in Gajju Khan Medical College Swabi deal with heavy burden of patients from Swabi, Gadoon, Hazara and Bunir region with renal cyst disease. A study is hereby planned to share our experience in management of simple renal cyst.

## MATERIALS AND METHODS

Total of 70 patients were included in the study presented in 1-year duration from February 2018 to January 2019 in urology department, Gajju Khan medical college, Swabi.

Consent was taken from each individual. Patients

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were enrolled if they had symptoms and signs caused by a simple renal cyst confirmed by ultrasound (US) or computerized tomography (CT) examination. Patients of age 40 years to 80 years, having symptomatic renal cyst confirmed by Ultrasound and CT scan Abdomen and pelvis were included in this study. Patients having infectious renal cyst, Autosomal dominant polycystic kidney disease, cystic tumor of kidney or coagulopathy were excluded.

Detailed history and examination were taken on predesigned proforma.

In our percutaneous procedure, we used trocar method. In this procedure a multiple sided hole pigtail catheter was introduced into the cyst cavity. Patients were placed in supine position or lateral position and local anesthesia was applied. No sedative agent was given. Cystic fluid aspiration was done through catheter as much as possible. The volume of aspirated fluid was recorded and a sample was sent for routine and cytological examination. After aspirating cyst fluid, a diluted contrast media was injected into the cyst cavity. (Approx. 50% of the aspirated volume). 95% alcohol was injected into the cavity after contrast aspiration. Alcohol remained in the cavity for 2 hours and then evacuated and catheter removed thereafter. During alcohol injection, if patient experienced severe pain, ethanol was aspirated completely and needle removed immediately. 99% ethanol was injected in an amount 30-40% of aspirated volume of renal cyst. Smaller volumes were injected if patient felt intractable pain during ethanol instillation. The patient was moved from supine to prone and bilateral decubitus positions at 8-10 minutes interval to increase contact with all surfaces of the cyst epithelial wall.

Vitals of the patient were checked every 15 minutes for 2 hours. Patient was advised bed rest for 2 hours. Patients were discharged the following day, if asymptomatic. Follow up was done at 3 months by clinical assessment, ultrasonography or CT abdomen and pelvis.

Success of the procedure was defined as complete or partial (incomplete) when there was complete ablation or more than 80% reduction in cyst size with resolution of symptoms respectively. Failure was defined as less than 80% reduction in cyst size and/or persistent symptoms.

## RESULTS

A total of 70 patients were included in the study from February 2018 to January 2019 (1year duration). Age ranges from 40 years to 80 years with mean 58±10 years.

Thirty-seven were male and 33 were female as shown by chart No. 1. Patient presented more frequently with loin pain (60%) (Table No. 1). Majority of patients (95%) presented with unilateral cyst, 34(49%) right

sided, 32(46%) left sided and 4(5%) bilaterally (Table No. 3).

Patients with cysts having fluid more than 500 ml were less in number 28(40%) (Table No.4).

At follow-up 80% patient's cyst were completely ablated after one injection while other needed 2-3 injections. Fewer patients needed attention for low grade fever and hematuria following the procedure (Table No. 5).

**Table No 1. Presenting complaints**

Symptoms	No. of patients	Percentages
Loin pain	42	60%
Renal mass	14	20%
Hypertension	21	30%

**Table NO 2. Laterality of cysts**

Laterality	No. of patients	Percentages
Right	34	49%
Left	32	46%
Bilateral	4	5%
Total	70	100%

**Table No 3. Fluid in ml in cyst cavity**

Fluid in cyst cavity	No. of patients	Percentages
< 500 ml	42	60%
> 500 ml	28	40%
total	70	100%

**Table No 4. Cyst ablation after 3 months**

Ablation of cyst	Percentage of patients	No. of injections
Complete	80%	1
Incomplete	20%	2-3

**Table No 5. Complications during procedure**

Complications	No. of patients	Percentages
Hematuria	4	5.7%
Fever	7	10%

**Table No 6. Resolution of symptoms after treatment**

Symptoms	No. of patients	Percentages
Loin pain	38	90%
Renal mass(felt by Patient)	14	100%
Hypertension	17	80%

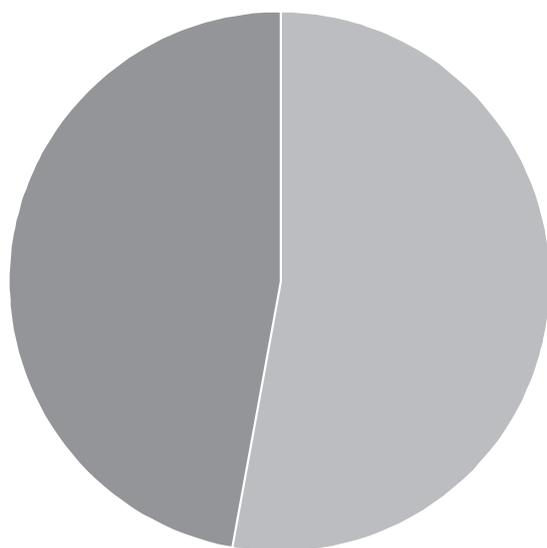


Fig 1. Gender distribution

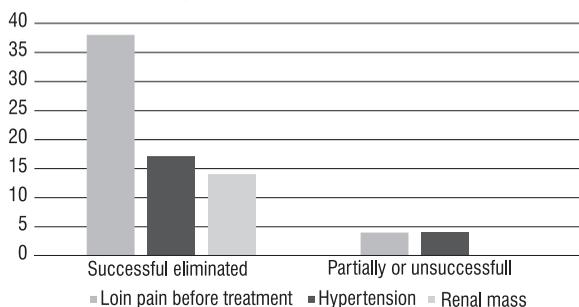


Fig 2. Symptoms before and after treatment

There was resolution of renal mass of all patients but hypertension and loin pain remains in some patients (Table No. 6).

## DISCUSSION

This current study is case series study and done at Urology department, Gajju Khan Medical College, Swabi.

A total of 70 patients were studied in this study and all of them presented with 1 or more renal cysts, most of them were unilateral and few were bilaterally.

Most of the patient with simple renal cysts are asymptomatic, while some have symptoms. The commonly presenting symptoms was pain in the back or flank area,<sup>15</sup> while the unusual presentation were hypertension,<sup>16</sup> haematuria<sup>17</sup> and renal mass.<sup>18</sup> the main presentation were back pain in 60%, hypertension in 30% and renal mass was present in 20% of the cases.

We used one injection of 95% ethanol for sclerotherapy in small renal cysts, while in large or moderately large cysts we used two or more injection of 95% ethanol. In 80% of the cases, there was complete resolution of the cysts. The same results were noted

(71-97%) in other studies in which one or more with or without 24hour continuous drainage of cysts before or after ablations.<sup>19,20</sup>

In a study performed by Delakas et al, injection 95% ethanol was used and was repeated twice for sclerotherapy of large cysts (6.3–14.8 cm), and noted complete resolution in 84% cases and partial response in 12% cases.<sup>20</sup>

A complete cystic resolution of 73-100%, with 95% ethanol injection repeated twice or more, is noted in one study.<sup>21</sup>

There was a significant relation between the degree of response and cyst size in the present study. There were partial resolution in 14 out of 28 cysts of > 500 ml while all the cysts of < 500 ml completely resolved after one injections. A successful treatment of large cyst with three successive daily injections was reported.<sup>22</sup>

There is no association between pain and complete resolution of the cysts. In this current study pain relieved in most cases but fewer have no improvement. Yoder in his study found that in few cases there was persistent of pain inspite of radiological apparent decreased cysts.<sup>23</sup>

There is likelihood of curing simple renal cyst related hypertension after ablation of the cysts. In some cases the hypertension persists inspite of resolution of the renal cysts. In our study 4 patients had persistent hypertension though their cysts resolved.

In a study by Touloupidis et al, hypertension was relieved in 29 (47%) out of 61 cases after sclerotherapy of simple renal cysts.<sup>24</sup> The least common presentation is hematuria which could be the possible sign of rupturing of cysts in pelvi-calyceal system.<sup>25</sup> In our study, 4 patients had hematuria which was subsided in few days.

There is least complications of percutaneous aspiration followed by sclerotherapy. We experienced no complication with cyst aspiration followed by sclerotherapy. Some authors also noted no complication following aspiration in their studies.<sup>26-28</sup>

In other study by De Dominicis et al, there was severe pain with alcoholic cystic filling in few cases.<sup>29</sup>

Alcoholic concentration (95% or 99%), duration of sclerotherapy per session, alcoholic volume in relation to cyst volume, continuous/intermittent drainage of the cyst, duration of drainage of the cysts and number of required alcoholic injections are the factors needs to be optimized.

## CONCLUSION

Most of the renal cysts were ablated with injections of ethanol, thereby, improving quality of life of

the patients. The most effective and the least invasive treatment is the percutaneous aspiration followed by sclerotherapy with ethanol injection. This procedure has least complications which subsided in few days.

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