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VESICO VAGINAL REFLUX PRESENTING AS TRANSIENT HYDROCOLPOS - A RARE CASE REPORT

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ABSTRACT

Vesicovaginal reflux (VVR) is a rarely encountered and less known entity[1]. It is a functional voiding disorder, usually seen in prepubertal girls without anatomical or neurological abnormality and is defined as an abnormal retrograde reflux of urine into vaginal vault during bladder distension and early micturition. It presents with vaginal collection sonographically identical to obstructive hydrocolpos. It is important to differentiate these two, as the treatment of VVR is mainly non-surgical[2].

INTRODUCTION

Cystic distension of the vagina by the accumulation of fluid is hydrocolpos. Vesicovaginal reflux (VVR) is defined as the retrograde reflux of the urine into the vaginal vault during voiding. It is usually seen in adolescent girls with urinary incontinence. The etiology is unclear, postulations are close apposition of labia, relatively horizontal orientation of the vagina or closing the legs when voiding. In the absence of anatomic abnormalities, this may be considered functional and treated with behavioral modification, education and hygiene training[3]. We report one such case of classical manifestations

CASE REPORT

A 12-year-old adolescent girl, obese, weighing approximately 42 kg, with a normal menstrual history presented with urinary incontinence on and off for 3 years. There is also a history of bad smell of the urine, post-void dribbling, frequent bedwetting and recurrent urinary tract infections. She attained Menarche at 11 years of age and her menstrual history is insignificant. Clinical examination revealed normal external genitalia. There was dribbling of urine from the vagina. On limited per vaginal examination, the introitus admitted 1 finger and revealed a ballooned-out vagina. Renal function tests and blood counts were within the normal limits. Urine examination revealed numerous pus cells, red blood cells and epithelial cells. Urine culture sensitivity showed E coli.

Ultrasonography of the abdomen and pelvis revealed a grossly distended clear fluid filled vagina that was suggestive of hydrocolpos. The uterus, both ovaries and the urinary bladder were normal. Post-micturition study showed complete evacuation of the vaginal fluid and post-void residual urine of approximately 50 mL in the urinary bladder. The ureteric jets on both sides were normally seen within the bladder. No obvious reproductive tract anomalies were seen.

The girl was further evaluated with MRI of the pelvis which revealed distended fluid filled vagina on full bladder imaging suggestive of hydrocolpos. Mass effect due to hydrocolpos was seen on the adjacent structures like urinary bladder and the uterus. The post-void MRI revealed resolution of the fluid filled vaginal distension. There was no evidence of an ectopic ureter, vesicovaginal fistula, bladder diverticuli or any other structural abnormality, thereby cementing the diagnosis of non-obstructive hydrocolpos due to vesicovaginal reflux.

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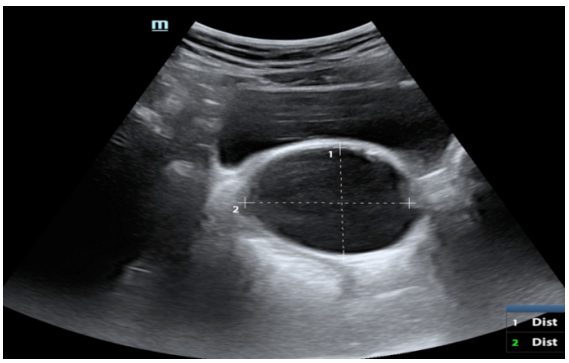
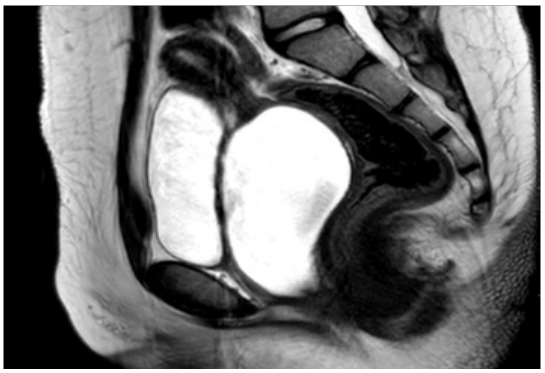
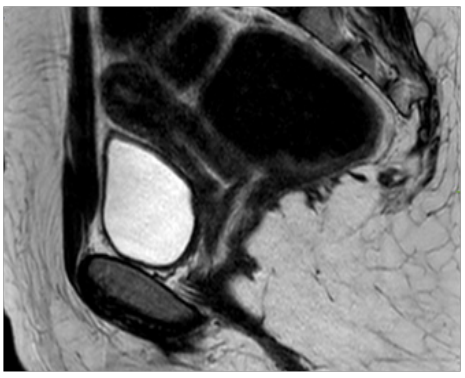


Sagittal and Axial sections of pelvic ultrasonography in pre-void state using low frequency transducer showing anechoic collection seen posterior to the distended urinary bladder causing its anterior displacement, posterior acoustic enhancement, outlining the cervical os and causing superior displacement of the uterus consistent with hydrocolpos.

The post-void scan revealed the complete disappearance of the vaginal distension suggesting a possible diagnosis of vesicovaginal reflux.



Sagittal T2W sections of the MRI pelvis with fat suppression in pre-void state showing distended fluid filled vagina on full bladder imaging representing hydrocolpos with mass effect on the adjacent structures like urinary bladder and uterus. The normal appearance of the bladder, uterus and other pelvic structures can be seen.



The post-void MRI revealed resolution of the fluid filled vaginal distension. No evidence of vaginal septum, vaginal atresia is seen.

DISCUSSION

Hydrocolpos refers to a fluid filled and distended vaginal cavity. When involving the uterine cavity, it is described as hydrometrocolpos. The most common causes are imperforate hymen[4], transverse vaginal septum, vaginal atresia; such obstructive lesions present earlier in life. Hydrocolpos due to vesicovaginal reflux is a non-obstructive under recognized condition in pubertal and adolescent girls presenting with uro-gynecological symptoms. The condition resolves as the patient grows into adulthood, explained by bladder descent and anatomic correction of the vesicourethral angle[5].

Various etiologies have been postulated, labia minora adhesions, ureteral duplication or ectopic ureter with insertion into the vagina, the female hypospadias (abnormal position of the urethral meatus in relation to the vaginal orifice and labia[6]. Other causes may be improper toilet training resulting in the child attempting to pass urine with tightly crossed legs and pelvic floor dysfunction.

Vaginal reflux is a functional voiding disorder seen in pre-pubertal girls without anatomic or neurological abnormality. When not associated with urinary tract infections, asymptomatic bacteriuria, post-void dribbling or daytime enuresis may be considered a normal finding[7]. The most likely cause in our patient is tightly opposed labia, preventing the passage of urine and reflux from the meatus into the vagina through the introitus.

It must be distinguished from vesicovaginal fistula and abnormalities of ureteric insertion. Normal pelvic anatomy is defined radiologically and pre-void vaginal distensions that resolve after complete voiding will differentiate between vesicovaginal reflux and vesicovaginal fistula.

Clinical presentations may be varied - ranging from urinary infections, abdominal pain, post-void dribbling, bedwetting and passing of urine from the vagina after voiding. Careful elicitation of history and encouraging the patient to maintain a bladder diary are important.

The first line imaging modality in radiology is the pelvic ultrasound which reveals vaginal distension by fluid in the full bladder phase. This finding is transient and disappears after voiding. MRI is the logical next step, to exclude uterine anomalies, septa, didelphys and related mullerian abnormalities. It also offers the advantage of excluding ionizing radiation. CT scan findings include opacification of the vaginal canal from the bladder in delayed phase scans, with the conspicuous absence of any communication between the two viscera. Voiding cystourethrogram defines the retrograde filling of the vaginal canal during the early voiding phase to empty completely or sub-totally in the late voiding phase[8].

The condition is not exclusive to prepubertal girls, it can also be seen in adolescence. It is also an underestimated cause of urinary incontinence in adult woman[5]. The occurrence of uro hydrocolpos due to vesicovaginal reflux after a caesarean section in adult females is a rare phenomenon, failure to recognize may lead to misdiagnosis as vesicovaginal fistula and often leads to unnecessary interventions[9].

Treatment of vesicovaginal reflux larger revolves around the behavioral therapy and toilet training. The prepubertal adolescent is educated to keep her legs well apart while voiding and to devote adequate time to bladder emptying. In older patients, post-voiding vaginal emptying by finger introduction/ tampon in a cross-legged position and strengthening the pelvic floor by exercises are taught[9].

CONCLUSION

Vesicovaginal reflux is a functional rather than anatomic cause of transient hydrocolpos. The treatment is accordingly focused on behavioral therapy, attention to local hygiene and reassurance from the medical team. The management of urinary infection symptomatically also forms part of the regimen.

Radiological diagnosis plays an important role in management of this condition. The intermittent nature of the findings may confound the unwary physician, and knowledge of this entity guides clinical management[10]. A comprehensive history and high index of suspicion lead to the diagnosis. Voiding cystourethrogram may not be mandatory if the diagnosis is arrived at by less invasive modalities without the use of ionizing radiation. Imaging will also exclude anatomical abnormalities leading to hydrocolpos[3].

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