doi:10.21276/obgyn.2016.3.1.13 *ISSN Print- 2454-2334; Online- 2454-2342*

CASE REPORT

Ectopic vaginal ureterocele presenting as vaginal gartner's cyst

Harneet Narula, Shallini Mittal, Aditi Vohra, Gunjan Jindal

Correspondence: Harneet Narula, Associate Professor, Department of Radiodiagnosis and Imaging, MMIMSR, Mullana, Ambala, Pin Code - 133203, Haryana, Email – drharneetbindra@gmail.com

Distributed under Creative Commons Attribution-Share Alike 4.0 International.

ABSTRACT

Ureterocele represent the intramural portion of distal ureter. Most of them are associated with the upper moiety ureter of a duplex system and are therefore ectopic and are commonly inserted within the bladder neck. A 23 year old multiparous female with pelvic pain was clinically diagnosed with a vaginal cyst with the probable diagnosis of gartner's cyst. On sonography examination, there was markedly dilated and tortuous left ureter throughout its extent and was communicating with a rounded cystic structure present in the left lateral vaginal wall. CT urography was revealed that left kidney was duplex and the cystic structure in the vaginal wall was the cystic dilatation of distal left ectopic ureter from the upper moiety of duplex left kidney which was dysplastic. These finding were consistent with the diagnosis of ectopic ureteric insertion into vaginal wall with ureterocele formation.

Keywords: Ureterocele, Gartner's cyst, Duplex ureter.

Ureterocele is a submucosal cystic dilation of the terminal segment of the ureter due to stenosis of ureteral orifice with concomitant weakeness of lower ureter that result in ballooning of terminal segment of lower ureter. Ureteroceles may be intravesical or ectopic. Ureterocele that are entirely contained within the bladder are considered intravesical while they are considered ectopic if any portion is permanently situated at the bladder neck or the urethra, regardless of the position of the orifice [1]. Ureterocele are most commonly seen in females. Ureteroceles found in adults are usually orthotopic whereas those in children are far more commonly ectopic. Gartner cyst is a benign submucosal vaginal cyst representing remnant of caudal end of mesonephric duct. As ureteral bud also arise from mesonephric duct so these are associated with ureteral and renal abnormality [2].

Ureterocele inserting ectopically into vagina as in our case is rare and its presentation as vaginal cyst has not been reported previously to the best of our knowledge and not much literature is available regarding it.

Case report

A 23-year-old multiparous female was referred from outside to our radiology department for

Received: 14th February 2016; **Accepted:** 4th March 2016.
Narula H, Mittal S, Vohra A. Ectopic vaginal ureterocele presenting as Vaginal Gartner's cyst. The New Indian Journal of OBGYN. 2016; 3(1): 61-65. *doi:10.21276/obgyn.2016.3.1.13*

ultrasound for complaints of pelvic pain. As per her vaginal examination the uterine cervix was normal and measured 4 cm in length and was closed. There was a smooth focal soft compressible mucosal bulge in the left lateral vaginal wall superiorly. Mucosa was however essentially normal and there was no mucosal opening. These finding was considered consistent with

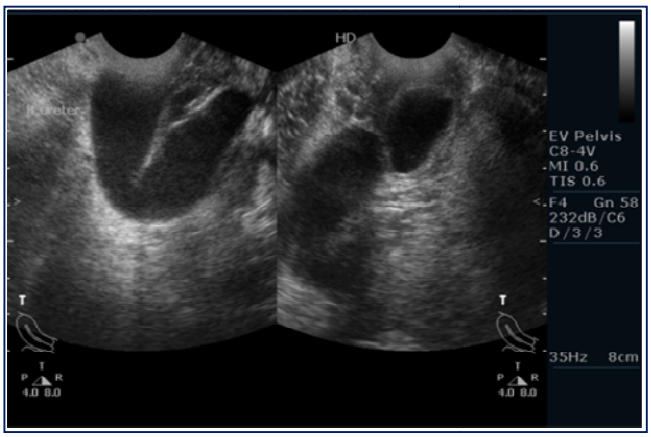

Figure 1: Dilated tortuous ureter communicating with lateral vaginal wall (TVS)

a vaginal cyst with the probable diagnosis of gartner's cyst due its location in upper vaginal wall. Vaginal rugosities over the swelling were absent. There was no cough impulse in the swelling. Her obstetric history was unremarkable, including 2 previous vaginal deliveries. She had regular menses, no history of urinary leakage. She denied any pre-existing urinary tract symptoms, previous urologic diseases or urologic surgery. She was toilet trained at 3years of age and had a normal voiding pattern without incontinence. The patient had no other medical history and took no regular medications. She also had no family history of genitourinary abnormalities.

Transabdominal and transvaginal ultrasound was performed in our department of Radiodiagnosis and we found that left ureter was markedly dilated and tortuous throughout its extent and was communicating with a rounded cystic structure present in the left lateral vaginal wall (Figure 1). To confirm CT urography was done which revealed that left kidney was duplex and the cystic structure in the vaginal wall was the cystic dilatation of distal left ectopic ureter from the upper moiety of duplex left kidney which was dysplastic (Figure 2, 3). These finding were consistent with the diagnosis of ectopic ureteric insertion into vaginal wall with ureterocele formation in submucosa with no mucosal opening (blind ending). Lower pole moiety and its ureter were normal. Right kidney was normal.

Discussion

Ureterocele is defined as the cystic dilatation of the intravesical segment of ureter and is a hyperplastic response to obstruction. Ureteroceles occur in approximately 1 in every 4000 children and occur most commonly in caucasions. Females are affected 4-7 times more often than males. Ureteral duplication is present in about 75% of patients with ureteroceles. Ureteroceles are most commonly found in association with complete ureteral duplication (80%) [3].

The simple and widely used AAP (American Academy of Paediatrics) classification of ureteroceles divides ureterocele into intravesical or simple and ectopic ureteroceles [1]. Intravesical or simple ureteocele is formed due to ballooning of distal end of normally positioned ureter due to stenosis of distal end of ureter with normal orthotopic insertion. Ectopic

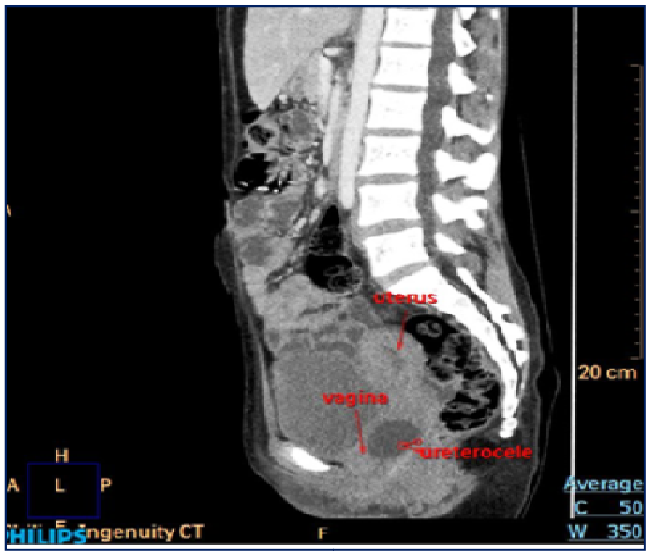

Figure 2: CT reconstructed sagital image showing the ureterocele

ureterocele is usually unilateral and is associated with duplex collecting system and it is the distal portion of upper renal moiety ureter. It is of two types sphincteric and stenotic. Stenotic is more common and is congenital with small orifice at its distal end and leads to obstruction resulting in hydronephrosis.

Another classification by Stephens et al. [4] classifies ureterocele as: a) Stenotic is most common

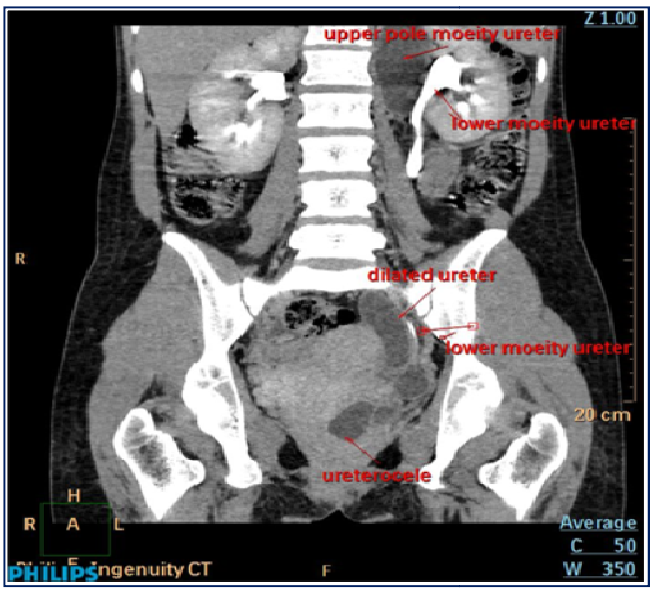

Figure 3: CT urography duplex left kidney with ureterocele in upper moiety ureter

type. It lies within the bladder and correspond to intravesical ureterocele. b) Sphincteric ureterocele, the dilated ureter courses through the submucosa of the bladder and ureteral orifice is at bladder neck. c) Sphincterostenotic ureterocele, the obstructive ureteral orifice is at the bladder neck. d) Blind ureterocele extends under the trigone and into the bladder outlet and opening is not identifiable. e) Non-obstructive lies entirely within the bladder, f) Caecoureterocele, the extension of the ureterocele is past the bladder neck into the urethra.

Embryologically, the urogenital system is derived from intermediate mesoderm and the primitive urogenital sinus which is a part of cloaca. The kidney is formed from two sources, excretory tubules derived from metanephros and collecting part is formed by ramification of the ureteric bud which arises from the mesonephric duct. Ureter arises from the ureteric bud. The distal part of the ureteric bud eventually incorporates into the bladder to from the trigone. Premature branching of the ureteric bud results in an incomplete duplex with ureters that meet before the bladder, or a bifid renal pelvis. If more than one bud develops and migrates to the metanephros a duplex kidney with two separate ureters form. When the buds are close to each other, the ureteric orifices are in the bladder in the normal position. When the buds are widely separated, the orifices may be ectopic [5]. In the female, a similar high origin of the ureter off the mesonephric duct should logically result in a persistence of the caudal portion of the wolffian duct (Gartner's duct or cyst) with the ectopic ureter draining into it [2].

Ureterocele are associated with a variety of other congenital abnormalities of the urinary tract and with duplex systems which may be unilateral or bilateral. Committee on terminology, nomenclature, and classification of the section on urology of the American Academy of Pediatrics, subdivided duplicated collected system into partial or complete type [5]. In complete duplicating system upper renal moiety is commonly dysplastic. The upper renal moiety is drained via ureter which is ectopically drained and its orifice is always distal to lower moiety insertion. It inserts inferior and medial to the lower moiety ureter on trigone of bladder or ectopically known as Weigert-Meyer rule [6]. Ectopic insertions in males may be in bladder neck, posterior urethra, into the ejaculatory ducts or the epididymis. In girls, the ectopic ureter may drain into the bladder neck, the vagina, or the uterus where they present with continuous dribbling and urinary incontinence since childhood.

There are very few cases reported with ureterocele in vagina and all have been reported with some degree of urinary dribbling depending upon the degree of stenosis of mucosal opening. However in our case there was no dribbling and patient was diagnosed with vaginal ureterocele due to the presence of vaginal cyst with no incontinence at all, which has not been

reported previously to the best of our knowledge. This adds vaginal ureterocele as a rare differential to the vaginal cyst the usual causes of which are gartners duct cyst, bartholins cyst, paramesonephric duct cyst and inclusion cyst whic can be differentiated by their location and clinical details. Upper pole moiety is more susceptible to obstruction due to its ectopic insertion or ureterocele formation while vesicoureteric reflux is common in lower moiety. Hydronephrotic changes may be seen in lower moiety in case of PUJ obstruction, obstruction due to calculi, intrinsic and extrinsic tumours [7]. In incomplete duplication there may be bifid pelvis and ureter with fusion somewhere in their course with a common orifice which insert normally on trigone of bladder, due to which it is not clinically significant except for its association with urinary tract infection and burning micturation associated with pain due to reflux (known as yo-yo reflux/saddle/seesaw reflux) of urine from one ureter to another ureter [8].

Gartner cysts are benign small submucosal cyst in vaginal wall and are remnants of caudal mesonephric duct. They are usually asymptomatic or may cause pelvic pain and are usually found incidentally on routine gynaecological examination [9]. These may be associated with ureteral and renal anomaly as ureteral bud also arise from wolfian duct [4]. These cysts most commonly develop in the anterolateral wall of the upper vagina, above the inferior border of the pubic symphysis.

On IVP ureteocele appears as a filling defect in the bladder as cobra head sign or can be seen as everted ureterocoele which will appear like a bladder diverticulum. On MCU examination ureterocele appears as a round or oval lucency near the trigone or there may be effacement of the defect with increasing filling of the bladder. On USG it gives a typical appearance of dilated and tortuous ureter terminates in a thin walled anechoic cystic structure [10]. CT Urography is usually done and are used to define the size, shape, and location of the ureterocele .Ureterocele give cobra head appearance or filling defect in contrast filled bladder specially on delayed images. CT Urography also helps in ruling out other genitourinary abnormality like duplex renal system, Degree of hydronephrosis, the cortical thickness of each moiety, and the functional ability of the kidneys [3].

Treatment: Collapse and decompression of the ureterocele. Endoscopic treatment of ureteroceles is by puncture.

Conclusion

Ectopic vaginal ureter is an uncommon entity and usually presents as urinary incontinence with urinary dribbling since birth, while ectopic vaginal ureter with blind ending ureterocele presenting as vaginal cyst and no urinary incontinence has hardly been reported in literature. Causes of vaginal cysts are few but ectopic vaginal ureterocele is rarest and should be carefully interpreted.

Conflict of interest: None. **Disclaimer:** Nil.

References

1.Glassberg KI, Braren V, Duckett JW, Jacobs EC, King LR, Lebowitz RL et al. Suggested terminology for duplex systems, ectopic ureters and ureteroceles. J Urol. 1984; 132(6): 1153-54.

2.Lee MJ, Yoder IC, Papanicolau N, Tung GA. Large Gartner's duct cyst associated with a solitary crossed ectopic kidney: imaging features. J Comput Assist Tomogr. 1991; 15: 149-51.

3.Brock WA, Kaplan WG. Ectopic ureteroceles in children. J Urol. 1878; 119: 800-804.

4.Ureteroceles on duplex ureters. In: Stephens F, Smith E, Hutson J, editors. Congenital anomalies of the kidney, urinary and genital tracts. London: Martin Dunitz. 2002: 243-262

5.Deepali K, Shinde R, Reshma B. Duplex Kidney-An Anatomical and Clinical Insight. IOSR. 2015; 14(4):14-7.

6.Berrocal T, López-Pereira P, Arjonilla A, Gutiérrez J. Anomalies of the distal ureter, bladder, and urethra in children: embryologic, radiologic,and pathologic features. Radiographics. 2002; 22(5): 1139-64.

7.Hanson GR, Gatti JM, Gittes KG. Diagnosis of ectopic ureter as a cause of urinary incontinence. J Ped Urol.

2007; 3(1): 53-7.

8.Fernbach SK, Feinstein KA, Spencer K, Lindstrom CA. Ureteral duplication and its complications. Radiographics. 1997; 17(1): 109-12.

9.Letizia, Matthew JDO, Kelly, Joseph VM. Case Report: Gartner's Duct Cyst. Emergency Medicine News. 2011: 33: 5-35.

10.Nussbaum AR, Dorst JP, Jeff RD, Gearhart JP, Sanders RC. Ectopic ureter and ureterocele: their varied sonographic manifestations. Radiology. 1986; 159: 227-35.

Harneet Narula[1], Shallini Mittal[2], Aditi Vohra[3], Gunjan Jindal[4]

[1]Associate Prof, Dept of Radiodiagnosis and Imaging, M.M. Institute of Medical Sciences and Research; [2]Senior Resident, Dept of Radiodiagnosis and Imaging, M.M. Institute of Medical Sciences and Research; [3]Associate Prof, Dept of Radiodiagnosis, M.M. Institute of Medical Sciences and Research; [4]P.G. Dept of Radiodiagnosis and Imaging, M.M. Institute of Medical Sciences and Research, Mullana, (Distt-Ambala), Haryana, India.