

## CASE REPORT

### URETER INJURY PRESENTING AS ASCITES AFTER HYSTERECTOMY: A CASE REPORT

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**ABSTRACT:** Urinary bladder injury or injury to ureter is a recognized complication of lower abdominal surgery and it is the most common organ injured during gynecological procedures. We report here, history of a 48 year old female developing ascites and respiratory distress on 3<sup>rd</sup> postoperative day of abdominal hysterectomy for fibroid uterus. Ultrasound guided abdominal tap showed urine. Computed tomography of abdomen revealed double ureter and injury to one of the left ureters. It was re implanted and bladder site repaired through emergency laparotomy. The key to the diagnosis of ureter injury is awareness of this clinical entity.

**INTRODUCTION:** Ureteral injury is one of the most serious complications of gynecologic surgery. Less common than injuries to the bladder or rectum, ureteral injuries are far more serious and troublesome and are often associated with significant morbidity and the potential loss of kidney function, especially when unrecognized postoperatively. For these reasons, injuries to the urinary tract, particularly the ureter, are the most common cause for legal action against gynecologic surgeons.<sup>(1)</sup> Despite the close anatomical association between the female reproductive organs and the ureter, injury to the ureter is relatively uncommon. Duplication of ureter is one reason for ureter injury. Though it is the most common renal developmental abnormality, double ureters occurs in 1% of population. Nevertheless, when a ureteral injury does occur, quick recognition of the problem and a working knowledge of its location and treatment are essential in providing patients with optimal medical care. The purpose of this article is to make medical professionals aware of the possibility of ureter injury as a cause of ascites in the postoperative period and the need of timely intervention and its correction.

**CASE PRESENTATION:** 48-year-old female presented with fibroid uterus and bleeding per vaginum. Past history of hypothyroidism since 4 years on tab. thyroxine 50 mcg daily. There was also history of 2 caesarean sections in the past under spinal anaesthesia and post-operative recovery was uneventful. She was admitted and planned for total abdominal hysterectomy under spinal anaesthesia. Physical examination showed short necked female of 120 kg weight and 146 cm height. Airway was of mallampatti scoring class 3. Systemic examination showed nothing unusual.

Pre-operative medications included midazolam 2mg iv, ondansetron 4mg iv, tramadol 100mg iv. All standard monitors were attached. Patient was positioned in the right lateral decubitus position and under strict asepsis lumbar puncture done at 3<sup>rd</sup> and 4<sup>th</sup> lumbar interspace. 3ml of 0.5% bupivacaine heavy mixed with 30 mcg clonidine was administered intrathecally. Patient repositioned supine and monitored closely. She had adequate block up to T4 level. Oxygen administered by mask and vitals were stable. Supportive intravenous fluids 500 ml 3% hydroxyl ethyl starch, 500 ml lactated ringers solution and 1 litre normal saline were administered. Intra operatively bladder parts

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was adherent to the uterus. Bladder was distended with methylene blue and no leak detected and abdomen closed in layers. Following this procedure that lasted for 2 hours patient shifted to post anaesthesia care unit with oxygen by mask. Post-operative analgesia was provided with tramadol 100mg iv Q8h, buprinorphine 150 mcg iv (when necessary) fentanyl 50 mcg iv (when necessary), diclofenac suppositories and iv paracetamol 1 gm Q12h. Post-operative antibiotic used was cefotaxim and metronidazole. Patient was shifted to the ward on the 2<sup>nd</sup> post-operative day with normal vital signs, adequate urine output and no abdominal distention. On 3<sup>rd</sup> postoperative day, she developed sudden onset of breathlessness. Oxygen saturation was 80% and was immediately shifted to post-operative ICU.

She was put on oxygen by mask and maintained a slightly propped up position. Bronchodilators and steroids were started. On the same day Doppler venogram was done which showed sluggish flow but no clots. All blood parameters were normal except total count of 17100/cmm and polymorphonuclear leucocytosis. D-Dimer value came as 1500 International units. Echocardiogram showed good LV function. There was no evidence of pulmonary embolism or clots. Patient was put on DVT stockings. In spite of bronchodilators, steroids and oxygen, dyspnoea worsened and there was also distension of abdomen. C Reactive protein was positive. Emergency ultrasonogram of abdomen was done which revealed significant ascites. Ascetic tap revealed presence of urine. CT scan abdomen was done and found to have double moiety with double ureter bilaterally, lower part of left ureter was not visible and a defect in the left ureterovesical junction was noticed (Figure-1). Repeated blood results showed- Blood urea 34mg/dl, serum creatinine 1.35mg/dl, hemoglobin 9 gm%, PCV 26.3, TLC 26000/cmm, polymorph 66, lymphocytes 20, eosinophils 14, Platelet 4.7 lakhs/cmm, bleeding time 1'25", clotting time 4'45", PT17. 6, INR 1.42, APTT 98 sec. S. Na 136, S. K 4.8, Total bilirubin 0.9 mg/dl, SGPT 27 U/L, SGOT 25U/L. Emergency laprotomy was done under spinal anaesthesia. About 4 litres of urine was drained. Lower part of left ureter was necrosed and showed a defect at left ureterovesical junction. It was reimplanted and repaired by the urologist. Suprapubic catheterisation done. Abdomen closed in layers. Suprapubic catheter was removed on 10<sup>th</sup> postoperative day and patient discharged in good condition.

**DISCUSSION:** Hysterectomy is associated with known complications including bleeding or perforation of hollow organs such as bowel, bladder or ureters<sup>(2)</sup> Operative injuries to the urinary tract is common during the course of gynecological surgery due to close development and proximity of the urogenital organ systems. In 1998, Harkki Siren P et al reported the risk of ureteral injury is higher after laparoscopic hysterectomy compared to traditional hysterectomies<sup>(3)</sup> In 2002, Carley ME et al reported the incidence of bladder and ureter injuries, respectively, were 0.58% and 0.36% for abdominal hysterectomy, 1.86% and 0% for vaginal hysterectomy and 5.13% and 1.71% for obstetric hysterectomy<sup>(4)</sup> Ureteral injury occurs most frequently in the lower third of the ureter (51%), followed by the upper third (30%) and middle third (19%)<sup>(5)</sup> Hence, appropriate pre-operative evaluation and intra-operative care are necessary to reduce the risk of urological injuries during gynecological surgeries.

Pre-operative investigations include ultrasonography, IVP when uterus size is equal to or more than 12 weeks and adnexal masses equal to or more than 4cm and prophylactic ureteric catheterization in suspected cases of difficult dissection, has been advocated by some surgeons. Diagnosis of urological injuries can be made intra-operatively or postoperatively. Mann W. J et al

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reported approximately that 70% of ureteric injuries are diagnosed postoperatively <sup>(6)</sup> Majority of bladder injuries are diagnosed intraoperatively. Intraoperative identification of urological injuries enables prompt repair and is associated with decreased morbidity and fewer legal risks.<sup>(7)</sup> Postoperative symptoms of urologic injury tend to be variable. Flank pain and fever are the most common symptoms. Haematuria, a reliable indicator of renal trauma, is absent in approximately 30% of ureteric injuries<sup>(8)</sup> It should be noted, however, that typical symptoms might occur in only 50% of women with ureteric injuries. In suspected cases, investigations are needed to establish renal function, to rule out hydronephrosis and to evaluate continuity of the ureter<sup>(9)</sup> Commonly used investigations for assessing urologic patency are Intravenous urogram, abdominal and pelvic computerised tomography scan with intravenous contrast, retrograde ureterogram, renal ultrasound, cystoscopy and contrast-dye tests. A full blood count and an electrolyte profile must be taken in suspected cases of ureteric injury. A full blood count may serve as a guide to infection. Postoperative estimation of serum urea, creatinine and sodium may aid diagnosis in several ways. Measuring serum creatinine levels on the second postoperative day might be useful in evaluating ureteric patency. Increases of greater than 0.2 mg/dl may be indicative of unilateral ureteric obstruction.<sup>(9)</sup>

**CONCLUSION:** Ureteric injuries happening at the time of gynecological procedures are troublesome and also important from the side of morbidity and litigation. Diagnosis of inadvertent bladder injury may be delayed due to insidious development of nonspecific symptoms. So every step should be taken for the timely diagnosis and intervention of such iatrogenic injuries.



**Fig. 1: showing double ureters and injury lower end of left ureter**

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