Sonography of Urethral Calculi

S.	Shigehiko	Koga ^{a,b}
K.	Kazutaka	Shiraishi ^{a,b}
Y.	Yutaka	Saito ^b
Y.	Yoshitaka	Arakaki ^c
M.	Masanori	Matsuoka ^c

Departments of Urology ^aYahata City Hospital, Kitakyushu City, Fukuoka; ^bNagasaki University School of Medicine, Nagasaki, and ^cOkinawa Chubu Hospital, Gushikawa City, Okinawa, Japan

Key Words

Urethral calculi
Sonography
Noninvasive screening technique

Abstract

We performed sonography in 7 males with membranous and posterior urethral calculi. Sonography demonstrated the urethral calculi in all 7 patients. These findings suggest that sonography is useful as a noninvasive screening technique for urethral calculi.

Shigehiko Koga, Department of Urology, Nagasaki University, School of Medicine, Nagasaki City 852 (Japan)

Introduction

Urethral calculi cause dysuria or urinary retention so that most patients need urgent diagnosis and management. The diagnosis of urethral calculi has traditionally been based on either contrast radiography or urethroscopy. The aim of this study was to assess the diagnostic value of sonography for the patients with urethral calculi.

Materials and Methods

Seven males with urethral calculi were studied with sonography. Urethrocystography and urethroscopy confirmed the diagnosis in all. Sonography was done with a 5-MHz linear transducer (RT 2000 Yokogawa Medical systems, Japan) which was placed on the perineum at the level of the urethra. The patients were scanned in the dorsal lithotomy position. Both sagittal and coronal images of the urethra were obtained when scanning.

Table 1. Characteristics of patients

tography (fig. 1b) and urethroscopy. We performed retrograde manipulation into the urinary bladder and underwent lithotripsy or litholapaxy in all patients.

Results

Discussion

Table 1 summarizes the clinical findings in 7 patients with urethral calculi. Sonography demonstrated an echogenic area with acoustic shadowing in all 7 patients (fig. 1a): Urethral calculi were confirmed by urethroscopy-

Urethral calculi are found anywhere in the urethra. Paulk et al. [1] reported that posterior urethral calculi occurred most frequently, but Amin [2] and English [3] reported that anterior urethral calculi were found more

Fig. 1. Patient 2. a Sagittal (left) and coronal (right) real-time ultrasound scan (5 MHz) of the urethra showing an echogenic area with acoustic shadowing (arrow), b Urethrography showing a calculus (arrow) in the membranous urethra (top: plain film).

often. We could identify urethral calculi in the posterior and membranous urethra by sonography. So, sonography is thought to demonstrate urethral calculi at any urethral site. The major advantage of sonography is its noninvasiveness. This not only reduces the risk of infection in patients, who often have acute or chronic infection of the urethra, but also improves the patient's comfort significantly. Retrograde urethrography is uncomfortable for patients and it may increase the risk of infection. Urethral calculi are often associated with urethral stenosis and urethral diverticulum [4]. Sonography may demonstrate urethral stenosis [5] and diverticulum [6] and it may be more useful in radiolucent urethral calculi. Patients with urethral calculi often present with dysuria, burning urination, gross hematuria or urinary frequency. Our results suggest that in patients with these symptoms, sonography is useful as a screening technique for the detection of urethral calculi and able to replace radiography in the initial work-up.

- References
- 1 Paulk SC, Khan AU, Malek RS, Greene LF: Urethral calculi. J Urol 1976;116:436-439.
- Amin HA: Urethral calculi. Br J Urol 1973;45: 192-199.
- Englisch J: Ueber eingelagerte und eingesackte Steine der Harnröhre. Arch Klin Chir 1904;72: 487-556.
- Koga S, Arakaki Y, Matsuoka M, Ohyama C: Urethral calculi. Br J Urol 1990;65:288-289.
- Gluck CD, Bundy AL, Fine C, Loughlin KR, Richie JP: Sonographic urethrogram: Comparison to roentgenographic techniques in 22 patients. J Urol 1988;140:1404-1408.
- Pliskow N, Silver TM: Ultrasonic diagnosis of urethral diverticulum. Urology 1980;15:625-626.
- 204 Koga/Shiraishi/Saito/Arakaki/Matsuoka Sonography of Urethral Calculi