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# Transient Urocolpos Secondary to Vesico-Vaginal Reflux

## Case Report

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**Abstract**

In this case report we present the clinical and radiological findings of a 28-year-old patient presenting with primary infertility and post-coital bleeding with no urinary complaints. Imaging of this patient revealed urocolpos, which would vanish after voiding. Owing to its intermittent nature, transient urocolpos secondary to vesicovaginal reflux, presents a diagnostic dilemma. Radiologists must be aware of this rarely diagnosed entity so as to alleviate the patients concerns.

## Introduction

Vesico-vaginal reflux (VVR) is defined as reflux of urine into the vaginal vault in supine or upright position during voiding. It is considered as a behavioral disorder and is commonly encountered in pre-pubertal girls. Anatomical abnormalities such as ectopic insertion of the ureter and vesico-vaginal fistula (VVF) needs to be ruled out in order to diagnose this condition.

Distention of the vaginal vault with urine is defined as urocolpos which usually occours secondary to vesico-vaginal fistula orvesico-vaginal reflux.

Patients may be completely asymptomatic or they may experience symptoms of urinary tract infections, vulvo-vaginitis, and post-void dribbling. Rarely, patients may experience infertility, as was seen in our case.

## Case Presentation

A 28-year-old female married for 2 years, presented to the out-patient department (OPD) of obstetrics and gynecology with complaints of infertility and post-coital bleeding. She was nulligravida and had regular unprotected coitus. It was revealed that the patient was a known case of polycystic ovarian disease and was managed with lifestyle modification for the same. No other significant past medical or surgical history was provided. The patient denied any urinary complaints.

General examination was unremarkable. Laboratory workup, including complete hemogram, renal function tests, liver function tests, lipid profile, and thyroid function tests revealed no abnormalities.

Per vaginum examination revealed a normal-sized and anteverted uterus. The cervix appeared bulky and the internal os was closed. Per speculum examination revealed erosions and inflammation over the entire ectocervix.

The patient was then referred to the Department of radiodiagnosis, for a pelvic ultrasound. Transabdominal ultrasound (TAS) revealed an anechoic cystic lesion posterior to the urinary bladder, inferior to the cervix, distending the vagina and displacing the distended urinary bladder anteriorly. On subsequently performed post-void ultrasound, this cystic lesion was completely unvisualised, and the urinary bladder was collapsed. The uterus and endometrial thickness


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appeared normal. The left ovary showed a small simple follicular cyst. The right ovary was normal in size and appearance.

Subsequently, a CT IVU was performed, which revealed contrast-filled urine is seen to opacify the vaginal cavity and the urinary bladder, confirming it to be urocolpos. Both ureters were seen to insert normally into the urinary bladder. No duplication/ectopic ureter, vesicovaginal fistula, or bladder diverticulum were demonstrated.

MRI pelvis with MRI urography was performed one week later, which revealed a fluid/urine-filled vaginal vault. No evidence of vaginal septum, mullerian duct anomalies, or any other uterine abnormalities noted. Urinary bladder appeared normal.

2 weeks later, diagnostic cystoscopy and vaginoscopy were performed under spinal anesthesia, which revealed a low-capacity urinary bladder (100 ml) with normal vesico-ureteral junctions. The cervix appeared inflamed on vaginoscopy. Neither cystoscopy

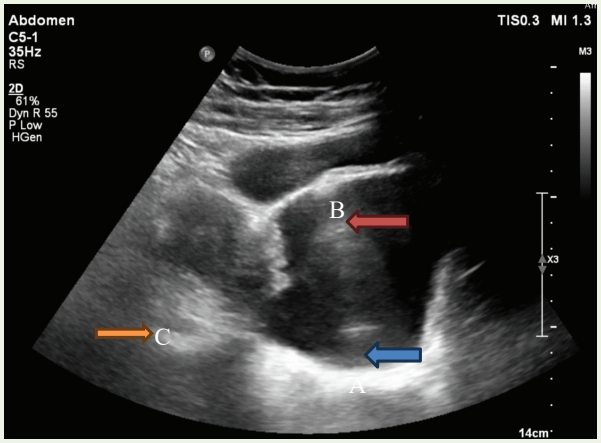


**Figure 1:** Transabdominal ultrasound (TAS) of the pelvis reveals anechoic fluid distending the vagina, suggestive of hydrocolpos (blue arrow, A). The urinary bladder (anterior to the vagina) is partially distended (orange arrow, B). The uterus and cervix appear normal (green arrow, C)

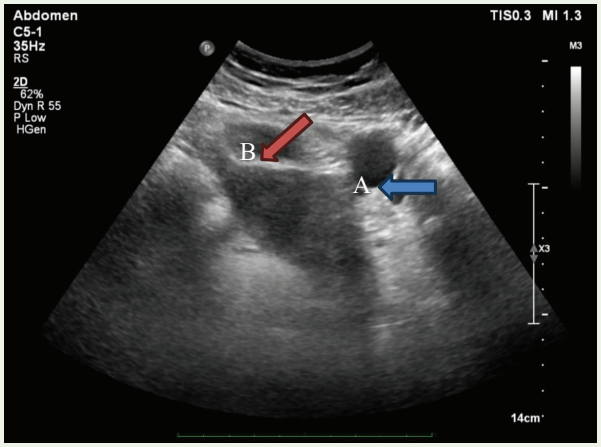


**Figure 2:** Post void transabdominal ultrasound (TAS) of the pelvis reveals complete un visualization of the fluid filled vaginal cavity, suggestive of transient urocolpos. The left ovary shows a simple follicular cyst (blue arrow, A). The urinary bladder is collapsed (orange arrow, B).

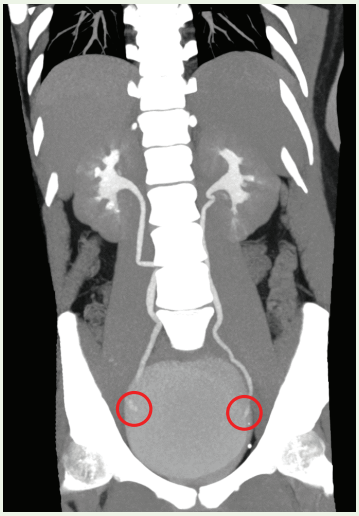

**Figure 3:** Coronal MIP section of the CT-IVU reveals normal insertion of the ureters into the urinary bladder (red circles).

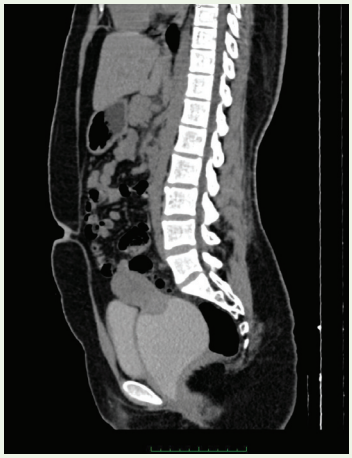

**Figure 4:** Sagittal section of CT IVU reveals contrast filled urine opacifying the vagina and the urinary bladder. No fistulous tracts were seen between the vagina and urinary bladder.

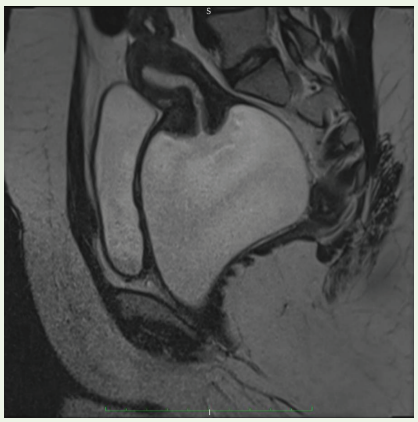

**Figure 5:** T2W sagittal section of pelvis reveals fluid distended vaginal cavity. No vaginal septum noted.



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nor vaginoscopy revealed any abnormal communication between the vagina and urinary bladder; thus, confirming the diagnosis of transient urocolpos secondary to vesico-vaginal reflux.

## Discussion

Urocolpos is the distension of the vaginal vault with urine. It can be obstructive or non-obstructive. Non-obstructiveurocolpos occurs secondary to VVR, cerebral palsy, and spastic pelvic floor muscles. Obstructive urocolpos occurs secondary to anatomical abnormalities like vaginal septum, labial adhesions, ectopic ureteral insertion, or duplicated ureter.[1]

Urocolpos secondary to VVR is considered a behavioral abnormality usually encountered in prepubertal and adolescent girls. The condition may resolve in adulthood, explained by the descent of the urinary bladder and anatomical correction of the vesico-urethral angle [2].

Usually, these patients are asymptomatic, and hence the condition may be incidentally detected. Asymptomatic bacteriuria is common in them. In symptomatic patients, they may present with dysuria, nocturia, and post-void dribbling of urine. In our case, the patient had no urinary complaints; instead, the patient present with primary infertility and post-coital bleeding. The infertility could be partly attributed to PCOD and the urocolpos, as the urine-mixed semen would be eliminated each time the patient voids. The post-coital bleeding could be attributed to the extensive inflammation and erosions over the ectocervix secondary to irritation by urine.

Radiology plays a key role in the diagnosis of this condition as well as distinguishing obstructive from non-obstructive urocolpos. First line imaging modality is a pelvic ultrasound. A fluid collection in the vagina that disappears after micturition, in the absence of other structural abnormalities, is diagnostic of VVR with non-obstructive urocolpos[1]. CT and MRI are performed to rule out structural abnormalities and to rule out obstructive urocolpos, since the management differs.

Voiding cystourethrogram demonstrates the retrograde filling of the vaginal vault during the early voiding phase to empty completely or sub-totally in the late voiding phase. [3]

Diagnostic cystoscopy and vaginoscopy may be done to rule out vesico-vaginal fistulas.

Differential diagnosis includeshydrocolpos, urinary bladder diverticulum, and mirror image artifacts.[4]

Treatment of this condition largely revolves around behavioral therapy. In the case of infertile females, assisted reproductive technology (ART) with intra-uterine insemination(IUI) may be offered.

## Conclusion

Transient urocolpos secondary to VVR is a functional condition and is a rare cause of infertility. Imaging plays an important role in its diagnosis and to guide further management. Its intermittent nature may stun an unsuspecting sonologist/radiologist, hence knowledge of this entity is important.

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