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·*Case Report*·

A large intrascrotal calculus

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Abstract

A large stone with 8.7 cm × 7.2 cm × 6.5 cm in size and 420 g in weight dropped down spontaneously from a 93-year-old man's scrotum, who had suffered from left intrascrotal mass and pain for more than 20 years. The component of the stone was magnesium ammonium phosphate. To the best of our knowledge, it is the largest intrascrotal calculus reported in the world. We hereby present the case and discuss the diagnosis and etiology of scrotal calculi. *(Asian J Androl 2005 Mar; 7: 103–105)*

Keywords: calculi; scrotum; etiology

1 Introduction

The intrascrotal calculus was first described by Kickham in 1935 as a "fibrinoid loose body" or "scrotal pearl" [1–2]. Such calculi were later seen during sonographic examinations with high-frequency transducers and are considered uncommon [1–4]. Most scrotal calculi were less than 1.0 cm in diameter and are considered to be benign and clinically insignificant. The histopathogenesis of intrascrotal lithiasis is uncertain. We present a case where a very large intrascrotal calculus existed as a painful scrotal mass for more than 20 years.

2 Case report

A 93-year-old man suffered from left intrascrotal mass and pain for more than 20 years. We were asked to visit him after a very large stone spontaneously dropped down from his scrotum. We found a hole at his left scrotum and the left testis was exposed. The left scrotal wall was very thick and the lacuna not connected with the urethra or bladder. No hydrocele was found. The stone was round and smooth, 8.7 cm × 7.2 cm × 6.5 cm in size and 420 g in weight (Figure 1). After 2 weeks, the patient recovered and is doing well. His left scrotal pain disappeared. Scanning electron microscopy and X-ray dispersion studies were performed to analyze the component of the stone, which was magnesium ammonium phosphate.

3 Discussion

Since intrascrotal lithiasis was first described in 1935, it has been considered to be an infrequent disease [1–2]. Most literature of intrascrotal lithiasis are case reports [1–4]. However, some recent studies revealed the prevalence of scrotal calculi was very high in some specific populations. Frauscher *et al.* [5] reported that the prevalence of scrotal calculi was 81 % (69/85) in mountain bikers. Namjoshi [6] reported that the incidence of scrotal calculi was 4.3 % (15/350) and would rise to 9 % if calcareous material was added. Thirty-two cases con-

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Figure 1. A large intrascrotal calculus, 8.7 cm × 7.2 cm × 6.5 cm in size.

tained calcareous particles or calculi in seventy-eight hydrocele patients. Therefore, the high prevalence in these two studies may be partially due to the population selected. In Frauscher's study, 85 extreme mountain bikers, who did a minimum of 2 hours per day, 6 days per week off-road biking, and had covered a distance of more than 5000 km with their mountain bikes annually, were investigated. Most of these subjects also had other scrotal abnormalities besides calculi, which may have been a result of repeated, chronic microtrauma of scrotal contents, secondary to shocks and vibration of the saddle from the rough terrain [5, 7]. In Namjoshi's study, scrotal sonographic examinations were performed on 350 patients referred from urologic and surgical clinics. They had scrotal swelling and/or pain, primary infertility or past exposure to sexually transmitted diseases. They were patients with scrotal disease, not healthy men [6]. Thus, the data from these studies may not stand for the real incidence of scrotal lithiasis in the normal population. On the other hand, Martin *et al.* [8] reported the incidence of calcification of tunica vaginalis testis (TVT) was 1 % and, according to Dandapat's reports [9], the incidence of hydroceles with sediments was 2 %. In addition, no scrotal calculi were found in 31 non-bikers, who were healthy medical students and treated as a control group in Frauscher's study [5]. These facts indicate that intrascrotal lithiasis is an infrequent disease, but only a large scale epidemiological survey can reveal the real incidence of intrascrotal calculi.

Intrascrotal calculi are usually small in size. Most scrotal calculi are less than 1.0 cm in diameter [4, 5]. The size of 127 scrotal calculi found in Frauscher's study ranged from 0.2–1.4 cm with a mean size of 0.4 cm ± 0.3 cm [5]. Scrotal calculi were usually accidentally found during surgery or sonographic examination and considered to be benign and clinically insignificant. The stone we present here is the largest intrascrotal calculus reported in the world.

Ultrasound is the ideal method to use in diagnosing scrotal calculi [2]. Stones are easily defined by ultrasound because of the hyperechoic nature of the calcification that cause a discrete acoustic shadow [6]. With sonography, calculi in hydroceles can be seen moving in the fluid between the tunica, a feature that differentiates them from calculi in cystoceles [10] or urethroscrotal fistulas [11] and from other scrotal calcifications [8]. If sonographic examination is performed first, more extensive workup and surgical exploration can be avoided [6].

The cause of intrascrotal calculi formation is unclear. It may result from inflammation of TVT [2]. Chronic inflammation may damage the TVT layers, their lymphatics and other soft tissues of the scrotum and spermatic cord, leading to fibrosis. Small water molecules can pass through the fibrotic TVT membranes and narrow lymphatics, but larger molecules of cholesterol, calcium compounds, fibrin, and hydroxyapatite cannot. Calculi result from the buildup of these deposits. In smaller hydroceles, where little movement is possible, these molecules adhere to previous deposits; whereas in larger hydroceles, where more movement is possible, deposits may break apart, resulting in multiple small particles [6]. Therefore, it is easy to explain why the stone we present is so large and we didn't find much hydrocele. Intrascrotal calculi may also originate as remnants of the appendix testis or appendix epididymis that have undergone torsion and become freely movable [2]. Sánchez-Merino *et al.* [4] observed abundant organic matter, particularly on the stone surface and hydroxyapatite, particularly in the center in two cases of intrascrotal calculi. They said that the deposit of organic matter in the presence of high oversaturation of calcium phosphates and absence of crystallization inhibitors may be the possible etiologic cause of scrotal calculus. The component of calculi in this case is magnesium ammonium phosphate. Inflammation may have played an important role in the development of this kind of intrascrotal calculus.

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