

Iatrogenic ureteral injury following deroofing of a large duodenal duplication cyst, a rare case report

Hamdy Aboutaleb^{a,*}, Khalid Osman El-sayed^b, Amr Massoud^b

^a Menoufia University Hospital, Menoufia, Shebin El-Kom, Egypt & Burjeel Hospital, Abu Dhabi, United Arab Emirates

^b Burjeel Hospital, Abu Dhabi, United Arab Emirates

Introduction

Iatrogenic ureteral injuries account for 75% of all ureteral injuries and occur primarily during urologic, gynecologic, general, vascular and gastroenterologic procedures.¹ To our knowledge, no report in the literature documented ureteral injury during endoscopic gastrointestinal procedures. In this case report, we present a case of recognized Right ureteral injury during endoscopic ablation of duplicated intra-duodenal cyst with early presentation, diagnosis and management. This report highlights a rare complication during gastrointestinal procedures. A duodenal cystic lesion complicated with ureteric injury during ablation has never been reported.

Case presentation

Female patient 17 years old presented to our emergency with episode of acute pancreatitis three times with classical abdominal pain and elevated pancreatic enzymes. She started to recover from the last episode of acute pancreatitis but suddenly developed acute respiratory distress and desaturated significantly. Chest X-Ray revealed Acute Respiratory Distress Syndrome probably due to combination of fluid overload and pneumonia. She responded well to the medical treatment. CT abdomen and pelvis with contrast (Fig. 1A and B) showed Intraduodenal cystic lesion measuring 58 × 46 mm seen with well-defined enhancing wall seen in the second part of duodenum at the region of ampulla of Vater, in the pancreaticoduodenal groove. 3rd part of duodenum is also dilated and fluid filled. Mild ascites was seen in abdomen and pelvis.

She underwent upper Gastro Intestinal endoscopy which showed a large cystic lesion filling the 2nd and 3rd part of the duodenum. Endoscopic ultrasound again showed thick walled cystic lesion with no obvious communication to the pancreatic or bile duct or pancreatic

parenchyma. The cyst was non septated and contained a large amount of debris. 25ml of contrast was injected under Endoscopic US guidance and the cyst was image fluoroscopically. No other organ communication was seen. We then attempted de-roofing with a Needle-knife, followed by needle knife Papillotome (Cook Medical, Bloomington, Indiana, USA), however the patient had bleeding from the cyst wall. The bleeding stopped with localized adrenaline injection. A metallic lumen apposing stent is placed over a guide wire under endoscopic and fluoroscopic guidance. Postoperatively the patient developed right iliac fossa pain. CT scan abdomen and pelvis with contrast showed extravasation of fluid from the right proximal ureter below the pelviureteric junction (Fig. 2A and B). No oral contrast was seen to leak from the duodenum around the stent insertion site or evidence of perforation. Cystoureteroscopy and retrograde urography showed proximal ureteric leak below the pelviureteric junction. The ureteric injury is seen clearly around 1 cm in the ventral aspect of the ureter by ureteroscopy (Fig. 3). This was treated with insertion of double J stent 6 fr/24 cm (Cook Medical, Bloomington, Indiana, USA) for 4 weeks.

Follow-Up: Her recovery was uneventful and postoperative passed smooth without complications. Histological assessment of the specimen confirmed the diagnosis of Duplicated Duodenal Cyst. She followed with us up to 4 weeks then the double J stent and duodenal stents are removed after 4 weeks in the same session.

Discussion

Duodenal duplication cyst (DDC) is a rare congenital anomaly that typically presents with symptoms during childhood. Acute pancreatitis and biliary obstruction have rarely been reported in adults.¹

Cystic lesions arising from the duodenum as such are an uncommon finding. These could be congenital or acquired. The commonest cystic lesion of the duodenum is a duodenal diverticulum. Then there are

Abbreviations: CT, Computerized tomography; DJ, Double J; Fr, French; KUB, Kidney Ureter Bladder (plain X-ray of urinary tract); URS, Ureteroscopy; US, Ultrasound

* Corresponding author. Urology Department, Menoufia University Hospitals, Shebin El-Kom, Menoufia, Egypt.

E-mail addresses: hamdy.abdelmawla@burjeel.com (H. Aboutaleb), khalid.elsayed@burjeel.com (K. Osman El-sayed), Amr.massoud@burjeel.com (A. Massoud).

<https://doi.org/10.1016/j.eucr.2018.10.008>

Received 2 October 2018; Accepted 19 October 2018

Available online 20 October 2018

2214-4420/ © 2018 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

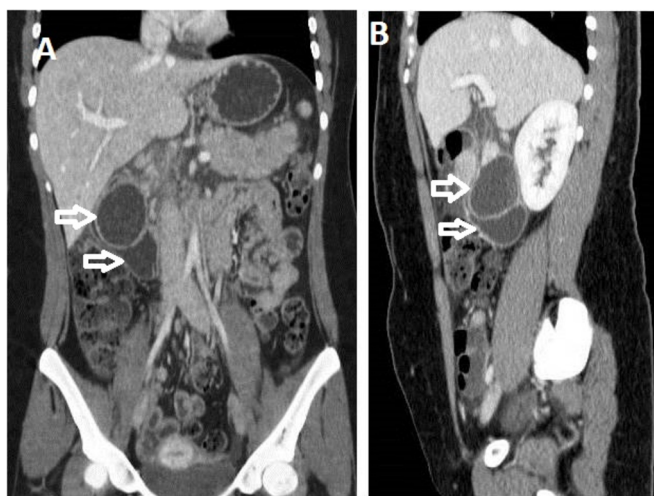


Fig. 1. Image (A) CT KUB showed duplicated duodenal cysts in coronal section. **Image (B)** CT-KUB shows lateral view of the duplicated duodenal cysts. (See the arrows).

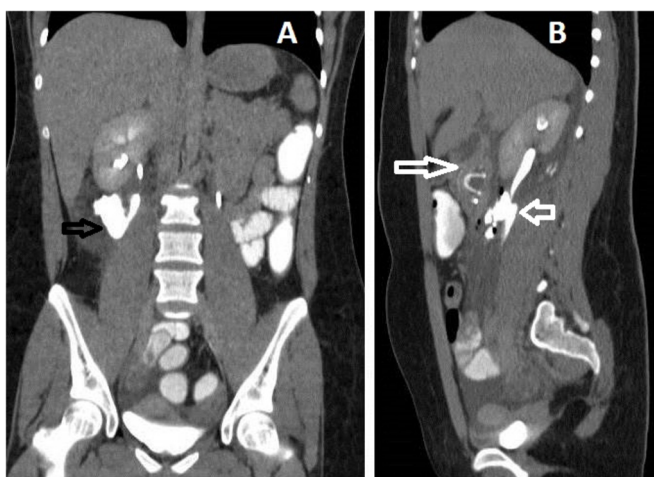


Fig. 2. Image (A) CT KUB with contrast in coronal section and **Image (B)** lateral view showed a radio-opaque stent is seen in the previously noted intraduodenal cyst. Now, the cyst is decreased in size and shows irregular wall. Large extensive irregular retroperitoneal fluid collection due to proximal ureteric injury is seen in the right perinephric space extending inferiorly around the renal vessels and right ureter. It measures $18.5 \times 10.4 \times 4.6$ cm. (See the arrows).

others like duplication cysts, choledochocoele, intramural pseudocysts, cystic dystrophy of the duodenal wall and pseudodiverticulum. Duplication cysts are rare anomalies which have different presentation. Often they present in a very nonspecific way like vague pain in the abdomen or hypogastric lump. Rarely, they present as intestinal obstruction, perforative peritonitis, malignancy, melena, intussusception and constipation.²

The cyst marsupialization is planned to establish communication between the cyst cavity and the duodenal lumen so that the cystic contents can drain continuously into the duodenum.

Iatrogenic ureteric injuries are a rare but serious complication of abdomino-pelvic surgery which can be associated with significant morbidity. 65–80% of ureteric trauma is only identified in the postoperative period. Current guidelines recommend stent insertion or percutaneous nephrostomy. Previous reports of Intraoperative injuries to the ureter are ligation, transection, electrocautery and avulsion, with 80–90% of damage occurring in the distal third. Iatrogenic ureteric injuries may occur during open, laparoscopic or endoscopic surgery and are a potential complication of any intra-abdominal or pelvic

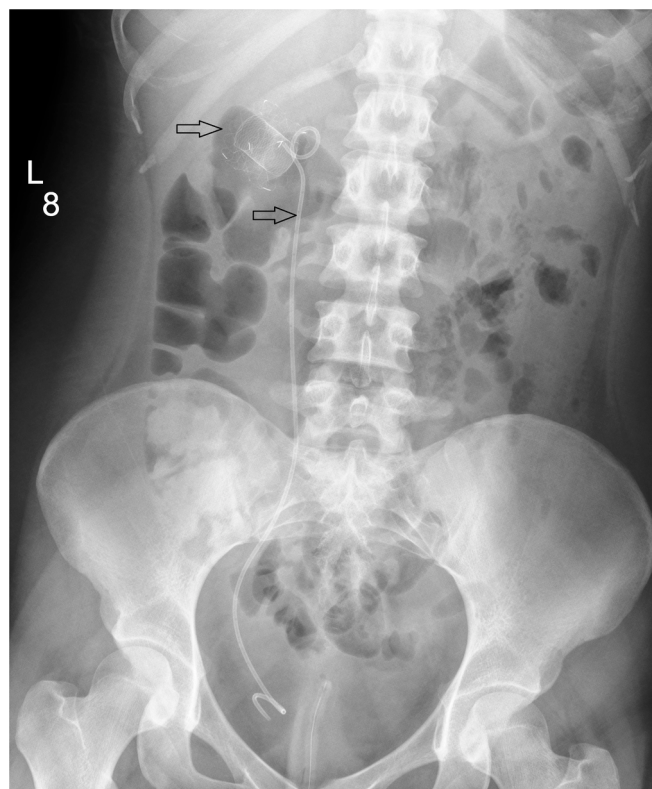


Fig. 3. Image of X Ray KUB shows duodenal stent and double J stent in the same side of management after iatrogenic ureteric injury during endoscopic deroofting of duodenal duplicated cyst.

procedure gynaecological procedures account for more than 50% of ureteric injuries, occurring in 0.5–10% of all hysterectomies.³

The incidence of ureteric trauma ranges from 0.05 to 30% in all pelvic surgery, and is higher in patients with recognized risk factors. When identified intra-operatively, immediate repair and secured drainage affords fewer complications and superior outcomes.⁴ However, 65–80% of ureteric trauma is only identified in the postoperative period, current guidelines recommend stent insertion or percutaneous nephrostomy. Unrecognised ureteric trauma may be associated with significant morbidity including fistula formation, sepsis and renal impairment, often requiring additional treatment and prolonged hospital stays.⁵

Traditionally, delayed and early open reconstructive repair was practiced, but with the advance of minimally invasive procedures, novel techniques have been described with variable outcomes. Good quality evidence on success and outcomes remains scant and the optimum treatment pathway unknown. Previous studies have been limited by heterogeneous injury type and severity as well as short follow-up periods.

The present case highlights the need to consider DDC in the differential diagnosis of ARP in young patients, and the lesion must be carefully assessed with duodenoscopy and endoscopic ultrasound in order to distinguish it from a choledochocoele. This case also demonstrates that cyst marsupialization is a minimally invasive treatment modality that can provide an adequate specimen for diagnostic confirmation and can be carried out with curative intent in the short and in the long term.

The purpose of this study was to highlight a rare case of duplicated duodenal cyst which complicated with three episodes of pancreatitis and life threatened respiratory distress. The case managed endoscopically but complicated with proximal ureteric injury. The case was managed with duodenal cyst and ureteric double J stenting. The postoperative course passed uneventfully without any other morbidity.

Three month period follow up is required.

Conclusion

We report a rare duplicated duodenal cyst with recurrent episodes of prostatitis which is complicated during procedure of endoscopic deroofting with ureteric injury which is managed with duodenal and ureteric stenting successfully with smooth outcome.

Ethical approval

All procedures performed in this study were in accordance with the ethical standards of the Institution and/or National Research Committee and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards. The protocol and the written informed consent were approved by the local ethical committee of each study hospital.

Informed consent

Informed consent was obtained from all the patients.

Conflicts of interest

The authors declare that they have no conflict of interest.

Availability of data and materials

The datasets used and/or analysed during the current study are

available from the corresponding author on reasonable request.

Authors' contributions

“HA analysed and interpreted the patient data regarding the correlation of the renal scarring to VUR and UTIs. TA and MAG performed was a major contributor in writing the manuscript. All authors read and approved the final manuscript.”

Funding

No funding to be declared.

Acknowledgements

None.

References

1. Antaki F, Tringali A, Deprez P, et al. A case series of symptomatic intraluminal duodenal duplication cysts: presentation, endoscopic therapy, and long-term outcome (with video). *Gastrointest Endosc.* 2008;67(1):163–168.
2. Guarise A, Faccioli N, Ferrari M, Romano L, Parisi A, Falconi M. Duodenal duplication cyst causing severe pancreatitis: imaging findings and pathological correlation. *World J Gastroenterol.* 2006;14(10):1630–1633 12.
3. Summerton DJ, Kitrey ND, Lumen N, Serafetinidis E, Djakovic N. EAU guidelines on iatrogenic trauma. *Eur Urol.* 2012(62):628–639.
4. Elliott SP, McAninch JW. Ureteric injuries: external and iatrogenic. *Urol Clin North Am.* 2006;33:55–66.
5. Selzman AA, Spirnak JP. Iatrogenic ureteric injuries: a 20-year experience in treating 165 Injuries. *J Urol.* 1996;155:878–881.