

Ureteral Duplication Encounter During a Robotic Low–Anterior Resection: A Case Report and a Review of Literature

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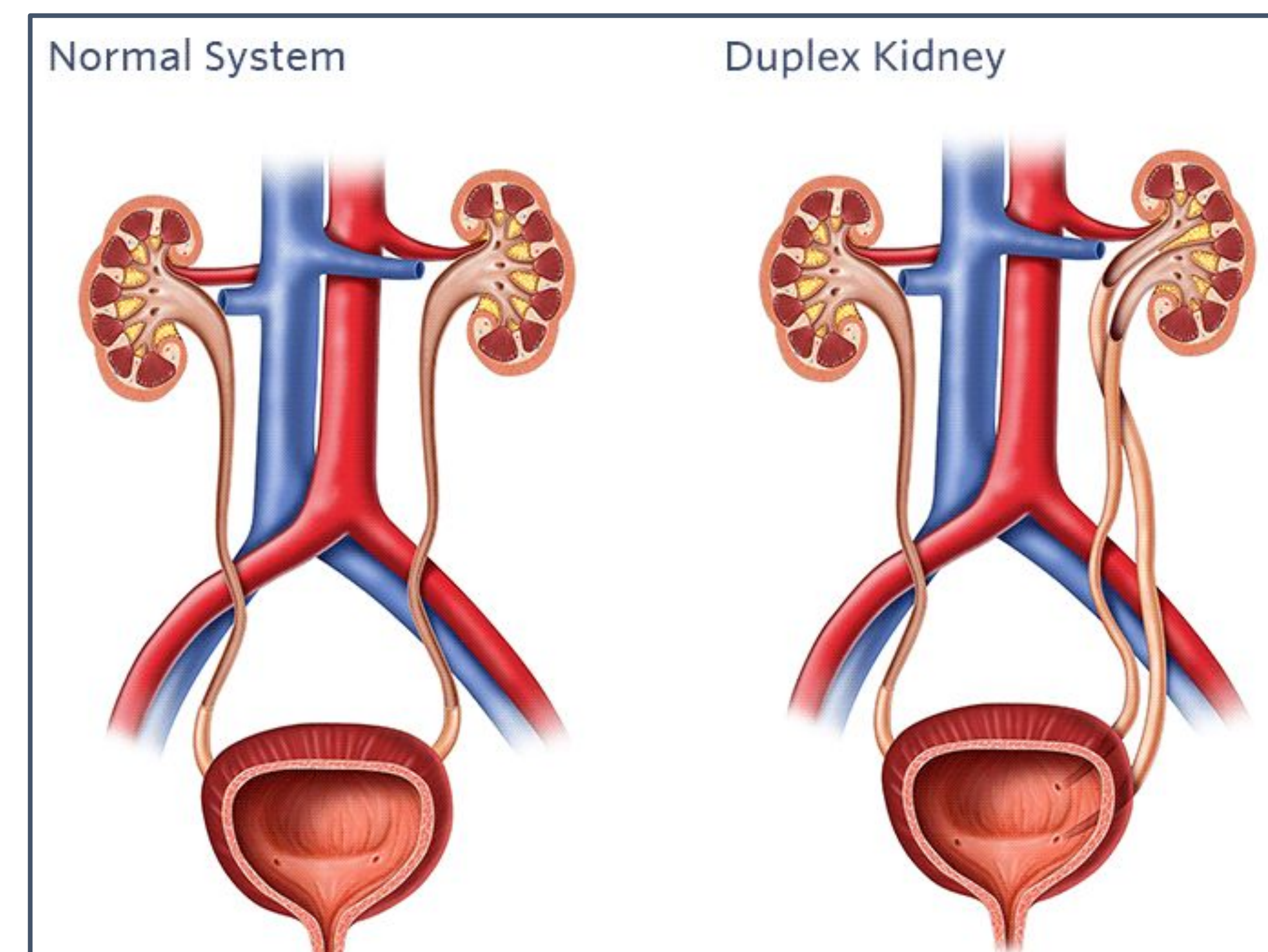


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Background

- **Ureteral duplication**, also known as duplex collecting system, is a congenital anomaly where two ureters drain urine from a single kidney

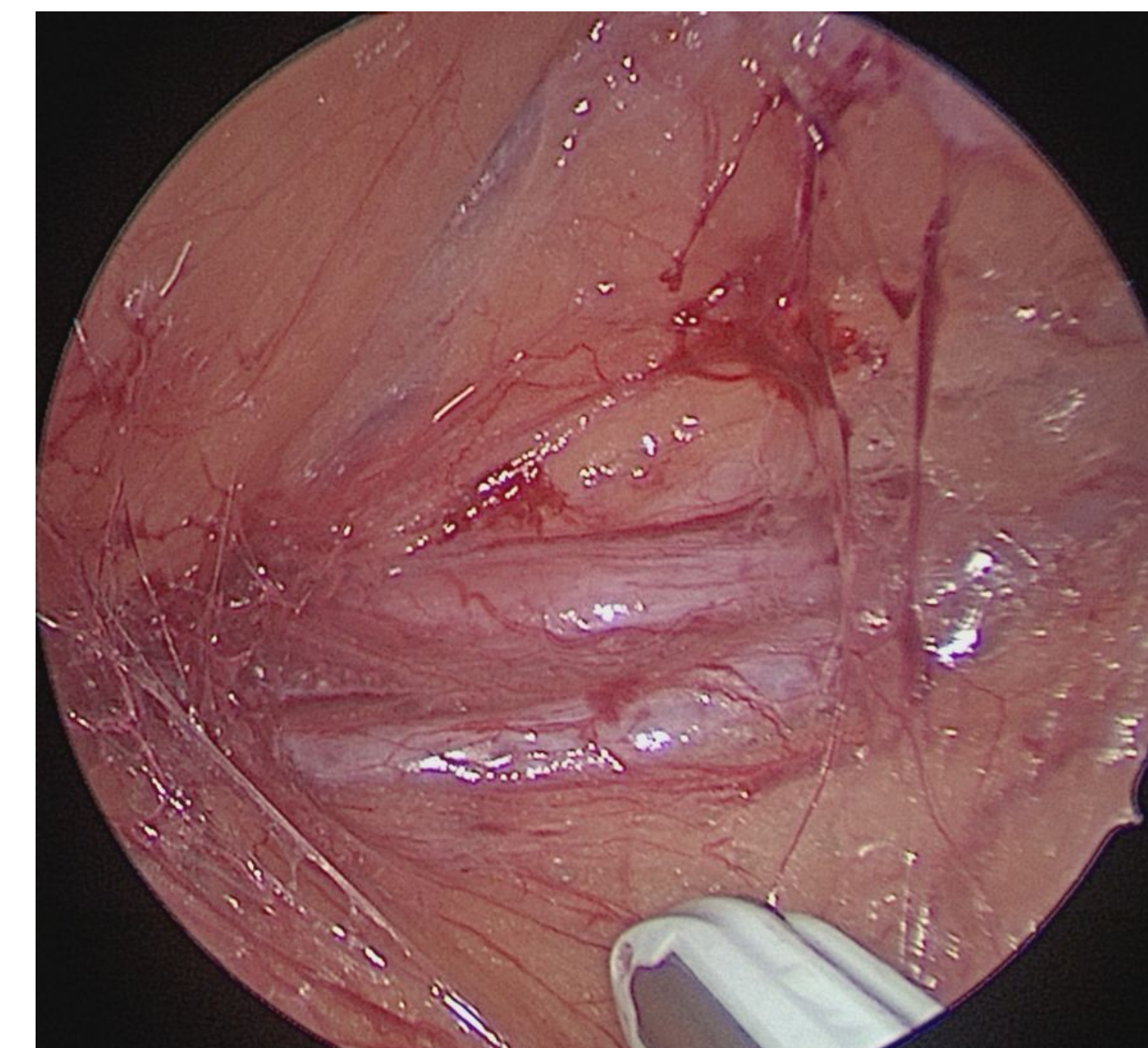


- It represents the **most common congenital anomaly** of the upper urinary tract
- While the overall duplication prevalence is approximately 0.5–1%, complete unilateral duplication is estimated to occur in **less than 0.5%** of the general population.¹
- Ureteral injuries during colorectal surgeries are infrequent but serious, occurring in 0.2–1.5% of cases.²
- Pelvic oncologic resections carry higher risk for **iatrogenic injury** due to **distorted anatomy** and close proximity to retroperitoneal structures

Case Presentation

- Patient is a 73-year-old male with biopsy-confirmed, moderately differentiated **rectal adenocarcinoma**
- He underwent an elective **robotic-assisted laparoscopic low anterior resection**
- Pre-operative imaging studies did not illustrate any significant ureteral anomalies

Intraoperative Findings



- During **medial to lateral dissection**, while developing the plane under the mesocolon, **two distinct parallel tubular structures** with **independent peristalsis** were visualized
- These structures were **identified intraoperatively** as complete left ureteral duplication
- Both ureters were **safely dissected away from the surgical plane**

Outcomes

- The procedure was completed uneventfully with the successful preservation of both left ureters
- The patient's postoperative course was uncomplicated
- Discharged on post-operative day 3
- Pathology findings of moderately differentiated rectal adenocarcinoma with satisfactory margins

Conclusion

- Complete unilateral duplication in an elderly male represents an **atypical demographic presentation**, as there is well-documented female predominance for this anomaly
- While **robotic** platforms provide enhanced visualization and dexterity, they do not eliminate the **vulnerability to congenital anatomic variants**
- **Systematic visual identification of the ureter remains the most reliable preventive strategy** to avoid iatrogenic injury during minimally invasive colorectal surgery.

References

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