

MANAGEMENT OF SIMPLE INTRATESTICULAR CYSTS: A SINGLE-INSTITUTION 11-YEAR EXPERIENCE

IQBAL S. SHERGILL, ALI THWAINI, FAIYAZ KAPASI, BERNARD S. POTLURI, AND CHRIS BARBER

ABSTRACT

Objectives. To evaluate the clinicoradiologic findings and outcomes of management of simple intratesticular cysts, by review of an 11-year experience.

Methods. From March 1994 to September 2005, 24 men underwent scrotal ultrasound scan and follow-up for simple intratesticular cysts. The median follow-up was 32 months (range, 6 to 124 months). The records were analyzed retrospectively for presentation, radiologic findings, and outcomes of management.

Results. All 24 patients with simple intratesticular cysts were managed successfully with radiologic surveillance. No patient underwent orchidectomy or required enucleation of the cyst.

Conclusions. Simple intratesticular cysts can be managed conservatively with regular ultrasound surveillance by an experienced urologist, without the need for surgical intervention. *UROLOGY* 67: 1266–1268, 2006. © 2006 Elsevier Inc.

Simple intratesticular cysts are extremely rare, but since the introduction and more frequent use of ultrasound scrotal scanning (USS), it has been found that the prevalence of these cysts is greater than originally expected.¹ Experience of their management is limited, and the dilemma for the urologist is to decide on appropriate treatment strategies. Some would argue that small foci of undiagnosed malignancy might coexist with the simple cyst and thus advocate radical orchidectomy,² whereas others suggest enucleation of the cyst only, with sparing of the testicular parenchyma.^{2,3} Recently, with the increasing accuracy of high-frequency USS, there is a growing trend toward a conservative approach, consisting of surveillance of the cyst in transverse and longitudinal planes by an experienced urologist.^{4,5} We reviewed our experience of the clinicoradiologic findings and management of simple intratesticular cysts, over an 11-year period.

MATERIAL AND METHODS

Between March 1994 and September 2005, we identified 24 patients satisfying the radiologic criteria for simple intratesticular cysts (Fig. 1).^{5,6} All patients underwent repeat USS 6

months after the initial examination, and then further USS depending on radiologic findings, the presence of symptoms, or patient request. All patients were then recalled for clinical review and follow-up USS. Ultrasound scrotal scanning was performed by a single experienced urologist, and the scrotal contents were viewed in longitudinal and transverse planes, with the patient in the supine position. A 7.5-MHz linear-array transducer (Sonoline Omnia; Siemens, Malvern, Pa) combined with a water path was used, with an axial resolution of 0.6 mm and an electronic focusing area starting at 1.4 cm. In addition, appropriate medical notes were reviewed retrospectively to establish clinical indication for USS and patient demographics.

RESULTS

The mean age of our patient population was 64.5 years (range, 35 to 92 years), and median follow-up was 32 months (range, 6 to 124 months). Of the 24 patients, 17 (71%) had a simple cyst in the right testis, 6 (25%) had a cyst in the left testis, and 1 (4%) had bilateral cysts. In 6 patients (25%) the cysts were multiple, and the remaining 18 patients (76%) only had a single cyst. The maximum diameter of the cysts was 33 mm (Case 8), and the minimum was 1 mm, with a median diameter of 6 mm. An associated epididymal cyst was found on the ipsilateral side in 7 patients and on the contralateral side in 6 patients. The indications for scanning are listed in Table I.

Of the study population, no patients required surgical intervention, because the radiologic features of the simple cysts did not change signifi-

From the Princess Alexandra Hospital, Harlow, Essex, United Kingdom

Reprint requests: Iqbal S. Shergill, B.Sc (Hons) M.R.C.S. (Eng), 62 Ward Avenue, Grays, Essex RM17 5RW, United Kingdom. E-mail: super_iqi@yahoo.co.uk

Submitted: October 22, 2005, accepted (with revisions): January 9, 2006



FIGURE 1. A round and anechoic simple cyst, 9.4 mm in diameter, seen in an otherwise normal right testis.

TABLE I. Clinical presentation of patients

Clinical Presentation	Patients (n)
Orchitis	7
Pain	5
Lump	6
Trauma	2
LUTS	4

Key: LUTS = lower urinary tract symptoms.

cantly during the study period. One patient died of an unrelated cause.

COMMENT

The management of simple intratesticular cysts is controversial.

Radical orchidectomy might be advocated, because benign lesions might coexist with unrecognized malignant areas.^{2,7} With this approach, the diagnosis can be definitively confirmed or refuted histopathologically. However, there is clearly a significant risk of unnecessary removal of a normal testis if no malignancy is actually detected. In addition, there are reports of organ-preserving procedures for benign disease by enucleation,^{2,3} in which follow-up revealed no evidence of recurrence.⁴ However, organ-preserving removal of a small (1 to 2 mm) cyst might be technically demanding, especially if the location is central.

Recently, Kratzik *et al.*⁴ showed that a USS surveillance strategy of simple intratesticular cysts was feasible. In their series of 15 patients with simple cysts, 9 did not undergo an operation but were kept under close surveillance with high-frequency USS. The surveillance strategy was extremely intensive and consisted of tumor markers and USS every 4 weeks for the first 6 months, every 2 months until the end of the first year, every 3 months until the end of year 2, and then at 6-month intervals. In addition, they performed chest x-rays and retro-

peritoneum USS at presentation. This preliminary report was encouraging: all 9 patients were sonographically free of detectable malignancy, and no patient had any change in appearance of the simple cyst by USS. However, closer inspection of the data in this study revealed that median follow-up surveillance was only 9 months (range, 6 to 21 months), and no follow-up reports from this series with longer-term surveillance data have been published to date. In the study by Hamm *et al.*,⁸ 13 patients were identified with simple intratesticular cysts, of whom only 5 were followed up with USS; the other 8 underwent surgical management. The patients undergoing surveillance had only one follow-up USS examination at 1 to 6 months, and this showed no changes compared with the initial findings. In our study, although we accept that it is a retrospective analysis, we have shown that patients can be followed up successfully over a long period (median follow-up, 32 months) with a less stringent USS policy. None of our patients required surgery for possible malignant transformation. Those patients who requested follow-up, predominantly because of anxiety, were reassured with consistently normal USS results.

None of our 24 patients presented with the simple intratesticular cyst as a palpable lump, even Case 8, who had a 33-mm cyst, in agreement with previous reports.⁹ This is in stark contrast to other intratesticular lesions. Testicular tumors (benign and malignant), epidermal cysts, and tunica vaginalis cysts can all be palpated as a mass in relation to their size.¹⁰ Furthermore, simple cysts can be diagnosed confidently on USS because they have a relatively clear echogenic rim, an anechoic center, and through transmission, sometimes associated with distal acoustic shadowing.⁶ Thus, with a combined clinical and radiologic (USS) approach, a correct diagnosis of simple intratesticular cyst can be established confidently, allowing the possibility of management by USS surveillance.

The pathogenesis and etiology of simple intratesticular cysts is unknown. Theories suggest that they might result from a congenital anomaly or trauma or be associated with chronic infection.^{1,2} Indeed, the first-ever reported human case of a simple cyst was in an infant,¹¹ and before this, in 1919, Barach reported a testicular cyst in a dog after trauma.¹ The assumption that these cysts are caused by trauma or inflammation was supported by the histologic and clinical findings in the series by Hamm *et al.*,⁹ in which 6 patients (46%) had a history of epididymitis, and 2 had a previous history of testicular biopsy. They also concluded that the rare cases of cystic dysplasia of the testis demonstrating multiple cysts are assumed to develop from an embryogenic defect. In our series, 7 patients (29%) had a history of epididymo-orchitis,

and 4 patients (17%) had a history of trauma, 2 of whom had trauma on the same side as the simple cyst. From these data, we would agree with previous conclusions that the definitive etiology of simple intratesticular cysts is still unknown but that trauma and infection might be causally related to development of cysts through as-yet-unidentified mechanisms.

Finally, the average age of patients in this study was 64.5 years; thus, these patients might represent a relatively low-risk population for testis malignancy. As a result, it seems that the possibility of routine surveillance by USS in this group of patients, with its associated costs, might not be entirely justified. More research on this issue is needed before a definitive conclusion can be reached.

CONCLUSIONS

Over an 11-year period, we have successfully managed patients with intratesticular cysts conservatively, with no patient requiring surgical intervention. High-frequency USS surveillance of cysts by an experienced urologist should be advocated in the management of such cases.

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