

Role of Dynamic and Contrast Ultrasound in Urethrovaginal Fistula



Radiology

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ABSTRACT

Urinary tract fistulas can occur at many different levels due to an abnormal communication and pose a huge problem in diagnosis and management. The exact site of the fistulous connection diagnosed aids in precise intervention. Here we would like to emphasize and encourage the use of dynamic and contrast enhanced ultrasound to delineate the urethrovaginal fistula.

Introduction:

Urinary tract fistulas are usually congenital or seen as sequelae following surgical procedures, obstetric complications, infections and trauma. Urinary tract fistulas can occur at many different levels due to an abnormal communication and pose a huge problem in diagnosis and management. The exact site of the fistulous connection diagnosed aids in precise intervention. Urethra-vaginal fistula, a rare entity in children is usually congenital or post-traumatic. We describe here the use of the simple bed-side tool, ultrasonography with contrast, to delineate the fistula through dynamic scanning.

Technique:

Transabdominal ultrasonography rarely helps in giving accurate information and communication cannot be easily ascertained. Hence here we describe another approach i.e. Dynamic trans-perineal ultrasonography with contrast for diagnosis.

In this method the patient is in the lithotomy position and the convex probe (1-5 MHz) is placed longitudinally on the introitus, here the urethral and vaginal canals were well visualized (Fig. 1).



Fig 1: Curved arrow: Foley's bulb, Thin arrow: Urethral canal, Thick arrow: Collapsed vaginal canal.

Then the patient is asked to micturate, there will be ballooning of the vaginal canal with urine and the obvious defect is seen (Fig 2). However in B-Mode the exact anatomy, location and of the defect will not be clearly seen.

Fig 2: Curved arrow: Foley's bulb, Thin arrow: Urethral canal, Thick arrow: Ballooned vaginal canal.



Here ultrasound contrast (Ultravist) is of great help. The contrast (1.5cc) and normal saline (10cc) is injected into the bladder through suprapubic catheter which is inserted to relieve her of the symptoms. Following which the patient is again asked to micturate by placing the ultrasound probe on the introitus, we will clearly be able to delineate the exact anatomy, location and size of defect (Fig 3).

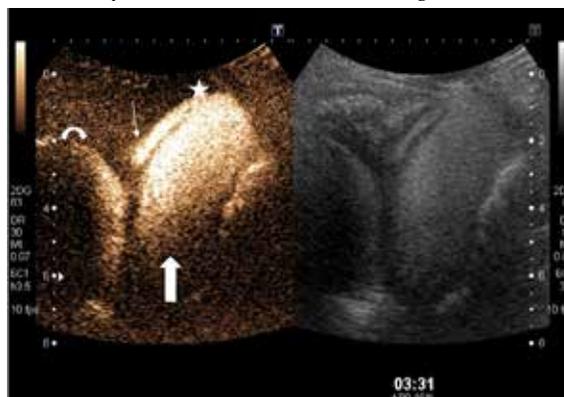


Fig 3: Star: Shows defect (clearly delineated), Curved arrow: Foley's bulb, Thin arrow: Urethral canal, Thick arrow: Ballooned vaginal canal.

Discussion:

A urogenital fistula is defined as an abnormal communica-

tion between the bladder, ureter, urethra, vagina, and/or rectum with resulting incontinence of urine and/or stool. It may occur as a sequela of childbirth or as a result of surgical injury, malignancy, infection, trauma, or endometriosis. (1) (2) (3)

Female urethral lesions in young are rare and a cause of major cure issues (4). In adults, it results from usually post-surgical procedure, obstetric complication, pelvic trauma, neoplasm and pelvic irradiation. Urethrovaginal fistulas may also develop after prolonged transurethral catheter with pressure necrosis. Urethrogonital fistula in male patient is rare. In children, trauma and congenital anomaly is usually the cause. Patients with this type of fistula present with sustained watery leakage per vagina. (1) (2) (4)

Urethrovaginal fistula identification though easy in adults it is cumbersome in young and delicate. Regular procedures like "dye test" is usually impossible in these scenarios (4). Tests that can be used to diagnose urethrovaginal fistulas are viz. by vaginal speculum examination and cystourethroscopy, radiographic diagnosis can be made by voiding cysto-urethrogram, ultrasonography or delayed intravenous contrast-enhanced CT. (1) (5)

Conclusion:

Although the urinary fistulas are hard to diagnose, ultrasound could be maximally utilised for its depiction as described above. Use of ionising radiation to depict the fistulas can be curbed if ultrasound can be effectively used. The dynamicity of the ultrasound here helped us to delineate the fistula while the patient is micturating. The way the dynamicity of ultrasound can be used opens up new channels for us to explore the possibilities and finding new avenues in accurate diagnosis of the fistulas.

References:

1. Burivong W LVVV. Common lower urinary tract fistulas: A review of clinical presentations, causes and radiographic imaging. *International Journal of Case Reports and Images*. 2011; ;2(1):1-7.
2. Meeks GGMG. Vesicovaginal and Urethrovaginal Fistulas. 2012;(ISSN: 1756-2228); DOI 10.3843/GLOWM.10064).
3. Dmitry Yu. Pushkar NMSaGRK. Management of urethrovaginal fistulae. 2008; 18:389–394.
4. Sangaré NCaIS. Urethrovaginal Fistula in a 5-Year-Old Girl. ; Volume 2015 (2015), Article ID 202059, 4 pages.
5. Nam C. Yu SSRMPaZB. Fistulas of the Genitourinary Tract: A Radiologic Review. 2004; 24:5, 1331-1352.