# *IATROGENIC RIGHT URETERAL INJURY AFTER LAPAROSCOPIC ANTERIOR RESECTION-CASE REPORT AND REVIEW OF THE LITERATURE*

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## *Introduction*

Iatrogenic ureteral injuries (IUI) are rare complications of abdominopelvic operations, which unfortunately have severe sequelae. IUI most commonly occur after gynecological interventions (0.075% - 1.7%) followed by colorectal procedures (0,025%-1,1%).

Intraoperative recognision (15-30%), is related with reduced morbidity. IUI after colorectal surgery most often occur following abdominoperineal resection and low anterior resection (LAR). Most often intraoperative causes consist devascularization, laceration, ligation, resection or thermal injury.

## *Aim of the study*

Proper surgical diagnosis and treatment of such cases.

***Case***

We report a case of an obese female patient (BMI:40), who underwent a laparoscopic LAR and was presented 1 month postop with urinoma.
Imaging evaluation revealed injury of the lower right ureter, an uncommon complication after laparoscopic colorectal surgery. Usually, the left ureter is injured followed colorectal surgery.
Possible cause a thermal injury during medial dissection of the retroperitoneum towards the Inferior mesenteric artery (IMA), with the use of ultracision device.
Through abdominal CT and procedure of right nephrostomy, patient underwent insertion of stent inside right ureter. Final step towards patient restoration, considered proper the re-infiltration of ureter inside the bladder wall.

## *Discussion*

A recent population-based study by Halabi et al. found an incidence of 0.28% IUI in more than two million colorectal surgeries in the USA. Patient risk factors for IUI included cancer with nodal or metastatic involvement, malnutrition, and steroid use. Open surgery revealed higher rates of IUI compared to laparoscopic surgery; however, as there was no patient stratification, open cases presumably represent more difficult procedures due to reoperations and adhesions. In contrast, Palanniapa et al. reviewed 5729 colectomies for IUI. In their series, there was a statistically significant increase in IUI occurring after laparoscopic versus open procedures (0.66% vs. 0.15%, respectively; $p = 0.007$).

Andersen et al. reviewed the Danish National Colorectal Cancer database (DCCG) with 18,474 patients following resection for colorectal cancer. The rate of ureteral injuries was 0.44%, with 37 (0.59%) injuries in the laparoscopic ($n = 6,291$) and 45 (0.37%) in the open group ($n = 12,183$) ($p = 0.03$). In rectal cancer patients ($n = 5,959$), the laparoscopic approach was used in 1899 patients, of whom 19 (1.0%) sustained ureteral injuries, whereas 17 (0.42%) of 4060 patients who underwent an open resection had a ureteral injury.

In multivariate analysis adjusted for age, gender, ASA score, body mass index, tumor stage and preoperative chemoradiation the laparoscopic approach was associated with an increased risk of ureteral injury (OR = 2.67; 95% CI = 1.26-5.65).

**Disclosure of interest**
All authors declare no financial interest with respect to this manuscript **.**

***Conclusion***
Iatrogenic ureteral injuries after laparoscopic procedures represent a controversial issue with many conducted studies. Multidisciplinary approach, proper diagnosis and treatment are mandatory factors of accurate surgical strategy.