Off Course: A Rare Ureteral Complication Following Laparoscopic Appendectomy

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Introduction

Appendectomy is one of the most common general surgical procedures performed worldwide. Ureteral Injuries are a reported but extremely rare complication. To date, only two cases of ureteral injury have been reported following open appendectomy and none reported with laparoscopic appendectomy.

We present a unique case of distal right ureteral injury following laparoscopic appendectomy in a 26-year-old patient, which was initially managed with minimally invasive urologic techniques, but ultimately required urologic surgery.

Case Description

A 26-year-old male with a history of ADHD presented to the emergency department with a one-week history of abdominal pain, nausea, and vomiting. Computed tomography (CT) of the abdomen and pelvis confirmed uncomplicated acute appendicitis with appendicolith.

The patient underwent laparoscopic appendectomy using a three-port (5 mm) trocar approach. Intraoperatively, the cecum was mobilized using a bipolar energy device. The appendix was retrocecal, dilated, inflamed, and non-perforated, with dense inflammatory adhesions to the retroperitoneum. The mesoappendix was divided using bipolar cautery, and the appendiceal base was doubly ligated with looped PDS sutures, divided using a bipolar device, and removed with an Endo Catch bag.

The patient was discharged on postoperative day (POD) 0 but presented on POD 7 with right flank pain. Laboratory results revealed acute kidney injury (creatinine: 1.13 mg/dL), leukocytosis (13.8 × 10^9/L), and hematuria on urinalysis. A follow-up CT of the abdomen and pelvis with IV contrast showed a 3 cm fluid collection, initially suspected to be an abscess. Percutaneous drainage was attempted, revealing contrast extravasation near the distal right ureter.

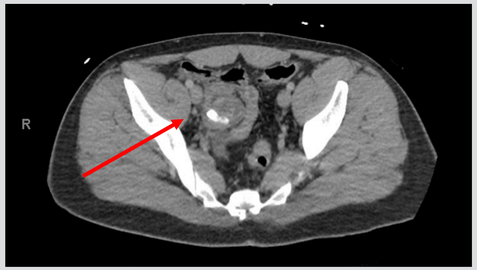


Figure 1

Preoperative CT of abdomen and pelvis demonstrating the ureter in close proximity of the phlegmonous changes of the appendix, as demonstrated by the arrow.

Surgical Management

The patient underwent a cystoscopy per urological surgery. The injury was initially managed with a minimally invasive approach via placement of a double J stent, along with percutaneous drainage of the fluid collection. The patient was discharged on POD 11 from his index surgery. He ultimately developed a ureteral leak, for which he underwent right nephrostomy tube placement, followed by delayed ureteral reimplantation 4 months after his index surgery.

Discussion

The right ureter typically follows a retroperitoneal course along the psoas muscle, crossing the iliac vessels into the pelvic cavity. Upon further review of the initial CT imaging the ureter was revealed to be within 1 cm of the appendix base at the pelvic brim. Given this proximity and the delayed presentation (POD 7), it is likely that the injury resulted from thermal damage caused by the bipolar energy device.

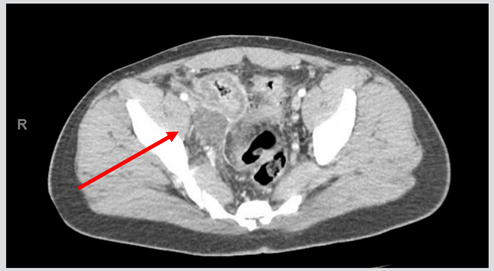


Figure 2

Postoperative CT of abdomen and pelvis demonstrating fluid collection (initially thought to be an abscess), demonstrated by the arrow.

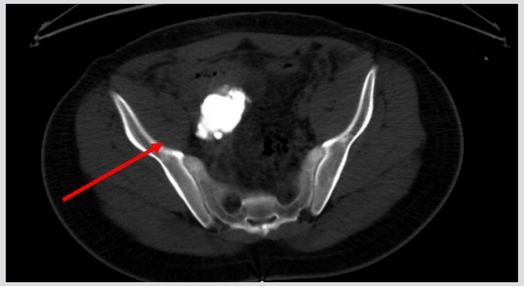


Figure 3

Postoperative CT of abdomen and pelvis demonstrating extravasation of contrast from the right ureter, as demonstrated by the arrow.

Conclusion

Ureteral injury following appendectomy is exceedingly rare, with this being the first known case after laparoscopic appendectomy. Surgeons should carefully evaluate the ureter's proximity on preoperative imaging and exercise caution when using thermal devices to avoid this uncommon but severe complication.

References

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Disclosures

The authors have no conflicts of interest or financial disclosures.