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## Case Report

# Unintentionally retained pelvic drainage tube found on Imaging; A case report ☆☆☆

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## ABSTRACT

A retained drainage tube after surgery is rare and patients may be asymptomatic if it occurs. The presence of a retained drainage tube may be first recognized on imaging and this requires a high index of suspicion by radiologists. In this case report, we described an incidental finding of an asymptomatic retained fractured drainage tube in the pelvis of a 32-year-old female on ultrasonography for renal evaluation. This highlighted the need for radiologists to have a high index of suspicion when performing ultrasonography on postoperative patients and surgeons should be meticulous when removing drainage tubes postsurgery. The possibility of a foreign body should be considered when unfamiliar findings are encountered on imaging. Surgeons should inspect drainage tubes after removal to ensure the full length of the tube is removed.

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## Introduction

Retained intraperitoneal drains are an uncommon finding but when they occur, are associated with increased risk of morbidity and mortality for the patient as well as legal

implications for the healthcare professionals involved [1]. Instruments and drains left in the abdomen following surgery may present with complications including adhesion formation, intestinal obstruction, abscesses, and erosion into the gastrointestinal tract. Patients may also be asymptomatic with no clinical findings [2].

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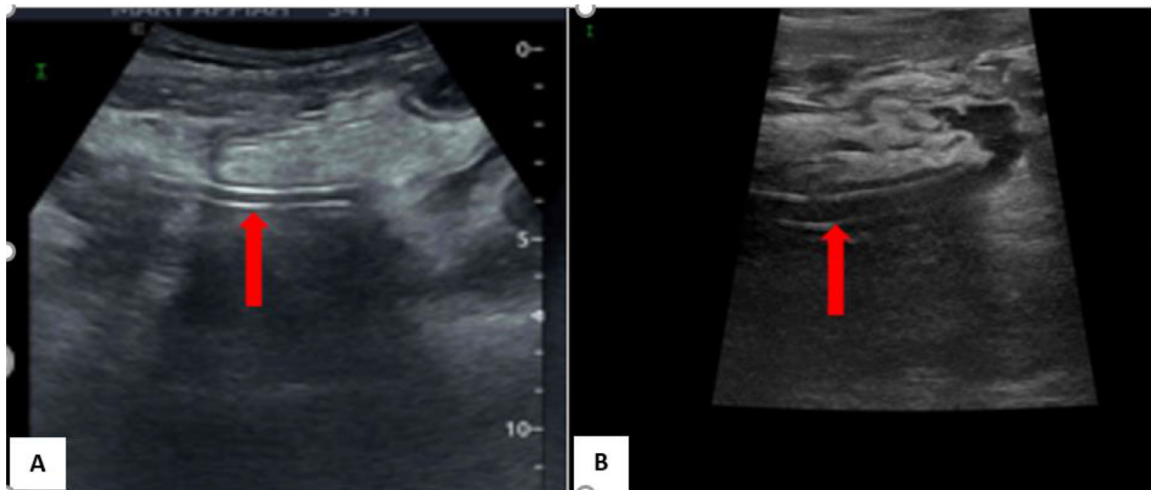
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**Fig. 1 – Pelvic Ultrasound images acquired using (A) curvilinear and (B) Linear probes showing the tubular structure (red arrows) with the associated heterogeneous subcutaneous collection.**

### Case presentation

A 32-year-old female was referred for an abdominal ultrasonography to evaluate her kidneys after a history of acute kidney injury. Ultrasonography of the abdomen and pelvis was performed using C5-2D curvilinear array probe (2-5 MHz) of Edan Acclarix LX4 ultrasound machine. The abdominal ultrasound findings were bilateral echogenic but normal sized kidneys suggestive of renal parenchymal disease. The rest of the intra-abdominal organs were unremarkable. A pelvic ultrasonography was done although not requested and this revealed a tubular structure with parallel echogenic walls within the pelvis and an enlarged uterus with a calcified fibroid. An L12-5D linear probe of Edan Acclarix LX4 with frequencies of 5-12 MHz was used to properly delineate the findings. This showed the distal end of a tubular structure surrounded by an ill-defined heterogeneous minimal collection within the subcutaneous tissues anterior to the urinary bladder, [Figure 1](#). A suggestion of a retained foreign body postsurgery likely a fractured drainage tube was made.

A complimentary unenhanced abdominal and pelvic Computed Tomography (CT) scan was done with Canon 32 slice CT scan machine with multiplanar reconstruction and the following images were acquired in 3D, axial, coronal and sagittal planes. This confirmed the initial ultrasound findings of a curvilinear tubular hyperdense structure extending from the right iliac fossa coursing anterior to the uterus to the lower anterior abdominal wall. Also seen was associated surrounding granulation tissue formation with micro abscesses in the anterior abdominal wall with fat stranding and a calcified uterine fibroid, [Figure 2](#).

Further history revealed that the patient, at a gestational age of 23 weeks had abruptio placentae, intrauterine foetal death, pre-eclampsia and disseminated intravascular coagulation. Emergency hysterotomy was performed after failure of induced labor at that time. Intraoperative findings were male fresh still birth, a couvelaire uterus, retro-placental clots and hemorrhagic ascites. A pelvic drain was inserted during

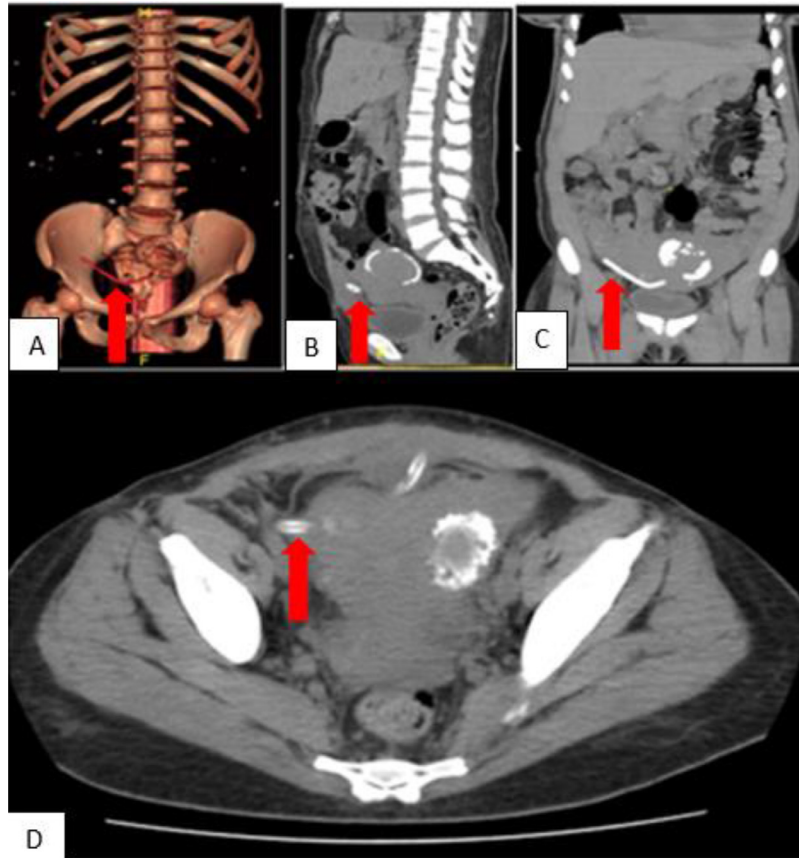
the surgery to monitor postoperative bleeding which was removed by the attending doctor seven days after surgery, after it had drained less than approximately 45 ml in 24 hours. Thirty-five days into the patient's admission, and after seven sessions of dialysis, an abdominal ultrasound was requested to evaluate the state of the kidneys after a diagnosis of acute kidney injury.

Following the diagnosis of the fractured retained drainage tube, the patient went on to have an exploratory laparotomy. Remnant of the drainage tube measuring approximately 8cm was seen embedded in the peritoneum surrounded by pus, [Figure 3](#).

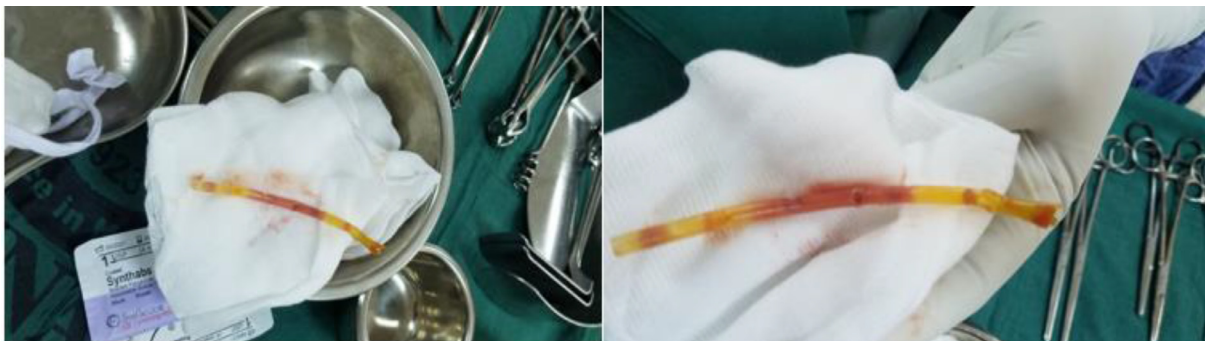
Patient had a normal recovery after surgery with continuing improvement of her renal function and was discharged postoperative day 8 after the exploratory laparotomy.

### Discussion

The incidence of retained intra-abdominal foreign bodies is unknown but it is estimated to occur in 1 of every 1000-1500 intra-abdominal operations [2]. The aim of this case report is to highlight the importance of a radiologist being thorough in the examination of the postoperative patient and not only focus on the history provided by the clinician. This was the case in our patient where an abdominal ultrasound was requested but evaluation of the pelvis found a retained fractured drainage tube. Fractured drains are rare but probably underestimated because they may go unnoticed due to it being retracted intraperitoneally possibly from being over stretched if excessive force is used during removal, curled, or sutured loosely with an unsecured knot [2]. In a postoperative patient, radiologists should remember that unintentionally retained surgical instruments are often clinically unsuspected and may be first recognized on imaging [3]. Thus when strange findings cannot be corroborated, the likelihood of a retained foreign body should be considered. Radiologists need to ac-



**Fig. 2 – Unenhanced Abdominal & Pelvic CT scan, MPR images (A) 3D, (B) sagittal, (C) coronal and (D) axial views showing the retained fractured drainage tube (red arrows).**



**Fig. 3 – Retained drainage tube with fractured edge after laparotomy.**

quaint themselves with imaging findings of surgical materials in order to have a high index of suspicion of unintentionally retained foreign bodies in the context of a postoperative patient [4]. Proper communication of the findings in a clinically relevant time to the surgeon through phone calls and appropriate documentation in the radiology report is important to ensure the appropriate action is taken as soon as possible [5] as done for our patient. In the case of our patient, a laparotomy was performed to remove the fractured

drainage tube. For the surgeon, when a decision is made to remove a drainage tube, it should be measured and the tip should be inspected to ensure it is smooth and intact after removal [6].

It is also recommended that the drainage tube should be intentionally cut before insertion during surgery in order to have a consistent number of holes each time. The holes should be counted at the time of removal to ensure there are no retained fragments [7]. Retained foreign bodies lead to unin-

tended surgeries which is an unpleasant experience for both the patient and the surgeon.

In this case report, we highlighted the possibility of surgically placed foreign bodies being retained and the need for high index of suspicion among radiologists if any patient is brought in postoperatively for imaging irrespective of the duration of the surgery.

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## Conclusion

Though a rare event, retained surgical drains can occur and may be asymptomatic or symptomatic. By thoroughly examining both the abdomen and pelvis of postoperative patients brought for ultrasonography whilst maintaining a high index of suspicion, accidentally left foreign bodies can be detected. Inspection of drainage tubes after removal would draw the attention of the surgeon to the possibility of a retained fractured drainage tube leading to prompt action being taken to reduce morbidity.

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## Patient Consent

Informed consent was obtained from the patient. The patient was also ensured of complete anonymity and confidentiality.

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