Left ectopic ureteral insertion into seminal vesicle detected after robotic assisted laparoscopic radical prostatectomy

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ABSTRACT

Ectopic ureters are rare congenital malformations of the urinary tract, more frequent in females and most commonly associated with single collecting system in males. We report a case of a prostate cancer patient undergoing robotically assisted laparoscopic radical prostatectomy. Duplication of vas deferens was thought to be found during surgery. Postoperatively, patient developed fevers. CT showed incidental finding of duplex collecting system on the left with dilatation of the upper moiety. Percutaneous nephrostomy was placed but an attempt at antegrade insertion of ureteric stent was unsuccessful. Robotic reimplantation of the ectopic ureter was successfully performed on day six post prostatectomy.

1. Introduction

Ectopic ureters are rare, most commonly associated with duplicated systems and more frequently described in females. In males, the ectopic ureter always inserts above the external sphincter, typically into the wolffian structures such as vas deferens or seminal vesicles. Clinically, they may be associated with recurrent urinary tract infections in males and urinary incontinence more likely in females.

This case report describes the incidental finding of a left ectopic ureter draining into the seminal vesicle which was identified post-operatively following a robotic assisted laparoscopic radical prostatectomy (RALRP).

2. Case presentation

A 61-year-old male presented with a raised prostatic specific antigen (PSA) of 6.0 μg/L and a suspicious digital rectal examination on the right prostatic lobe. He did not report any urinary tract symptoms or history of urinary infections, therefore an initial upper tract imaging was not performed. A multiparametric magnetic resonance imaging (MRI) of prostate was performed showing a 25 cc prostate and a 1.6 cm PI-RADS 5 lesion in the anterior transition and peripheral zones on the right. Transperineal ultrasound-guided prostate biopsy revealed Gleason Score 4 + 3 = 7 (ISUP 3) prostatic adenocarcinoma. No cross-sectional abdominopelvic imaging was performed preoperatively based on clinical staging.

Following counselling, a RALRP with bilateral nerve sparing was performed. During seminal vesicles dissection (Fig. 1A), a duplicated vas deferens inserting into the left seminal vesicle was noted (Fig. 1B), clipped (Fig. 1C) and divided (Fig. 1D). Similar findings were noted on the right side. Surgery was completed uneventfully.

On postoperative day 3 the patient developed left flank pain and fever. A computed tomography (CT) of abdomen and pelvis with contrast was performed revealing a duplex collecting system on the left with dilatation of the upper pole moiety (Fig. 2A). A nephrostomy was inserted into the dilated collecting system by the interventional radiologist with the view to placing an antegrade stent into the ureter. This was because we initially thought the obstruction may have been a result of the ureter being caught by the vesico-urethral anastomotic sutures. Antegrade contrast study showed abrupt end of the dilated ureter 1–2 cm above the bladder (Fig. 2B). Not surprisingly, multiple attempts to place the antegrade stent failed.

A robotic assisted laparoscopic reimplantation of the left ureter was performed on post-operative day 6. During the procedure, both left ureters were identified (Fig. 3A). On careful dissection the left duplicated ureter was traced to its end where it was clipped and divided...
Fig. 3 B and C), confirming a complete duplex of the left collecting system. We thus realised that the supposed duplicated vas deferens entering into the left seminal vesicle found during RALRP was instead an ectopic left upper pole moiety ureter. Interestingly, similar findings on the right side were noted during initial surgery but without duplex collecting system on CT. It was thought that this might have been a remnant of a duplex system. A double J stent was placed prior to completion of ureteric reimplantation. Patient’s postoperative recovery was uneventful and the ureteric stent was removed 6 weeks later.

Histopathology slides from RALRP were reviewed with our pathologist. The tubular structure joining the left seminal vesicle (Fig. 3D) was found to contain benign urothelium adjacent to seminal vesicle lining (Fig. 3E) corresponding to the entrance of the ectopic ureter into the left seminal vesicle.

3. Discussion

An ectopic ureter is a rare congenital anomaly. Malformations of the genitourinary tract usually become apparent during childhood or are detected on prenatal ultrasound. However, they may remain silent until incidentally found during investigation or treatment of adulthood pathologies.

The Weigert-Meyer rule states an ectopic ureter is associated with a complete duplex collecting system, the upper pole ureter is more frequently ectopic and the lower pole ureter inserts into the trigone at a more lateral and cranial position to the upper pole ureter, as seen in our case.1

In males, the most common insertion locations of an ectopic ureter are the posterior urethra (47%) and seminal vesicles (33%).2
Previous cases of an ectopic ureter found on preoperative work up or as an incidental finding during a radical prostatectomy have been described. Radical prostatectomy was performed open, laparoscopic or, as described in this case, robotic assisted approach. Ectopic ureter insertion sites included the prostatic urethra and seminal vesicle.

In our case, we noted the possible finding of bilateral duplex vas deferens during radical prostatectomy, which had been described previously. The finding of a duplex collecting system was only found postoperatively on CT for investigation of patient’s complaint of left loin pain and fever. Ghazi et al. also described incidental finding of complete duplex system on a post-operative CT scan performed for investigation of abdominal discomfort. However, their surgical approach for definitive management was different as they performed a laparoscopic retroperitoneal uretero-pyelostomy between the upper pole ureter and lower pole pelvis. Retrospectively, our patient’s pelvic MRI was reviewed and possible duplicated distal ureter was identified. Since this is a rare finding, it was not reported or detected on pre-operative review.

Other case reports have described the finding of ectopic ureter during radical prostatectomy with immediate intra-operative management. Dinlec et al. described a similar technique to our approach by performing a ureteric reimplant of the ectopic ureter with prior double J stent insertion. Hubosky’s et al. reconstructive technique consisted of a Y-type joined ureteral anastomosis and ureteroneocystotomy. Conversely, a complete ureterectomy was performed by Shariat et al. after a retrograde pyelogram confirmed a blind ureteric end into the retroperitoneum during radical prostatectomy. Different surgical techniques are feasible for ureteric reconstruction. We decided to perform a ureteric reimplant in the context of a distal ectopic injury close to the bladder and to avoid manipulation of the eutopic ureter.

4. Conclusion

Ureteric anomalies such as the ectopic ureter are rare. Surgeons should be aware of this anatomical variation and have a high index of suspicion for ureteric injury when a difficult seminal vesicle dissection or wide bladder neck resection are encountered during radical prostatectomy.

Consent

Patient consent was obtained in writing.

Conflicts of interest and financial disclosures

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Author contributions

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William Chui: Conceptualization, Methodology, Resources, Writing – Original Draft, Writing – Review & Editing, Visualization.

Yee Chan: Conceptualization, Methodology, Writing – Review & Editing, Visualization, Supervision.

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