UroToday International Journal®

www.urotodayinternationaljournal.com
Volume 1 - December 2008

Treatment of Symptomatic Simple Renal Cysts by Percutaneous Aspiration and Ethanol Sclerotherapy

Mohamed Awny Labib
School of Medicine, University of Zambia
Submitted on 14 August 2008 - Accepted for Publication on 24 September 2008

ABSTRACT

INTRODUCTION: Although simple renal cysts are usually asymptomatic and discovered incidentally, treatment is undoubtedly still indicated in symptomatic patients. Significant pain, compression of the pelvicalyceal system, and possibly related hypertension or hematuria are indications for intervention.

PATIENTS AND METHODS: Our study included 17 patients (11 men and 6 women, mean age of 46 years) with symptomatic simple renal cysts. The main presentation was renal pain in 9 patients, followed by hypertension in 5 and hematuria in 3. The patients were treated by ultrasonography (US)-guided percutaneous aspiration and with an injection of 95% ethanol. Patients were evaluated one-month postoperatively and every six months thereafter by clinical assessment, US, and intravenous urography. Success was defined as complete when there was total ablation of the cyst and partial when there was a recurrence of less than half the original cyst volume and a resolution of symptoms. Failure was defined as the recurrence of more than half of cyst volume or persistent symptoms.

RESULTS: After aspiration and ethanol sclerotherapy, there was microscopic hematuria in 2 patients and low-grade fever (< 38.3°C) in another 2, but no major complications. During a mean follow-up of 19 months (range 14–40), there was complete cyst ablation in 15 (88%) patients and partial resolution in 2 (12%). Pain disappeared or was much improved in all patients. Hypertension was well controlled with no medication in 4 of the previously hypertensive patients, and hematuria disappeared in all 3 affected patients.

CONCLUSION: Ethanol sclerotherapy for symptomatic simple renal cysts is simple, minimally invasive, and highly effective. We recommend it as the first therapeutic option in these patients.

KEYWORDS: Simple renal cyst, Percutaneous aspiration, Sclerotherapy

CORRESPONDENCE: Mohamed Awny Labib, Senior Lecturer, School of Medicine, University of Zambia, labib@mail.zamtel.zm

INTRODUCTION

In most patients, renal cysts are asymptomatic and usually diagnosed incidentally through imaging studies [1]. Sonographic features of a simple renal cyst are defined as a round, smooth-walled mass with no internal echoes and causing distal echo-enhancement [2]. As the ultrasonic definition of simple renal cysts is well established, further investigations, such as intravenous urography (IVU), CT scan, contrast injection, or surgical exploration, are less common in modern practice.

If the cyst is large, it causes pain or manifests as a palpable mass. Infection, hypertension, and obstruction of the ureter may be associated with renal cysts [3,4].

Management of symptomatic renal cysts can be accomplished by several methods. Surgical resection still has a role in some cases, but laparoscopic decortication or marsupialization of simple renal cysts was recently introduced to reduce procedure-related morbidity (27-30%). However, both modalities are invasive and require general anesthesia, which brings with it its

doi:10.3834/uij.1939-4810.2008.11.01

ISSN 1944-5792 (print), ISSN1944-5784 (online)

UroToday International Journal®
original study
Treatment of Symptomatic Simple Renal Cysts by Percutaneous Aspiration and Ethanol Sclerotherapy

accompanying operative morbidity and complications. Thus, they have been replaced by minimally invasive approaches that are based on percutaneous needle aspiration or sclerotherapy [5]. Aspiration without sclerotherapy of simple renal cysts is minimally invasive but has a high recurrence rate that may be greater than 90% [1,6]. Aspiration followed by sclerotherapy has been reported to have better success rates than simple aspiration, with a much lower recurrence rate [6-8].

Bean [7] first reported the use of ethanol as the sclerosing substance for the treatment of a symptomatic renal cyst in 1981. Since then, varying techniques of sclerotherapy have been proposed. In the present series, we report our experience of using 95% ethanol as sclerosing agent for treating symptomatic simple renal cysts.

PATIENTS AND METHODS

We treated 17 symptomatic simple renal cysts in 17 consecutive patients by percutaneous aspiration and sclerotherapy as an outpatient procedure. Table 1 shows the demographic characteristics of the patients, their clinical presentation, and the success rate. Cysts affected the right kidney in 9 (53%) patients and the left in 8 (47%). Patients were evaluated by urine analysis, serum creatinine level, coagulation profile, renal ultrasonography (US), and IVU. A diagnosis of simple renal cyst was based on the ultrasonogram showing a smooth, well-defined wall, echo-free with good transmission, leading to posterior enhancement and a well-demarcated posterior wall. The volume of the cyst was measured by US. The patient was sedated, received local anesthesia, and placed prone. The cyst was punctured, and the fluid was aspirated under real-time ultrasound to monitor cyst size. Aspiration was immediately followed by injection with 95% ethanol in a volume equal to 25% of the total cyst volume and at a rate of 1 ml/30 sec.

Each patient was reassessed one-month postoperatively and then at six-month intervals. The initial follow-up evaluation included a clinical assessment of previous symptoms and US. The disappearance of symptoms and renal cyst was considered to be a complete success, and the relief of symptoms with cyst volume reduced by more than half considered as a partial success. The treatment was considered a failure when the cyst recurred to more than half the volume before treatment or when the symptoms persisted.

RESULTS

After aspiration and ethanol sclerotherapy, there was microscopic hematuria in 2 (12%) patients and low-grade fever (< 38.3°C) in another 2 (12%), but no major complications. These were treated successfully by conservative measures and antibiotic therapy. During a mean (range) follow-up of 19 (14–40) months, there was complete cyst ablation in 15 (88%) cysts and partial resolution in 2 (12%). Pain disappeared or was much improved in all patients.

Characteristics	No. of patients
Sex	
Male	11 (65%)
Female	6 (35%)
Laterality	
Right	9 (53%)
Left	8 (47%)
Success	
Complete	15 (88%)
Partial	2 (12%)
Pain/discomfort was present with variable degrees in all patients	

Table 1. The demographic characteristics, clinical presentation, and success rate of patients with simple renal cysts
doi: 10.3834/uij.1939-4810.2008.11.01.t1

DISCUSSION

The causes of renal cysts are not completely understood. Ischemia, local obstruction of nephrons with subsequent proximal nephron dilation, and small diverticula on renal tubules that increase with age have all been implicated [4,9]. Most renal cysts are asymptomatic and are discovered incidentally through imaging studies. Only symptomatic or complicated cysts require treatment. Several treatments have been proposed, such as surgical or laparoscopic excision [10], simple percutaneous drainage [11] , and percutaneous drainage followed by instillation of a sclerosing agent. Simple aspiration has a low rate of success and a high rate of fluid reaccumulation because the cysts are lined by secretory epithelium [12]. For a lasting benefit, a sclerosing substance is usually injected after cyst aspiration. The optimum agent for renal cyst sclerotherapy remains to be determined. Sterile ethanol, whether 95% [1,2,6] or 99% [3,4,13], is the most commonly used. It rapidly inactivates the secreting cells on the cyst and slowly (4–12 hr) penetrates the fibrous capsule of the cyst [5]. This allows the cyst to be removed before the renal parenchyma is affected [13].

doi:10.3834/uij.1939-4810.2008.11.01
http://www.urotodayinternationaljournal.com
ISSN 1944-5792 (print), ISSN1944-5784 (online)

We used 95% ethanol for sclerotherapy, with one injection in small renal cysts and two or more in moderately large or large cysts. There was complete resolution of 15 (88%) cysts. Similar results were reported (71–97%) by other authors who used single or multiple injections with or without 24-hour continuous cyst drainage before or after ablation [6,7,8,12,13,14].

Ethanol sclerotherapy for symptomatic simple renal cysts by US guidance is a simple, minimally invasive outpatient procedure and is highly cost-effective [15]. We recommend it as the first therapeutic option in these cases. We recommend aspiration and single-injection alcohol sclerotherapy for small symptomatic cysts of less than 150 mL, while moderate cysts (150–500 mL) may be treated by multiple-injection sclerotherapy. Patients with giant renal cysts may be given the option of percutaneous aspiration and multiple-injection sclerotherapy as an outpatient procedure or laparoscopic decortication.

REFERENCES

[1] Mohsen T, Gomha MA. Treatment of symptomatic simple renal cysts by percutaneous aspiration and ethanol sclerotherapy. BJU Int. 2005 Dec;96(9):1369-72.

[2] Okeke AA, Mitchelmore AE, Keeley FX, Timoney AG. A comparison of aspiration and sclerotherapy with laparoscopic de-roofing in the management of symptomatic simple renal cysts. BJU Int. 2003 Oct;92(6):610-3.

[3] McHugh K, Stringer D, Hebert D, Babiak CA. Simple renal cysts in children: Diagnosis and follow-up with US. Radiology. 1991 Feb;178(2):383-5.

[4] Hanna RM, Dahniya MH. Aspiration and sclerotherapy of symptomatic simple renal cysts: value of two injections of a sclerosing agent. AJR Am J Roentgenol. 1996 Sep;167(3):781-3.

[5] Churchill D, Kimoff R, Pinsky M, Gault MH. Solitary intrarenal cyst: correctable cause of hypertension. Urology. 1975 Oct;6(4):485-8.

[6] Touloupidis S, Fatles G, Rombis V, Papathanasiou A, Balaxis E. Percutaneous drainage of simple cysts of the kidney: a new method. Urol Int. 2004;73(2):169-72.

[7] Bean WJ. Renal cyst: treatment with alcohol. Radiology. 1981 Feb;138(2):329-31.

[8] el-Diasty TA, Shokeir AA, Tawfeek HA, Mahmoud NA, Nabeeh A, Ghoneim MA. Ethanol sclerotherapy for symptomatic simple renal cysts. J Endourol. 1995 Jun;9(3):273-6.

[9] Baert L, Steg A. Is the diverticulum of the distal and collecting tubules a preliminary stage of simple cyst in the adult? J Urol. 1977 Nov;118(5):707-10.

[10] Zegel HG, Sherwin NM, Pollack HM. Renal masses. In: Grainger RG, Allison DG, eds. Diagnostic radiology: an Anglo American textbook of imaging. Edinburgh, Scotland: Churchill Livingstone,1992

[11] Atug F, Burgess SV, Ruiz-Deya G, Mendes-Torres F, Castle EP, Thomas R. Long-term durabilityof laparoscopic decortication of symptomatic renal cyst. Urology, 68(2);272-275, 2006.

[12] Raskin MM, Poole DO, Roen SA. Percutaneous management of renal cysts: results of a four-year study. Radiology. 1975 Jun;115(3):551-3.

[13] Delakas D, Karyotis I, Loumbakis P, Daskalopoulos G, Charoulakis N, Cranidis A. Long-term results after percutaneous minimally invasive procedure treatment of symptomatic simple renal cysts. Int Urol Nephrol. 2001;32(3):321-6.

[14] Fontana D, Porpiglia F, Morra I, Destefanis P. Treatment of simple cysts by percutaneous drainage with three repeated alcohol injections. Urology. 1999 May;53(5):904-7.

[15] Gasparini D, Sponza M, Valotto C, Marzio A, Luciani LG, Zattoni F. Renal cysts: can percutaneous ethanol injections be considered an alternative to surgery? Urol Int. 2003;71(2):197-200.

TO CITE THIS ARTICLE: Labib MA. Treatment of Symptomatic Simple Renal Cysts by Percutaneous Aspiration and Ethanol Sclerotherapy. UIJ. 2008 Dec;1(5). doi:10.3834/uij.1939-4810.2008.11.01