A giant dumb-bell vaginolith: Is only radiograph or ultrasound good enough? - A case report
Published on 17.07.2017

DOI: 10.1594/EURORAD/CASE.14812
ISSN: 1563-4086
Section: Genital (female) imaging
Area of Interest: Genital / Reproductive system female
Procedure: Computer Applications-General
Imaging Technique: CT
Special Focus: Fistula Case Type: Clinical Cases
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Patient: 35 years, female

Clinical History:

A 35-year-old female patient presented with chief complaints of urinary incontinence and perineal discomfort for two years, which increased gradually over a period of the past six months. Two years before she had uterine perforation secondary to obstructed labour for which she was operated in a private nursing home. All her present complaints started after that.

Imaging Findings:

At our institution the patient presented with a diagnosed large bladder stone which was based on plain radiograph and pelvic ultrasound. A repeat ultrasound was carried out with partially filled bladder as she could not hold urine. Presence of a calculus was confirmed but only irregular anterior hyperechoic surface was visible with dense posterior shadow. Plain radiograph, frontal view, confirmed the stone. CT revealed a giant dumbbell-shaped calculus with smaller vesical component and larger vaginal component connected by a waist through vesico-vaginal fistula. The core of the vaginal component appeared hypodense, having soft tissue density with presence of few air foci within. The possibility of retained surgical gauze acting as nidus for the stone formation was suggested, keeping in line with central soft tissue density and air foci in vaginal component. In addition to that CT also revealed presence of urethral calculi.

Discussion:

Vaginal stones are very rare and often misdiagnosed as bladder calculi on a plain radiograph [1]. They can be classified as primary and secondary. Primary vaginal stones are formed due to stasis of urine in the vagina secondary to constant urinary leakage. Vesicovaginal fistula is the commonest underlying cause, while urethrovaginal fistula and ectopic ureteric insertion being rare ones [2]. Vaginal outlet obstruction also can be a contributing factor [3, 1]. Secondary vaginal stones are less common and are formed by crystallisation of urinary salts around a foreign body such as retained surgical suture or gauze as in our case. Less commonly they also can be the result of migration of vesical calculus through perforation of vesicovaginal septum [2]. In case of vesicovaginal fistula, it has been postulated that stones are more commonly associated with high/supratrigonal location of fistula, urinary contamination and long standing history [4]. All these factors were present in our case as well.

For the diagnosis of vaginal calculi, ultrasound is considered more accurate than plain radiography, although there
are limitations [5]. In cases of partially filled bladder they still can project within it and lead to erroneous diagnosis of bladder calculi, the same is true for dumbbell calculi with vesical component. Dense posterior shadowing of the calculus can make it difficult to evaluate the vaginal component like in the case presented here. CT scan represents the examination of choice helping to depict not only the exact location and extent of the stone, but also to detect the foreign body nidus and other complications like infection [6]. In our case urethral calculi were only seen on CT scan. Moreover it can provide a correct roadmap for surgical planning. The management consists of a two-staged operation. First the calculus is removed through combined suprapubic and vaginal approach followed by fistula repair.

Take Home Message:
1. Secondary vaginoliths are extremely rare
2. They are often misdiagnosed as bladder calculi on plain radiograph and ultrasound.
3. High suspicion index is required for diagnosis when history and clinical examination are relevant.
4. CT scan plays an important role in the diagnosis, also serving as a roadmap for treatment planning.

**Differential Diagnosis List:** Secondary vaginolith with vesicovaginal fistula, Urinary bladder calculi, Calcified gossypiboma

**Final Diagnosis:** Secondary vaginolith with vesicovaginal fistula

**References:**

R Malik, VK Gupta, G Agrawal (2006) Giant vaginoliths. Ind J radiol Img 16:4:825-826
Figure 1

Description: Plain radiograph mimicking urinary bladder stone  

Origin: Radiology department, civil hospital, Ahmedabad, Gujarat, India
**Description:** Sagittal CT scan showing central hypodense foreign body with trapped air foci

**Origin:** Radiology department, civil hospital, Ahmedabad, Gujarat, India
Figure 3

Description: Axial CT scan showing dumb-bell vaginolith. Origin: Radiology department, civil hospital, Ahmedabad, Gujarat, India.
Figure 4

Description: Urethral calculi seen on sagittal scan. Origin: Radiology department, civil hospital, Ahmedabad.