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Uterus as one of the ectopic ureter openings: Case report

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ABSTRACT

Ectopic ureter is defined as any ureter, single or duplex, that does not open in the trigonal region of the bladder. A 19-years-old girl was presented with urinary incontinence. Physical examination revealed a normal urethral meatus with pooling of urine at the introitus. A Kidney-Ureter-Bladder ultrasound revealed a duplex-system suspicion on the right side. The patient was managed by laparoscopic heminephrectomy of right ureter. The uterus gains its normal shape and sized without any fluid filling after the operative being completed. In conclusion, a complete diagnostic work up is important to achieve better prognosis and early treatment.

1. Introduction

Ectopic ureter is defined as any ureter, single or duplex, that does not open in the trigonal region of the bladder, although 80% of the cases were associated with the complete duplex system. Most of the ectopic ureter arises from the upper moiety of a duplex kidney. In females, the ectopic ureteric opening located anywhere from bladder neck to perineum with urethra, vagina, and vestibule.[1] Duplex kidney, also known as duplex collecting system, is a common congenital urinary system anomaly with a morbidity of about 0.8%–1%.[2] This report would like to present a rare case of ectopic ureter to uterus in urology department of our institution.

2. Case presentation

A 19-years-old girl presented with urinary incontinence requiring 4–5 pads/day, which described as constantly wet. The urine leakage was not associated with standing, coughing, or effort and she had no urge to void. There was no history of any other lower urinary tract symptoms, stress incontinence, urinary tract infection or fever. The patient had a normal menstrual cycle. There was no history of previous surgery or genital trauma.

Physical examination revealed a normal urethral meatus with pooling of urine at the introitus without any other associated congenital anomaly. Laboratory examinations were within normal limit. A Kidney-Ureter-Bladder ultrasound revealed a duplex-system suspicion on the right side. The computed tomography (CT) urography showed no contrast filling the bladder from the upper moiety with an ectopic ureter draining to the uterus (Fig. 1).

We performed laparoscopic re-implantation of right ureter. During cystoscopy we found that the external urethral orifice, urethra, bladder, and ureteral orifices are within normal limit, efflux positive on both sides. Laparoscopic exploration found that the upper moiety was drain to the fallopian tube. Further imaging diagnostic evaluation using Intravenous Urography (IVU), Voiding cystourethrography (VCUG), and vaginoscopy were essentials to provide the exact location of ectopic ureter.

2.1. Operative technique

The patient was placed in lithotomy and lateral decubitus position. A four-port technique was used. The upper moiety of the right renal was smaller than the lower moiety. The upper moiety of proximal ureter sized 5 times bigger than the normal ureter, located anteromedially of lower moiety of the right ureter, transposed with pedicle lower moiety of right kidney. The upper moiety of distal ureter was 3 times bigger than the normal ureter, inserted to the right fallopian tube (Fig. 2). Heminephrectomy of upper moiety of the right kidney via laparoscopy was completed.

Post-operation ultrasonography revealed uneventful recovery of the uterus. The uterus gained its normal shape and size without any fluid filling after the operative being completed (Fig. 3).

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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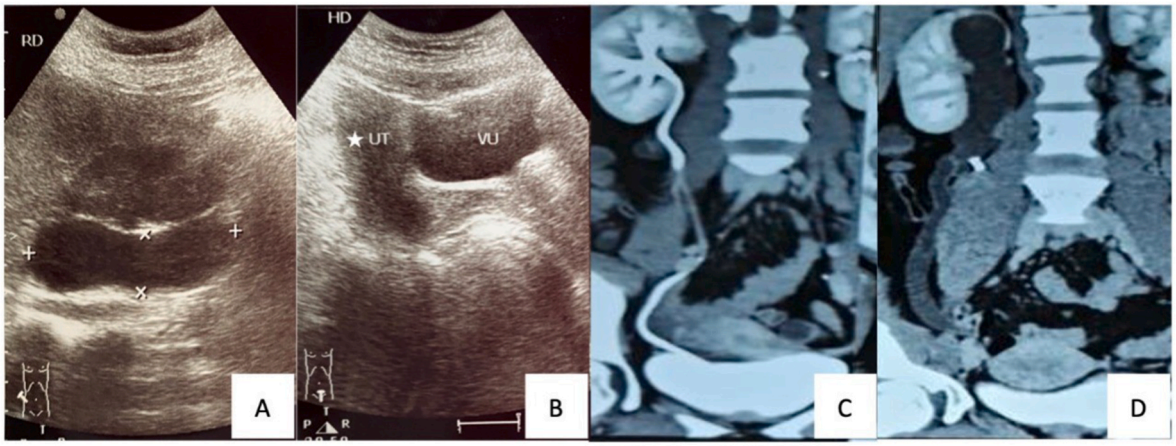

Fig. 1. (A) Right Kidney with dilated upper moiety, (B) Bladder and Fulfilled with Fluid Uterus (*), (C) Contrast from Lower Moiety, (D) No Contrast from Upper.

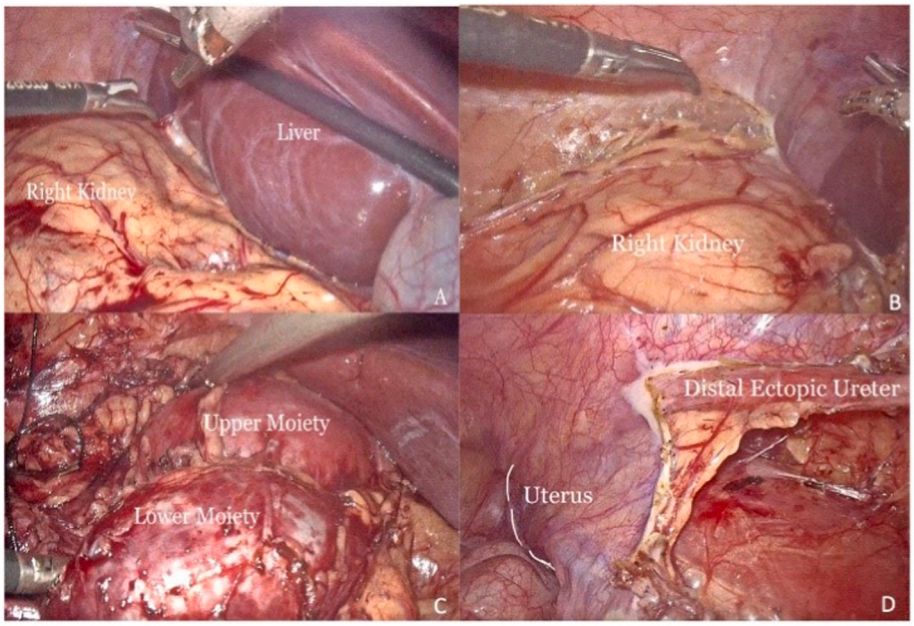

Fig. 2. Laparoscopic view of the ectopic ureter draining into the fallopian tube (A) Right Kidney and Liver (B) Right Kidney (C) Upper and Lower Moiety Right Kidney, (D) Distal Ectopic Ureter drains to Uterine.

3. Discussion

Ectopic ureter is defined as a ureteric orifice outside the posterolateral extremity of the bladder trigone. This case represents a rare congenital anomaly of the genitourinary system which was found in 1/2000 newborns. Gender ratio is 2–6:1 in favor of females. In 80–85% cases, the ectopic ureter is associated with a duplicated renal collecting system.[1]

Ectopic comprises a variety of ureteral insertion shifting from nearly normal to extravesical location which caused by any abnormality in common nephric duct apoptosis or site of ureteric bud origin. Distal insertion of the ectopic ureter may result if the ureteric bud arises more cephalad than normal position. 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. In most of the females, the ectopic ureter drains either distal to the urethral sphincter or into the reproductive tract resulting in continuous incontinence.[2]

In this case, our patients presented with continuous urinary incontinence. Approximately half of the girls with ectopic ureter suffer from continuous dribbling and incontinence despite a normal voiding pattern. Incontinence and repeated urinary tract infections are presented the most. Pooling of urine at the introitus, Gartner's cyst, and palpable hydronephrotic upper pole might be found.[3]

In all cases imaging studies are mandatory to confirm the diagnosis. In children, kidney ultrasound represents the initial diagnostic test. Contrast-enhanced computed tomography (CT) or magnetic resonance imaging urography should be the method of choice for depicting or ruling out an ectopic ureter.[4]

Classical radiological methods such as USG and IVU are usually performed to determine abnormal duplex kidneys and ectopic ureter. However, 16% of ectopic ureters may not be detected by IVP because of the absence of upper pole calyx or very thin dysplastic and/or pyelonephritic parenchyma; hence further imaging modalities like CT/MRI or dimercaptosuccinic acid (DMSA) scan may be required.[4]

The decision-making for surgical management depends on kidney function. In a functioning upper pole, the procedures that can be done are distal and proximal ureteroureterostomy (end-to-side). Both *trans*-anastomotic stenting and stenting of the recipient ureter have shown equivalent efficacy. The procedure can be performed laparoscopically.

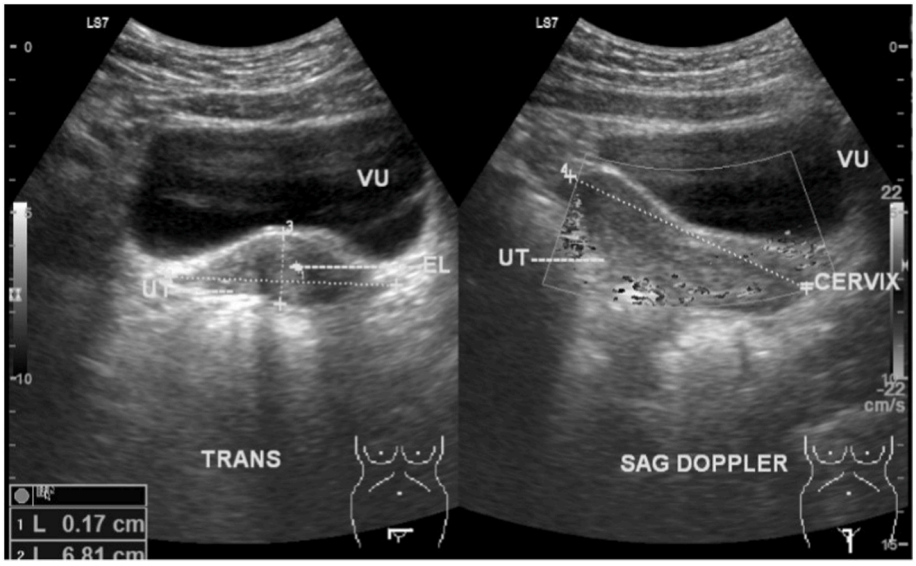

Fig. 3. Postoperative abdominal ultrasonography shown uterine in normal condition after the operative being completed.

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.[2,5] In our cases, heminephrectomy or the right kidney upper moiety via laparoscopically was performed.

4. Conclusion

An adequate diagnostic work up is needed to diagnose and determine the intervention in ectopic ureter.

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Ethical approval

This manuscript was approved by Dr. Hasan Sadikin General Hospital Ethical Committee.

Informed consent

Written informed consent was obtained from the patient for publication.

Author contribution

All authors have participated sufficiently in the intellectual content, conception and design of this work and writing of the manuscript.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Declaration of competing interest

None declared.

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