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Case Report

Urethral Stone in a Young Girl: A Transit in a Normal Urethra

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Received: December 31, 2018; **Published:** January 29, 2019

Abstract

Urethral stones in females are very rare and always associated with genitourinary pathology. We report on a 9-year-old girl with a history of a small left ureteral stone that was diagnosed by abdominal radiograph and ultrasonography and subjected for conservative management. On a follow up visit, she complained of dysuria for a few hours, while the passage of the stone was denied. Examination of the urethral meatus revealed nothing. Follow up abdominal ultrasonography revealed resolution of renal obstruction with free both kidneys and urinary bladder. However, abdominal plain radiograph showed migration of the stone from the course of the left lower ureter into the course of the urethra. The patient was asked to void, where a small stone passed spontaneously. The note here is the transient lodgment of the stone in the normal urethra without urinary retention which represents an unusual scenario of urethral stones in young girls.

Keywords: *Female Urethral Stone; Migrating Stone; Spontaneous Stone Expulsion; Urethral Transit*

Introduction

Urethral stones represent only 5% of all urolithiasis which is a worldwide prevalent pathology with a certain geographical distribution known as the Afro-Asian Stone Forming Belt [1]. They are common in males than females due the anatomical differences represented mainly by the length and non-straight course [2,3]. Therefore, urethral stones in females are very rare pathology, especially among the young girls. They are always presented in adults and are associated with anatomical abnormalities such as urethral diverticulum. However, urethral stones with normal urethra have been scarcely reported so far [2,4]. Here, we report on an unusual scenario for a small urethral stone in a young girl.

Case Report

A 9-year-old girl presented with a history of left renal pain for 7 days. She lived with her family in a distant rural residence with no history of urolithiasis in its close family members. Physical examination revealed unremarkable clinical findings. Urine analysis showed only a few calcium oxalate crystals. Abdominal ultrasonography revealed mild left hydronephrosis due to a small lower ureteral stone about 4 - 5 mm. Also, abdominal plain radiograph showed a small radiopaque shadow at the course of the left ureter (Figure 1A). According to our center's policy for management of small ureteral stones, parents were counselled about the stone size, mild degree of renal obstruction, potential need of costly non-contrast computed tomography and the preferred trial of conservative management. Accordingly, they opted not to go further with costly investigations, but to take the chance of the conservative management. This management included instructions for increased fluid intake, adrenergic alpha-1 antagonist (tamsulosin 0.4 mg, once daily), analgesic, urinary alkalinizing agent, and follow up imaging. On the next follow up visit after 10 days, the patient complained of dysuria that started after the first morning voiding of the day of the visit and continued for a few hours until she came to the clinic. Abdominal ultrasonography revealed resolution of renal obstruction and free both kidneys and urinary bladder. Repeated examination of the urethral meatus revealed nothing. Then, the patient and her parents were revised about the stone passage, but they denied that to be occurred. So, a new abdominal plain radiograph was done and showed migration of the stone shadow from the course of the lower ureter to a site below the symphysis pubis which made a suggestion that the stone was lodged in the urethra more likely (Figure 1B). Accordingly, the girl was asked to go to the clinic bathroom for micturition and a sample of urine for urine analysis, where she returned with a small stone being passed spontaneously. Because of the

on-sight passage of the stone and the similarity between the gross topography of the passed stone the shadow in the plain radiographs (Figure 2), no further confirmatory imaging was indicated. Follow up for further 1 year by abdominal ultrasonography and urine analysis showed unremarkable findings with complete resolution of symptoms. Also, no underlying genitourinary pathology could be furtherly detected.

Figure 1*A*

Figure 1B

Figure 1: *Abdominal plain radiograph showing a small radiopaque shadow of the stone at the course of the left lower ureter (A). Migration of the shadow to the course of the urethra, where its small radiopaque shadow is noticed (B).*

Figure 2: *Gross appearance of the stone. Note the rough surface that may be a cause of urethral lodgment.*

Discussion

Urethral stone in young girls is an extremely rare clinical finding. Most of the reported cases of female urethral stones were in adults and were in association with genitourinary pathology which is commonly the urethral diverticulum [2]. The current case was unique in the age of presentation and the clinical scenario. We had previous similar experiences with the management of such situations, but in male children [3].

The main topic that should be discussed in the context of the current case is the transit of this small stone in the normal urethra of this young girl. On revising the above described scenario, we found that dysuria occurred only after the morning void for a few hours. The question was what the force that pushed the stone into the urethra without complete expulsion to the outside through the short female urethra. Also, if it was the urinary bladder contraction and urine flow, the stone should be expulsed directly to outside, because these are relatively strong forces in regards to this size of stones [5]. Moreover, if the urethra was narrow, urinary retention should be more likely. However, neither complete expulsion was achieved nor urinary retention precipitated. Our most possible explanation based on the known urodynamic behaviors that have been extensively studied in the literature [5]. It was that the ureteral stone traversed the intramural ureter at the end of the morning void, where the strong urinary stream was finished. Then, the remaining force was the detrusor contraction to expel the last few amount of urine at the end of micturition. In the void that was done in the clinic, a strong urinary stream may be the factor that made the stone pass spontaneously. This speculative explanation regarded the alterations in the physiology and symptomatology of the lower urinary tract which may result from obstruction [5].

Spontaneous stone expulsion has been significantly enhanced by use of the alpha adrenergic antagonists in adults and pediatrics [6]. Tamsulosin is one of the most effective agents which participated in the recent results in the literature including the pediatrics [7]. In the current case, it seemed that conservative management was a plausible option which succeeded with reduced renal pain.

Conclusion

To our knowledge, the current case scenario has not been reported in young girls so far. There were many conclusions that could be drawn from this clinical case for practical education and learning. Firstly, small ureteral stones should be offered conservative treatment in cases of mild renal pain and mild renal obstruction. Secondly, simple basic imaging may be a sufficient tool for follow up in the low economic situations. Thirdly, patient and relatives' revisions could justify the clinical practice for decision-making and management in cases of costly works up. Finally, stone behavior could be strange in young children due to urodynamic activities of the vesico-urethral segment.

Conflict of Interest

The authors declare no conflict of interests.

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Volume 8 Issue 2 February 2019