

LETTER TO EDITOR

“NECESSITY IS THE MOTHER OF INVENTION”: INNOVATIVE RADIOLOGICAL TECHNIQUE FOR DETECTION OF URINARY LEAK FROM URETER

Sir,

“Necessity is the mother of invention” and the quote very much holds true in modern day clinical practice which is very demanding both in terms of technology and intellect. Here, we are presenting a simple but effective radiological method to detect leak from the ureter in an operated case of pelvic resection.

Our patient is a 65-year-old man, who was diagnosed as a case of high-grade spindle cell sarcoma of pelvis and underwent external hemipelvectomy. Two years later, he presented with local recurrence over the resected iliac bone and underwent surgical excision for it. Intraoperative course was uneventful. Postoperatively, on day 2, the drain output increased significantly with high drain fluid creatinine. Computed tomography-intravenous urography (CT-IVU) did not demonstrate extravasation of contrast nor any obvious collection or hydronephrosis [Figure 1a]. As tip of drain was very close to the right ureter, drain was clamped, and CT-IVU was repeated. Even then there was no obvious leak. Due to high index of clinical suspicion, a CT of the drain bag of done to reconfirm the findings [Figure 1b]. The scan demonstrated a collection of contrast in the drain bag, confirming the clinical suspicion of postoperative ureteric leak. On percutaneous nephrogram, the ureteric leak was detected [Figure 1c], and subsequently ureteric stent was placed [Figure 1d]. The patient improved and was discharged with ureteric stent *in situ* and leak healed 6 weeks after the stent placement.

Iatrogenic ureteric injuries are common during pelvic surgeries with gynecological surgeries accounting for 52-82% of such cases.^[1] Majority of the ureteric injuries go unrecognized since minor injuries heal without any major sequel. However, when a significant urinary leak is present, they present with manifestations of hydronephrosis, urinoma, or urethral fistula. Intraoperative inspection detects the injury in majority of the cases. Single shot intravenous pyelogram which is commonly used in trauma is not useful in cases of iatrogenic injuries since its sensitivity is low.^[2] CT-IVU has become the gold standard for the diagnosis of minor urinary leak.^[3] Additional imaging of drain collection bag by simply placing it near the patient abdomen can

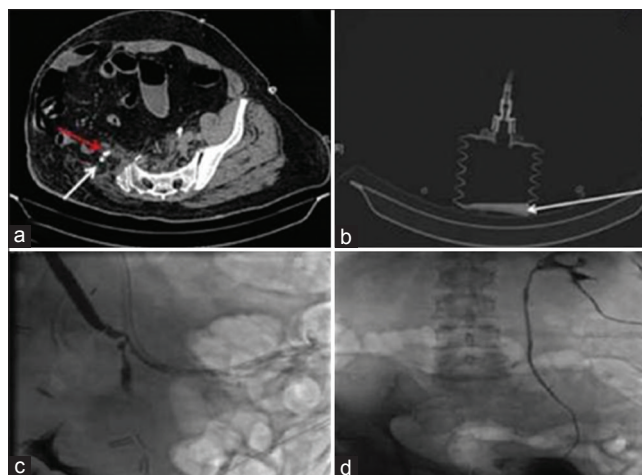


Figure 1: (a) Computed tomography-intravenous urography showing tip of the drain (small, white arrow) in close proximity to right ureter (thick, red arrow), (b) contrast in the drain bag proving that there was urine leak from the ureter, (c) percutaneous nephrogram confirming the urinary leak, (d) ureteric stent placed

further increase the sensitivity of the procedure specially in minor leaks, where obvious *in-vivo* collection is not observed. In addition, there is no additional procedure or cost involved. Various surgical options are available depending on the level and extent of injury to the ureters.^[4]

Sir, this simple radiological method has never been reported and we feel that it is a simple and effective method for early detection of minor ureteric leaks and can potentially avoid major postoperative complication and associated cost and morbidity of its management.

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