

Inflammation and infection

Double trouble: A unique case of TRUS biopsy induced left upper moiety infection of a duplicated ectopic ureter[☆]

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ABSTRACT

Duplex collecting systems are seen in 0.7% of the population and its association with an ectopic ureter (specifically in the ejaculatory duct) is even less common. We presented a 57 year-old male with an elevated PSA and suspicious findings on a multiparametric MRI (mpMRI) who underwent transrectal ultrasound (TRUS) guided biopsies. The procedure led to an infection of the upper moiety of the duplicated left collecting system with ectopic ureter draining into the ejaculatory duct. CT-scan was used for the diagnosis and an urgent surgical treatment was performed. To our knowledge, no such case has ever been reported.

Introduction

Duplex collecting systems are seen in 0.7% of the healthy adult population.¹ Ureteral duplication may be complete or incomplete (partial). Complete ureteral duplication with an ectopic entry of the upper pole moiety, is less common than incomplete duplication. The ureter draining the upper segment of the kidney prevalently inserts in the bladder inferior and medial to the ureter draining the lower segment of the kidney (Weigert-Meyer rule). It rarely inserts in the seminal vesicle and the ejaculatory duct.² TRUS biopsy of the prostate causes prostatitis in 1% of cases and epididymitis/fever (>38.5 °C) in around 0.8% of the cases.³ We present a case of a 57 year-old male patient presenting with a sepsis due to an infected, atrophic, incidentally diagnosed, left upper moiety, with an ectopic ureter that was surgically treated.

Case presentation

A 57 year-old male patient presented with an elevated PSA (6.69 ng/mL) and a mpMRI (multiparametric MRI) of the prostate showing a 52 g prostate with a left central zone suspicious lesion and a hemorrhagic zone touching the left seminal vesicle (Fig. 1). Patient reported mild storage and voiding urinary symptoms. Digital rectal exam (DRE)

showed a smooth, non-tender, soft, moderately enlarged prostate. A urine culture was done and confirmed sterile urine (no bacterial growth). A TRUS biopsy of the prostate (12 core biopsies) was performed under prophylactic antibiotherapy as recommended by the AFU ("Association Française d'Urologie"). Three days later the patient presented to the emergency department with high grade fever, chills, pelvic and left flank pain. Blood tests revealed leukocytosis (25 000 WBC/mm³), an elevated CRP (67 mg/L) and a positive blood culture for 2 anaerobic germs (*Parabacteroides distasonis* and *Clostridium perfringens*). CT-scan of the abdomen and pelvis with IV contrast showed a duplicated left collecting system with severe retroperitoneal fat stranding, a dilated ectopic ureter and upper moiety (with a very thin atrophic cortex) with an air-fluid level, suggestive of an obstruction and an additional anaerobic gas forming infection (Fig. 2). Clinically, the patient was deteriorating so an urgent surgical treatment was performed. Via a left Gibson incision, a resection of the dilated ectopic ureter was performed, after aspiration of its infected, bloody, foul-smelling content, and after it was liberated down to the seminal vesicle and up to the upper renal pelvis (Fig. 3). The patient recovered well post-operatively. The prostatic biopsies showed inflammatory changes with no signs of malignancy. He returned 6 weeks later with a MRI of the abdomen and pelvis showing complete removal of the ureter

Abbreviations: AFU, Association Française d'Urologie; DRE, Digital rectal exam; mpMRI, Multiparametric magnetic resonance imaging; TRUS, Transrectal ultrasound.

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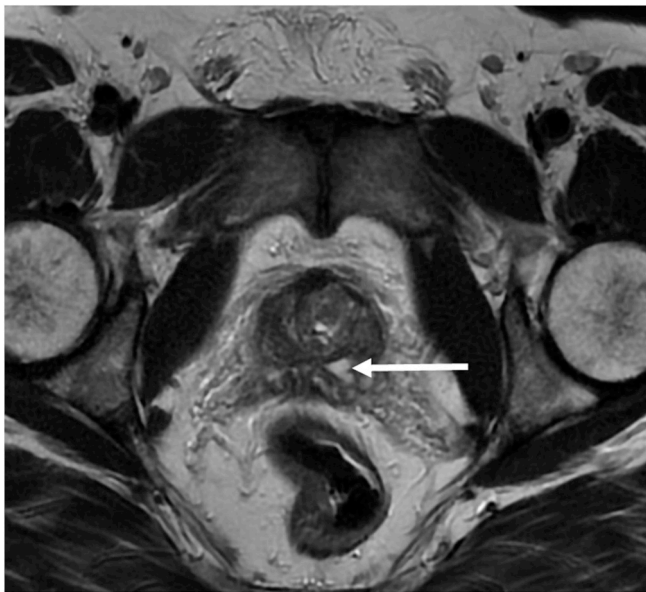


Fig. 1. Hyperintense lesion of the left central zone on T2W mpMRI of the prostate with a hemorrhagic zone touching the left seminal vesicle.



Fig. 2. CT-scan showing an air-fluid level within the dilated ectopic ureter draining the upper moiety of the left kidney.

and resolution of the inflammatory process in the retroperitoneum and around the prostate, as well as the persistence of the unresected atrophic, cystic upper moiety. A flexible cystoscopy was also performed, no specific abnormal findings were noted (normal prostatic urethra, bladder wall and ureteral orifices). A decision was made to perform a laparoscopic resection of the persistent upper moiety in the future.

Discussion

Either single or duplex systems with an ectopic ureter may cause severe hydronephrosis reflecting distal obstruction. This may have impaired normal renal development to the point that the affected segment or moiety is nonfunctional, which needs to be clinically assessed. In males, the ectopic ureter always enters the urogenital system above the external sphincter or pelvic floor, and usually into the Wolffian structures, including vas deferens, seminal vesicles, or ejaculatory duct. Presentation in male patients does not involve incontinence,

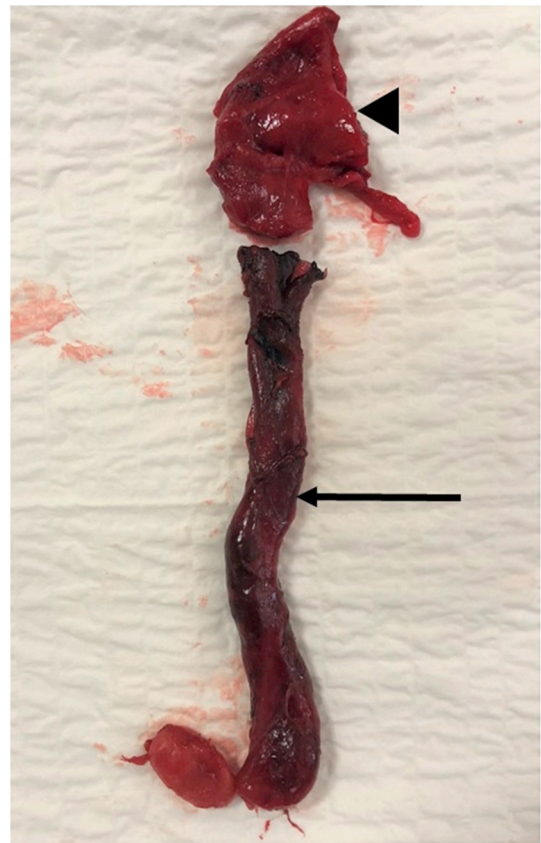


Fig. 3. Surgical Specimen showing the left upper moiety renal pelvis (arrow head) and ureter (arrow).

but rather infection and pain of the affected organs (testicles and epididymis). In our case, it was an upper moiety severe anaerobic infection that was triggered by a TRUS biopsy of the prostate.

On the other hand, such an anatomical variant would possibly increase serum PSA value, due to local and adjacent prostatic tissue irritation, but no data are available concerning the extent of this increase. In addition, considering the low prevalence of this variant, no specific recommendation regarding the indication for biopsy and the necessity of special precautions (technical or medical/antibiotics) are currently available.

The treatment of an obstructed, dilated, ectopic ureter is definitely very complicated and most of the time surgical treatment is warranted along with antibiotherapy, especially in case of relentless sepsis. The surgical treatment would consist of urgent percutaneous drainage (when feasible) or open drainage in the acute phase, with a complete resection of the remainder aberrant segments in a second procedure when the patient is stabilized (atrophic upper moiety and its renal pelvis, distal ureteral stump, seminal vesicle in case of abscedation ...).

Whether the diagnosis of an ectopic ureter would somehow affect the decision of TRUS biopsy of the prostate or not, remains a dilemma, especially in cases of a single ectopy (without duplication) which could lead eventually to a complete nephroureterectomy in case of severe infection.

Specific aggressive antibiotherapy directed towards anaerobes would seem logical in such cases, a higher threshold for biopsy decision or a confirmatory good interpretation of a high resolution mpMRI may also be warranted.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.eucr.2019.100999>.

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