

Endoscopic Renal Cyst Ablation

TADAYON A*, A'YANIFARD M, MANSOORI D

Department of Urology, Shiraz University of Medical Sciences, Shiraz, Iran

ABSTRACT

Purpose: To evaluate the result of simple renal cyst ablation by endoscope and compare the results with other techniques of renal cyst treatment.

Materials and Methods: A prospective study was performed at Shaheed Faghihi hospital from January 2001 to January 2003. Ten patients with symptomatic simple renal cyst were selected for this study. The exclusion criteria were history of previous renal surgery, parapelvic cyst, and cyst size less than 50 mm. Urinalysis, urine culture, serum electrolytes, ultrasonography, and CT scan were done before operation. The patients underwent endoscopic renal cyst ablation and cytology of cyst fluid and histopathological examination of cysts' walls were done in all patients. The patients were followed with ultrasonography after two weeks and 2, 6, and 12 months postoperatively. Disappearance of the cyst or decreasing its size to less than 50% of its primary size was considered as improvement.

Results: All the patients were female with a mean age of 55 (range 22 to 75) years. The operation was successful in 9 patients with no major complications. Perinephric hematoma and excessive leakage were seen in two patients. The operative time was 38 ± 10.8 minutes and hospital stay was 3 ± 1.3 days. Mean size of cyst before operation was 75 ± 19.7 mm and changed to 12.7 ± 15.3 mm after operation ($p < 0.001$). Flank pain subsided in 88.8% ($p < 0.008$).

Conclusions: Cyst ablation can be used for the treatment of simple renal cysts not responding to aspiration and sclerosing therapy, and if there is no laparoscopic facility. More studies are needed to confirm these results.

KEY WORDS: simple renal cyst, ablation, endoscope, treatment

Introduction

Simple renal cyst is a common finding and its incidence increases with age, corresponding to a rate of 33% in population over 60. There is no gender predilection and no genetic association. The etiology is unknown, but tubular obstruction and ischemia due to obstruction may have an etiologic role. Fortunately, most patients have no symptoms. The presenting symptoms are flank pain, hypertension, hematuria, and caliceal obstruction.⁽¹⁻⁶⁾

The first line treatment of symptomatic simple renal cyst is ultrasound guided aspiration of the cyst and application of sclerosing agents (ethanol 95%).⁽⁷⁾ Recurrence rate depends on the tech-

nique of procedure. In recurrent cases laparoscopic cystectomy is recommended.⁽⁸⁾ Open surgical cystectomy is rarely needed. Salas Sironvalle et al⁽⁹⁾ have reported endoscopic cyst ablation. In the present study, we evaluated endoscopic ablation in 10 symptomatic patients with simple renal cyst.

Materials and Methods

A prospective study was performed at Shaheed Faghihi hospital from January 2001 to January 2003. Ten patients with symptomatic simple renal cyst, referred to urology clinic, were selected for this study. The exclusion criteria were history of previous renal surgery, parapelvic cyst, and cyst size less than 50 mm.

Detailed information about endoscopic surgery

Accepted for publication in April 2003

**Corresponding author: Department of Urology,
Shiraz University of Medical Sciences, Shiraz, Iran.
email: amin_sharifi@hotmail.com*

and risk of recurrence were described for all patients. The consent was taken from each patient. Urinalysis, urine culture, serum electrolytes, ultrasonography, and CT scan were done before operation.

The patients underwent endoscopic renal cyst ablation, cytology of cyst fluid, and histopathological examination of cysts wall.

The procedure was done under general anesthesia in flank position. The entrance site to the cyst was determined by means of ultrasonography in operating room. A 19 gauge nephrostomy needle was advanced into cyst cavity and cyst puncture for cytology was done. A 0.038 inch guide wire was advanced through the needle into cyst cavity and the tract was dilated up to 26 F. A 30 F Amplatz sheath was placed in cavity and resection and fulguration of the cyst wall and its bed was done with a 24 F resectoscope under direct vision. The cyst bed was irrigated with distilled water and a 16 F indwelling catheter was placed in cavity. Drain was removed after one to three days.

The patients were followed with ultrasonography two weeks and 2, 6, and 12 months postoperatively. Disappearance of the cyst or decreasing its size to less than 50% of its primary size were defined as improvement.⁽¹⁾

Paired t test and Fisher's exact test were used for statistical analysis.

Results

From January 2001 to January 2003, 10 patients underwent renal cyst ablation. One operation failed due to the small size of the cyst (34 mm) and changed to open renal cystectomy.

All of the patients were female with a mean age of 55 (range 22 to 75) years. The operation was successful in 9 patients with no major complications (table 1). Perinephric hematoma with no hemoglobin drop occurred in one patient. Hematoma was drained under ultrasonography guidance after two weeks. Excessive urine leak-

TABLE 1. Cyst size before and after endoscopic ablation

\ Patients	1	2	3	4	5	6	7	8	9
size (mm)									
Cyst size before operation	90	75	65	48	54	98	66	107	76
2 weeks after operation	62	0	34	30	32	0	48	0	0
2 months after operation	34	0	32	22	26	0	28	0	0
6 months after operation	32	0	31	0	24	0	28	0	0
12 months after operation	32	0	31	0	24	-	-	0	0

age was seen in one patient for 6 days. She had no perinephric collection after removing the drain. There were no trauma to major intra-abdominal organs or great vessels. No pneumothorax or hemothorax were detected. The operative time was 38±10.8 minutes and hospital stay was 3±1.3 days. The patients were followed for 11.4±4.8 months.

Cytology was normal in all patients. Pathologic reports of all cyst walls were in favor of benign renal cyst. The mean size of the cyst before operation was 75±19.7 mm and changed to 12.7±15.3 mm after operation (p<0.001) (fig. 1).

The cyst was no longer seen in 5 (55.5%) cases and the size of cyst decreased to less than 50% in the remaining; therefore, the operation was successful in all patients.

Flank pain subsided in 8 (88.8%) patients (p< 0.008). Pain remained in one patient as the same intensity as before operation, in spite of subsiding of the cyst in ultrasonography. Thus, the pain was thought to have non-renal origin.

There was no relationship between the result of operation and surgeon experience or the size of the cyst (less or more than 70 mm) (table 2).

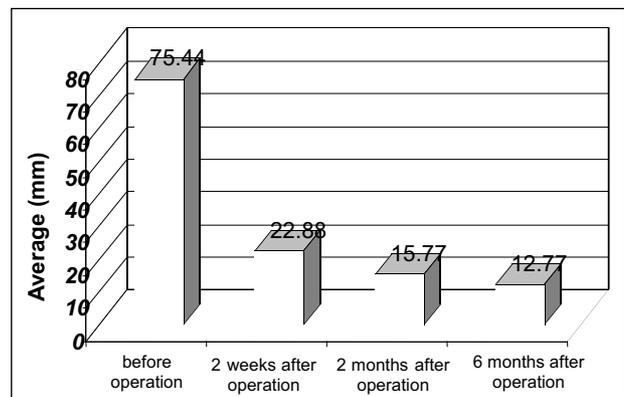


FIG. 1. Renal cyst size before and after operation

TABLE 2. Comparison of the results of therapy according to the primary cyst size

Cyst size	Number	Complete cyst ablation	Decrease size of cyst
more than 70 mm	4	1	3
less than 70 mm	5	4	1

Discussion

Most simple renal cysts are treated with aspiration and/or injection of sclerosing agents.⁽⁷⁾ Aspiration alone has 30% to 78% recurrence rate.⁽¹⁰⁾ Using sclerosing agents decrease recurrence rate dramatically. Different types of sclerosing agents have been used. All had good results

TABLE 3. Comparison of the results of different studies with Shaheed Faghi hospital's cyst ablation results

Reference	Technique	Number of cysts	>50% decrease in size	Complete disappearance	Follow-up
Chuny et al 2000	Aspiration+	42, one injection	57%	19%	12.4 months
	Ethanol 95%	40, two injections		73%	15.4 months
Guazzoni et al 1993	Laparoscopic cyst ablation	20	95%	100%	6 months
Salas Sironvalle et al 1993	Endoscopic	5	100%	80%	
Shiraz Center Study	Endoscopic	9	100%	55%	11.4 months

with no priority to each other.⁽¹¹⁾ Techniques and number of injections of sclerosing agents had different results. Hanna and Dahniya (1996) reported 32% recurrence rate after one injection of 95% ethanol and no recurrence within two years, after two injections with 48 hours interval in their patients.⁽¹²⁾

When conservative therapy is not successful, aspiration, laparoscopic excision,⁽⁸⁾ endoscopic ablation,⁽⁹⁾ and open surgery is recommended.

The technique used in this study is a novel one and has similarity to the technique used by Salas Sironvalle in 1993⁽⁹⁾ and our results agree with these studies and are comparable with aspiration and with laparoscopic techniques (table 3).

It is recommended to use this technique in the treatment of cysts larger than 50 mm. in our study, the operation was successful in all patients except one and the pain relieved in 88% of the patients. It is important to know that renal cyst aspiration is a simple procedure and has low morbidity with high recurrence rate.⁽¹³⁾ Using sclerosing agents significantly decrease recurrence rate.

Sclerosing agents injection rarely has sever complications such as ureteropelvic junction obstruction⁽¹⁴⁾ or diffuse renal paranchymal inflammation, which may needs nephrectomy.⁽¹⁵⁾

The advantages of endoscopic cyst ablation are as follows:

- 1- it is safe and has comparable results with open and laparoscopic operation;
- 2- it has better results than simple aspiration with or without using sclerosing agents;
- 3- It is less expensive and simpler than laparoscopic procedure;
- 4- urologists are more familiar with this technique;
- 5- Histopathologic evaluation of cyst wall can be done.

The disadvantages of endoscopic cyst ablation are:

- 1- need for general anesthesia,

- 2- need for hospital admission (this procedure can be done as OPD procedure),
- 3- dependency on radiologist help in operating room (there was no radiologist help in this study),
- 4- risk of tumor seeding, if the cyst is malignant.

Conclusion

This technique can be used for the treatment of simple renal cysts not responded to aspiration and sclerosing therapy, and if there is no laparoscopic facility. More studies are needed to confirm these results.

References

1. Glassberg KI. Renal dysgenesis and cystic disease of the kidney. In: Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ, editors. Campbell's Urology. 8th ed. Philadelphia: WB Saunders; 2002. p. 1937-1974.
2. Zegel HG, Sherwin NM, Pollack HM. Renal masses. In: Grainger RG, Allison DG, editors. Diagnostic radiology: an Anglo-American test book of imaging. Edinburgh: Churchill livingstone; 1992. p.1235.
3. Rockson SG, Stone RA, Gunnells JC Jr. Solitary renal cyst with segmental ischemia and hypertension. J Urol 1974 Nov; 112(5): 550-2.
4. Luscher TF, Wanner C, Siegenthaler W, Vetter W. Simple renal cyst and hypertension: cause or coincidence? Clin Nephrol 1986 Aug; 26(2): 91-5.
5. Rosenbaum RC, Johnston GS. Posttraumatic cardiac dysfunction: assessment with radionuclide ventriculography. Radiology 1986 Jul; 160(1): 91-4.
6. Hinman F Jr. Obstructive renal cysts. J Urol 1978 May; 119(5): 681-3.
7. Bean WJ. Renal cyst: treatment with alcohol. Radiology 1981; 138: 329-331.
8. Stoller ML, Irby PB 3rd, Osman M, Carroll PR. Laparoscopic marsupialization of a simple renal cyst. J Urol 1993 Nov; 150(5 Pt 1): 1486-8.
9. Salas Sironvalle M, Vallancien G, Brisset JM. Endourological management of benign renal cyst: a simplified procedure. Arch Esp Urol 1993; 46(10): 935-8.

10. Stevenson JJ, Sherwood T. Conservative management of renal masses. *Br J Urol.* 1971 Dec; 43(6): 646-7.
11. Holmberg G, Hietala SO. Treatment of simple renal cysts by percutaneous puncture and instillation of bismuth-phosphate. *Scand J Urol Nephrol* 1989; 23(3): 207-12.
12. Paananen I., Hellstron R., et al. Treatment of renal cysts with single-session percutaneous drainage and ethanol sclerotherapy: long-term outcome. *Adult Urology* 2000; 30-33.
13. Lang EK. Renal cyst puncture studies. *Urol clin North Am* 1987; 14: 91-102.
14. Camacho MF, Bondhus MJ, Carrion HM, lockart JL, Politano VA. Ureteropelvic junction obstruction resulting from percutaneous cyst puncture and intracystic isophendylate injection: an unusual complication. *J Urol* 1979; 124: 713-714.
15. Beyer D, Fiedler V. Is renal cyst puncture an available diagnostic procedure for differentiation of avascular, space-occupying renal lesions? *Urologe A* 1977 Nov; 16(6): 339-45.