



Intrascrotal calculi of an infant: A very rare concretion disease

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ABSTRACT

Intrascrotal calculus (IC) is rarely encountered in clinical case report, which was only reported in an old male patient suffered from a multiple concretions in the hydrocele cavity. The occurrence of IC has not been reported in infants. In the case, we reported the intrascrotal concretions in the hydrocele sac of an infantile patient.

Key words: Intrascrotal calculus, hydrocele, scrotum, infant, xanthine

INTRODUCTION

Intrascrotal calculus (IC) is a very infrequent disease, which can be diagnosed by an ultrasound scan[1]. Most intrascrotal calculi were less than 1.0 cm in diameter and are considered to be benign lesions and clinically insignificant. They were usually accidentally found during surgery or sonographic examination. The histopathogenesis of intrascrotal lithiasis is uncertain[2]. It was first reported by Kickham in 1935 as a “fibrinoid body” or “scrotal pearl”[3-4]. Recently, Parlaktas reported another case on multiple concretions in hydrocele sac in an old male patient[5]. In this study, we reported the rarely case of IC in infant.

Case report

A 4-year-old infant was admitted with a right-sided hemiscrotal painlessly swollen for approximately one month, and did not give a history of inflammatory disease of the scrotal wall and intrascrotal contents. Palpation and transillumination analysis revealed that a hydrocele was present in the right side of the hard scrotum. According to interleukin checking with ELISA, there was no inflammation in the hydrocele sac of the infant. With Sacral anesthesia, scrotal exploration was decided on and a surgical operation was performed. The volume of the straw colored, clear hydrocele fluid was approximately 5 mL. Notably, two whitish, pearl-like, firm concretions was detected with a size of 4-5.1 mm. The concretions were located the posterior and inferior to the right testicle, respectively, and could freely move in the hydrocele sac. Therefore, they were consistent with multiple IC (**Fig.1**). In the FT-IR spectrum, the shape and position of the spectrum were both consistent with that of xanthine. (**Fig.2**).

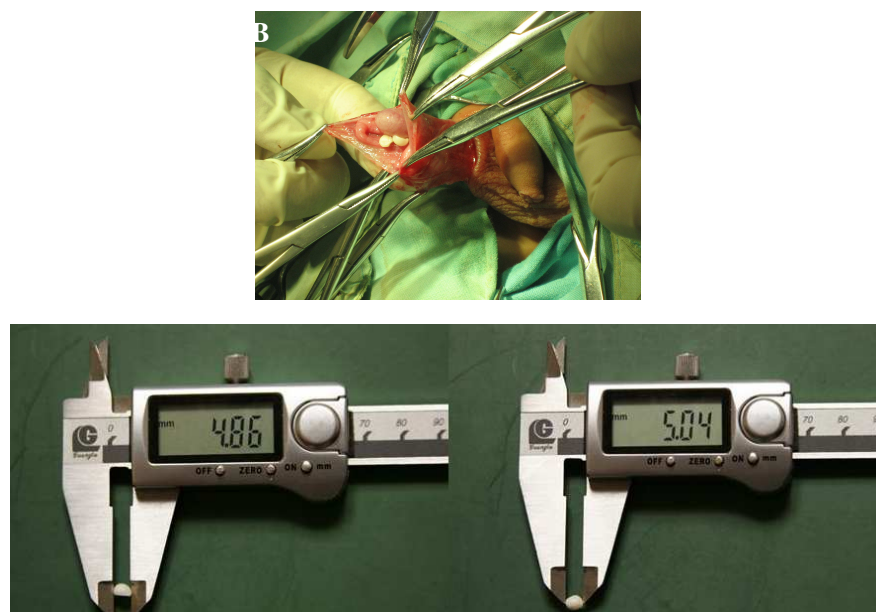


Fig. 1(A) Double, whitish and pearl-like concretions located in the hydrocele cavity

(B) The vernier caliper diagram of stones

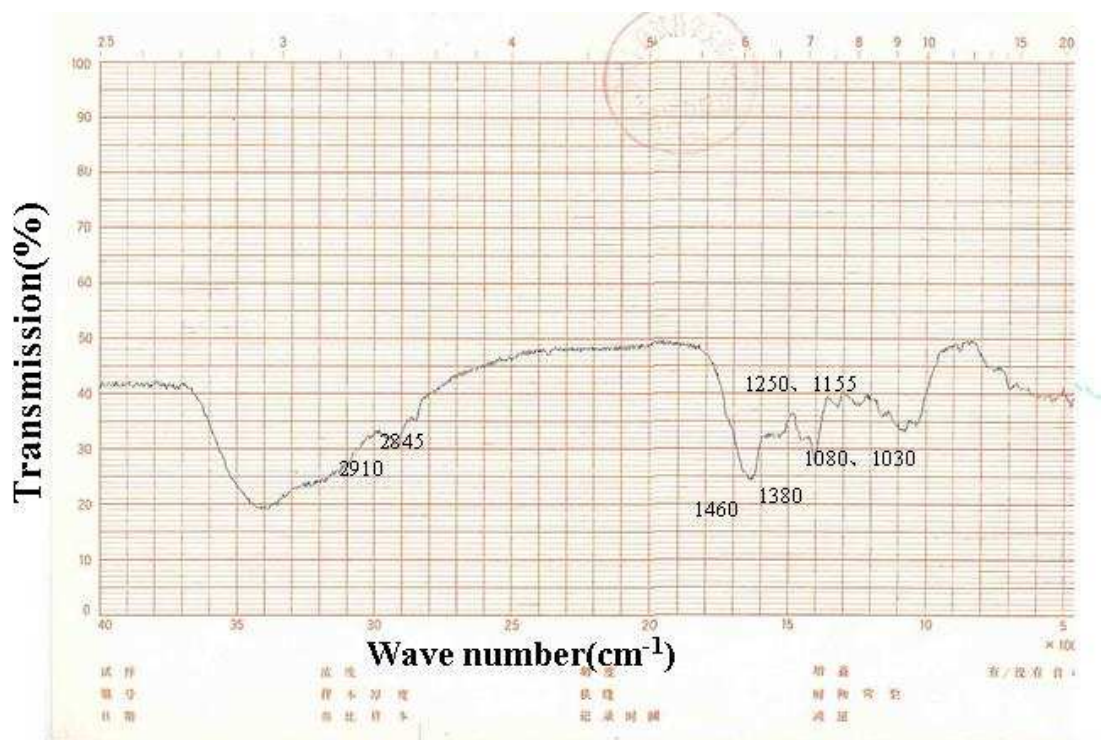


Fig. 2 Infrared Spectroscopy Analysis

DISCUSSION

Intrascrotal calculi are very unusual fibrinoid bodies located between the layers of tunica vaginalis, which form the walls of hydrocele. Especially they are rare in infants. Most intrascrotal calculi were less than 1.0 cm in diameter.

Ultrasound is the ideal method to use in diagnosing scrotal calculi[4]. 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[7] or urethroscrotal fistulas[8] and from other scrotal calcifications[9].

There are two probable mechanisms about the formation of IC: the inflammation of tunica vaginalis testis(TVT) and the torsion of appendix testis or epididymis. Firstly, it may result from inflammation of TVT [10]. 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. Secondly, IC may also originate as remnants of the appendix testis or appendix epididymis that have undergone torsion and become freely movable [6].

However, there were not the above conditions in the present case. The formation of these concretions could not be explained with the second theory. Since the volume of hydrocele was not so large that no symptoms appeared, the former mechanism in the formation of IC could be much more appropriate for the explanation of the origin of concretions than the latter. According to the former mechanism, the formation of IC may be as follows: the endothelial cells of tunica vaginalis testis exfoliate, and the subsequent bleeding and fibrin deposition on these cells facilitates in the formation of nidus. Eventually, the nidus calcifies form an intrascrotal calculus[4,11].

It is a rare case that IC is associated with the xanthine hydrocele of infant. To the best of our knowledge, all the other reported cases defined a single calculus in the scrotum[12]. In particular, xanthine calculus in infant is rare. Previous examine revealed that xanthine calculus correlated with xanthine oxidase deficiency. Xanthine oxidase can convert hypoxanthine to xanthine and xanthine to uric acid, whose deficiency will block the conversion. Thus, xanthine oxidase deficiency lead to the Xanthine deposition.

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