

Huge primary vaginal stone protruding through vaginal orifice damaging the hymen and associated with vesicovaginal fistula and urinary bladder stone: Case Report

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Abstract

Background: Vaginal stone (VS) is a rare condition with non-specific presentation, different predisposing factors and can affect different age groups. Its diagnosis is usually incidental and needs high index of suspicion.

Case summary: We reported a case of 29 years old single lady presented with continuous urine leak for more than one year. Ultrasound study (USS) showed urinary bladder (UB) stone. Gynecological examination revealed huge VS damaging the hymen as it extended distal to the level of hymen, cystoscopy showed big UB stone and vesicovaginal fistula (VVF). VS extracted, UB stone removed by open vesicolithotomy (VL) and VVF was planned to be repaired after three months. To our knowledge this is the first VS that compromise the intactness of the hymen.

Conclusion: This case demonstrate primary VS due to VVF associated with UB stone causing hymen damage.

Keywords: Vaginal stone, urinary bladder stone, vesicovaginal fistula, hymen.

Abbreviations: VS; vaginal stone. USS; ultrasound study. UB; urinary bladder. VVF; vesicovaginal fistula. VL; vesicolithotomy. CT; computed tomography. MRI; magnetic resonance imaging.

Introduction

VS is an uncommon condition classified into primary and secondary [1]. Urinary vaginal fistula is the main cause of primary VS, while secondary VS is precipitated by presence of foreign body in the vagina around which crystallization of urinary components occur [2]. In this article we present the case of a single lady of primary VS due to VVF associated with UB stone, causing damage of the hymen as it was huge and extending through vaginal orifice distal to the level of the hymen. Gynecological examination is important even in young girls because VS is usually misdiagnosed as UB stone in imaging studies [3]. Treatment of VS is usually by simple extraction or endoscopically with management of the underlying risk factor of its formation [4].

Case Report

A 29 years old single lady from the east of Sudan presented complain of continuous urine leak for more than 1 year treated many times as cystitis, this urine leak is neither related to

effort or straining nor associated with urgency, and she cannot determine whether it is coming from the urethra or vagina, also she gave a history of suprapubic pain and perineal discomfort for the last six months. She denied any past history of surgical intervention, instrumentation, painful perineal condition or genital swelling, also she denied any history of sexual intercourse, conception, abortion or vaginal delivery. Examination of the abdomen was normal apart from mild tenderness in suprapubic area, genital examination was difficult to be done properly in supine position. USS study showed UB stone of 4 cm with normal upper urinary tract, so gynecological examination and cystoscopy under spinal anaesthesia was planned and discussed with the patient to confirm the diagnosis and to remove the stone either endoscopically or surgically. Patient put on lithotomy position under spinal anaesthesia, inspection revealed a yellowish stone like mass protruding through the vaginal orifice distal to hymen level (Figure 1), Cystoscopy revealed large UB stone that was difficult to

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be crushed endoscopically with VVF through which a VS can be visualized and irrigation fluid come out through the vagina.



Figure 1: Vaginal stone protruding through vaginal orifice distal to the level of the hymen.

Diagnosis of UB stone and VS with VVF was confirmed. VS extracted by gentle manipulation assisted with decircumcision (Figure 2&3) as it was very large to be extracted. After removal vagina was checked for other stone and foreign body or mucosal injury, the hymen was damaged probably by the stone, then VL done through suprapubic incision and huge vesical stone was removed. Urethral catheter inserted and patient discharged after 48 hours in good condition and planned for VVF repair after 3 months.



Figure 2: Decircumcision and stone manipulation.



Figure 3: Stone removal.

Discussion

Urinary tract calculi are rarely occur outside the urinary tract [1,2], that because stone formation is a slow process and needs prolonged time of urine stasis. One of the sites of extra-urinary tract stone formation is the vagina for its proximity to the UT, so when there is a predisposing factor for urine stagnation in the vagina the risk of stone formation increased. VS is a rare condition with low incidence and non-specific presentation, so it is usually misdiagnosed as UB stone and is incidentally discovered when it is large enough to cause bother symptoms and signs [2,3,4]. The first reported case of VS is dated back to 1900 [5,6], and since that time many cases were reported with different presentation, predisposing factors, age group and modalities of treatment that were applied. VS is a pathologic calcification disease classified into primary or secondary depending on presence or absence of foreign body in the vagina [6,7,8]. Primary VS usually resulted from urinary stasis in the vagina with concomitant persistent and/or recurrent infection, especially with urease producing bacteria (proteus and klebsiella) leading to deposition of inorganic salts and formation of struvite stone in the majority of cases [2,3,9], calcium oxalate stone have been also reported [10]. Many conditions can lead to urine leak and stagnation in the vagina, of them urinary vaginal fistula is the commonest one [1,4], other causes include ectopic vaginal ureter, vaginal outlet obstruction, neurogenic bladder, mental retardation associated with urinary incontinence, urethral diverticulum and long term recumbent position [4,8,9]. Secondary VS are less

common and precipitated by presence of foreign body within the vagina that act as a nidus around which urinary salts are deposited, examples of foreign bodies are eroded surgical mesh, missed vaginal pessaries, intrauterine devices and non-absorbable sutures [1,2,4]. In rare situations UB stone is migrated through fistulous tract into the vagina causing VS [2,9]. Diagnosis of VS needs a high index of suspicion as it has a wide range of non-specific symptoms such as frequent urination, urgency, vaginal pain, dyspareunia, partner complain during sex, vaginal bleeding or discharge and symptoms of infection [1,3], the main presentation of our case was continuous urine leak that is not associated with urgency or straining conditions. Imaging studies like USS, plain X ray, CT and MRI may be done [3,6], but gynecological examination is very important in confirming the diagnosis, especially when it is accompanied with cystourethroscopy and vaginoscopy to visualize the stone and associated abnormalities like fistulae [8,10], and this was the essential diagnostic test in our case to reach the diagnosis and to identify the fistula as the main cause of the continuous urine leak and the subsequent VS formation as USS showed UB stone only. VS is treated by simple extraction or endoscopically using small size nephroscope and disintegration device, the second option is useful when there is a difficulty in diagnosis and in young girls to avoid the risk of damaging the UB, vaginal mucosa and the hymen [3,8,11], some authors advocate abdominal approach with UB incision or anterior vaginal wall opening to keep the integrity of the hymen [4]. In our case we used simple extraction technique assisted with decircumcision to facilitate removal of huge stone as the hymen was not intact due to its damage possibly by the stone as it was protruding through vaginal orifice distal to the level of the hymen. Identification of predisposing factor for VS formation and their correction is crucial to prevent further recurrence, like fistula repair, removal of foreign body and care about personal hygiene [1,4,7]. Urinary vaginal fistula repair should be deferred for 3-6 month after stone removal when the edema around the fistula has subsided [3,7], and this was the policy followed in our case.

Conclusion

Although it is rare, VS should be included as a differential diagnosis in cases of persistent non-specific lower UT com-

plain, and attention should be paid to patients with congenital genito-urinary malformations and urinary vaginal fistula as their treatment is crucial in prevention of presence and recurrence of VS. Gynecological examination and/or cystoscopy and vaginoscopy should be considered when routine investigations and initial treatment failed to demonstrate the proper diagnosis and to settle patient condition.

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