Ectopic ureter draining into the uterus

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INTRODUCTION

Ectopic ureter is defined as any ureter, single or duplex, that does not open in the trigonal region of the bladder. More than 80% of ectopic ureters are associated with complete duplex system. In females, the ectopic ureteric opening may be located anywhere from bladder neck to perineum with urethra, vagina, and vestibule being the common sites of entry. An ectopic ureter opening distal to the external sphincter or into the mullerian system may be associated with incontinence which is a major social stigma for the patient.

CASE REPORT

A 13-year-old girl presented with the history of persistent dribbling of urine per vaginally since childhood. The patient needed to use diapers on a regular basis for the persistent dampness though she had a normal voiding habit. The patient had a normal menstrual cycle. There was no history of previous surgery or trauma in the genital region. Clinical examination revealed a normal urethral meatus with pooling of urine at the introitus without any other associated congenital anomaly. The hematological and renal biochemical parameters were within limits. Urine culture was sterile. Ultrasonography abdomen suggested mild fluid collection in the vaginal cavity with an ill-defined connection between the vagina and the bladder. The computed tomography (CT) urography showed right-sided duplex moiety with an ectopic ureter draining into the uterus [Figure 1]. The micturating cystourethrogram showed a normal bladder outline without any reflux. On vaginoscopy, no ureteric opening was seen in the vagina with continuous dribbling of urine from the cervix. On injecting contrast into the uterus, the ectopic ureter was delineated which suggested a possible uterine opening of the ectopic ureter [Figure 2]. Laparoscopic dissection of the right common ureteric sheath was done, and the ectopic and the normal ureter were separated from each other. The ectopic ureter was found to be draining into a normal looking uterus [Figure 3]. This was clipped at its junction with the

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uterus and was cut. The ectopic ureter was spatulated, and was anastomosed in an end-to-side fashion to the normal right ureter over a double J stent with a smooth postoperative recovery.

**DISCUSSION**

Any abnormality in common nephric duct apoptosis or site of ureteric bud origin may result in an ectopic ureter. Distal insertion of the ectopic ureter may result if the ureteric bud arises more cephalad than normal position. The ectopic ureteric bud becomes incorporated into the derivatives of paramesonephric duct may result in urinary drainage into the female reproductive tract. In females, the ectopic ureteric opening may be located anywhere from bladder neck to perineum with urethra (45%), vagina (35%), and vestibule (15%) being the common sites of entry. Hence, in most of the females, the ectopic ureter drains either distal to the urethral sphincter or into the reproductive tract resulting in continuous incontinence. Only one case has been reported in medical literature in English of an ectopic ureter draining into the uterus. Even ectopic ureter draining into the rectum has also been reported. Incontinence and repeated urinary tract infections are the most common modes of presentation. Classically a toilet trained girl with normal voiding habits presents with continuous dampness of the genital region which does not show any diurnal variation. Clinical examination findings are highly non-specific. Pooling of urine at the introitus, Gartner’s cyst, and palpable hydronephrotic upper pole may be the characteristic clinical findings. Ultrasonography (USG), CT urography, dimercaptosuccinic acid (DMSA) scan, and voiding cystourethrography (VCUG) are the mainstay for diagnosing ectopic ureter. The characteristic USG finding is a dilated upper pole with dilatation of the ectopic ureter. A pseudoureterocele may be seen in a grossly dilated system. CT urography helps in delineating the ectopic ureter to its site of insertion, and it also helps in identifying grossly dysplastic kidneys that may not be visualized on USG. DMSA renal scan is the functional study of choice in identifying poorly functioning renal tissue. VCUG is essential to evaluate for reflux in the normally draining ureter. In some cases, vaginography or hysterography helps in identifying the ectopic ureter as in our case.

The surgical management of ectopic ureter aims at preserving renal function, eliminating infection, and maintaining continence. The decision-making for renal parenchymal preservation is highly empirical with very few objective criterions defining how much renal function is worth preserving. In a functioning upper pole, the procedures that can be done are distal and proximal ureteroureterostomy (end-to-side). Both transanastomotic stenting and stenting of the recipient ureter have shown equivalent efficacy. The procedure can be performed...
laparoscopically. In case of an associated lower polar refluxing system, a concomitant ureteric reimplantation may be required. In cases of nonfunctional moiety, the risk of infection may be eliminated by performing an upper polar nephrectomy.

In our patient, there was no lower polar reflux and the upper polar dilatation was minimal with adequate renal function. Thus, the preferred approach was a laparoscopic distal ureteroureterostomy on a double J stent. Primary upper polar ureteric reimplantation was not favored in our patient as there was inadequate length of the ureter and a psoas hitch would have been needed which may have led to kinking of the lower pole ureter.

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Conflicts of interest
There are no conflicts of interest.

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