Volume 4 | Issue 3 | 2024

ISSN | 2771-019X

Journal of
Clinical & Medical Images
Case Reports

Open Access |Clinical Image

Misidentification of the ovarian vein as the ureter during ureteral reconstructive surgery: A precautionary tale

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Abstract

We describe a situation that occurred during an open ileal conduit urinary diversion surgery in a female patient with neurogenic bladder. During the portion of the surgery to identify and dissect the right ureter, two tubular structures were found in the right retroperitoneum and both were divided. These two structures appeared very similar. There was no visualization of either urine or blood output from the cut ends of either of the tubular structures to help us distinguish ureter for vein. Retrograde injection of contrast study into one of the tubular structures confirmed the right ureter. The learning lesson is that the right ovarian vein could be mistakenly identified as the right ureter with inadvertent anastomosis to right ovarian vein to the ileal conduit. The would have been a catastrophic complication because the proximal portion of the ureteral stent used in the ureteroileal anastomosis would have ended up in the inferior vena cava or the right atrium. Case reports of inadvertent anastomosis of right ovarian to the bladder due to misidentification of the right ovarian vein as the right ureter have been described in the literature.

Received: Apr 10, 2024

Accepted: May 08, 2024

Published Online: May 15, 2024

Cite this article: Hanna K, Chai TC. Misidentification of the ovarian vein as the ureter during ureteral reconstructive surgery: A precautionary tale. J Clin Med Images Case Rep. 2024; 4(3): 1680.

Description

A 55-year-old woman with hereditary spastic paraparesis and a neurogenic bladder managed with an indwelling urethral catheter developed two large bladder stones (3 cm and 4 cm stones), a vesicovaginal fistula, and history of kidney stones requiring percutaneous nephrolithotomy. As definitive therapy for her neurogenic bladder, a supravesical urinary diversion with ureteroileal urinary conduit diversion and open cystolithotomy was planned. The vesicovaginal fistula was to be unrepaired and the defunctionalized bladder would be left in situ without performing a cystectomy. Future pyocystis in a defunctionalized bladder would be unlikely as the vesicovaginal fistula would provide drainage into vagina of any potential pus that developed in the defunctionalized bladder.

During surgery, the right ovarian vein was dissected out first, thinking it was the right ureter. The ovarian vein was even spatulated, as can be seen figure 1 with a wider circumference than the ureter, in anticipation of doing the anastomosis of this structure to the ileal conduit. However, due to lack of urine spillage from the structure we thought was the ureter and with a high index of suspicion that this may not be the ureter, further dissection in the right retroperitoneum ultimately revealed the ureter. Since the cut end of the divided ovarian vein did not bleed, not seeing bleeding does not mean it is not the ovarian vein. Confirmation of the structure that was the ureter was accomplished by retrograde injection of contrast into the suspected ureter (left tubular structure in figure 1) with fluoroscopic confirmation of visualization of the right renal collecting system.

Other methods exist to prevent a potential erroneous anastomosis and to confirm a tubular structure as the ureter. These methods include intravenous injection of methylene blue or indigo intraoperatively or oral phenazopyridine just prior to surgery. If there is no ureteral obstruction, a cystoscopic placement of a ureteral catheter at the beginning of the operation can help anatomic identification of the ureter. If the patient has a pre-existing percutaneous nephrostomy tube, injection of the nephrostomy tube with methylene blue can be performed.

Case reports [1,2] have been published that are similar to the situation described here. In these published case report, as well as this case report, the patients were all female and the side of the misidentification was always the right side. Having a high degree of suspicion, being prudent, and being well prepared with different perioperative and intraoperative strategies are crucial to minimizing the risk of an unexpected and potentially disastrous outcome of anastomosing the right ovarian vein to the bladder or an ileal conduit.

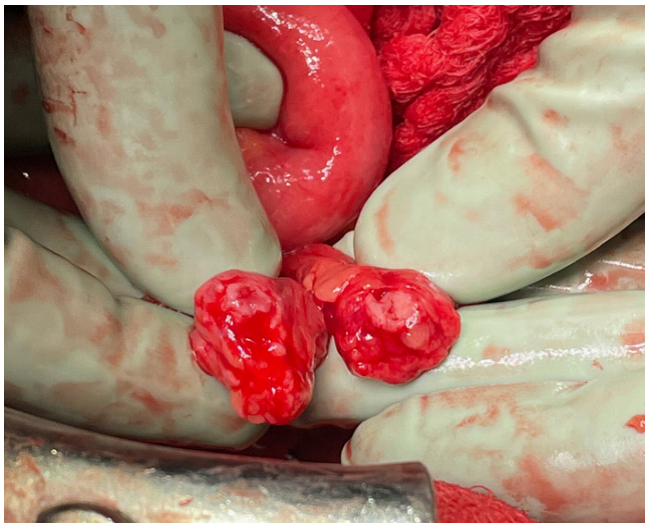

Figure 1: Intraoperative picture of two tubular structures dissected out of the right retroperitoneum (ureter is on the left, ovarian vein is on the right) during ileal conduit urinary diversion surgery. The appearance of these structures look identical. No urine and no blood exited the ends of either structure to help with identification.

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