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Case Report

Blinking ureteric stents in total laparoscopic hysterectomy in a case of severe endometriosis: a case report

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ABSTRACT

Iatrogenic ureteric injury is one of the major concerns in minimally invasive surgery in gynecological surgeries. It is really challenging to trace the course of ureter in cases with distorted pelvic anatomy like pelvic adhesions, previous pelvic surgeries and endometriosis. Lighted ureteric stents are useful in tracing ureters in such difficult situations. We present a case with using lighted ureteric stent to trace the course of ureter and to minimize ureteric injury in total laparoscopic hysterectomy and bilateral salphingo-oophrectomy in a patient with severe endometriosis.

Keywords: Lighted ureteric stent, Laparoscopic surgery, Ureteric injury, Endometriosis

INTRODUCTION

Laparoscopic surgery has been widely accepted as an effective route in many gynecological surgeries due to less postoperative complications, reduced time of hospital stay and early recovery. Ureteric injury is one of the important complications of gynecological surgery. It is difficult to trace the ureters especially, in cases of severe endometriosis, adnexal surgery after hysterectomy and extensive pelvic adhesions, where pelvic anatomy is distorted.[1] Lighted ureteral stent is an excellent boon to minimize ureteric injury in such cases. These stents help in the identification of ureters throughout the surgery, makes it easy for the surgeon and decreases the risk of ureter injury in such difficult cases. This is mainly true in cases of laparoscopic or robotic surgery where surgeons will have less haptic feedback.[2] Many studies told about the possibilities of ureteric injuries especially, in cases of endometriosis.[3]

We encountered such a case of extensive endometriosis where ureter was encased within the endometriotic cyst. Preoperative infrared illuminated ureteric stents were introduced on both sides under cystoscopic guidance. We were able to identify the blinking ureters throughout the surgery, which were running much closer to our dissection and injury was prevented. Some studies proposed that these stents do not necessarily decrease the ureter injury but, may help in early recognition of injury.[4]

However, despite the advent of new advances like illuminated ureteric stents, extensive knowledge of anatomy and meticulous dissection plays a crucial in avoiding ureteric injuries.

CASE REPORT

A 39-year-old multiparous woman presented with complaints of progressive dysmenorrhea and heavy menstrual bleeding for the past four years. On pervaginal examination, uterus was enlarged up to 10 weeks in size with minimally restricted mobility. Rectovaginal septum and fornices were free.

She was diagnosed to have adenomyosis and bilateral endometriotic cysts with typical ground glass appearance,

measuring 4.1×4.2 cm and 6.2×5.2 cm in right and left ovaries respectively. Initially, the patient was treated with analgesics and tranexamic acid to reduce pain and heavy menstrual bleeding. Medical management was started with the tablet dienogest 2 mg once a day for nine months and three doses of Gonadotropin-releasing hormone (GnRH) agonist injection leuprolide 3.75 mg. Follow-up scan showed a decrease in size of the cyst up to 2.5 cm in the greatest dimension. She had a pain-free interval of two months. She presented again with dysmenorrhea for which depot medroxyprogesterone acetate 150 mg was given, following which the patient developed heavy menstrual bleeding again. Endometrial biopsy was done to rule out malignancy and levonorgesterol intrauterine device was inserted to decrease pain and bleeding.

After an asymptomatic period of six months duration, she again had severe dysmenorrhea and heavy menstrual bleeding. Ultrasonogram showed features of adenomyosis and bilateral recurrent endometriotic cysts; right ovarian endometriotic cyst measures 4.1×4.8×3 cm and left ovarian endometriotic cyst measures 4.1×3.2×4.6 cm. Magnetic resonance imaging (MRI) was done and it showed similar findings. She was treated with two more doses of GnRH agonist leuprolide monthly. Patient again presented with severe dysmenorrhea shortly after a month.

On further evaluation, contrast enhanced computed tomography (CECT) scan showed persistence of bilateral endometriotic cysts, which were adherent to the posterior wall of uterine cavity with indentation and scalloping of posterolateral wall of uterus; The size of the cysts measured 7.5×5.2 cm and 4×3.5 cm on right and left ovaries respectively. Further, the patient was given one increased dose of leuprolide 11.25 mg.

Patient came after three weeks, with severe lower abdominal pain and constipation; pervaginal examination showed fixed uterus and puckering was felt in pouch of Douglas. Ultrasonogram showed bilateral endometriotic cysts with features of deep infiltrating endometriosis and mild right hydroureteronephrosis. For further detailed evaluation, CECT whole abdomen was done, which showed well defined, complex multiloculated cystic lesions in bilateral adnexa extending to pouch of Douglas touching each other in the midline (kissing ovaries sign). The right side lesion measures 7.0×5.1 cm and left side lesion measures 5.4×4.4 cm. The lesions were seen indenting and adherent to the posterior wall of the uterus. There was mild hydroureteronephrosis secondary to compression of right distal ureter by adnexal lesion and the rectosigmoid is seen compressed between lesions causing significant luminal narrowing, however, no proximal bowel dilatation was noted.

Due to extensive failure of medical management and progressive disease, patient was planned for definite management with total laparoscopic hysterectomy with bilateral salphingo-oopherectomy; With anticipation of extensive dissection due to adhesions and increased risk of ureteric injury, we planned for the insertion of lighted ureteric stenting on both sides preoperatively. Surgeon and urologist were opinions taken. Patient was counselled and informed consent was taken regarding the possibility of ureteric and bowel injury and corrective surgery for the same.

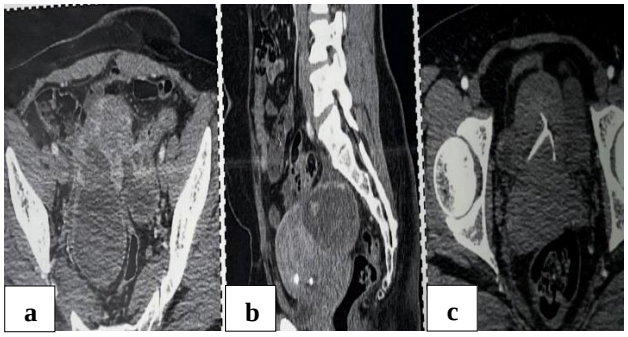

Figure 1 (a-c): CECT showing adherent bilateral endometriotic cysts and rectosigmoid adherent to the posterior uterine wall.

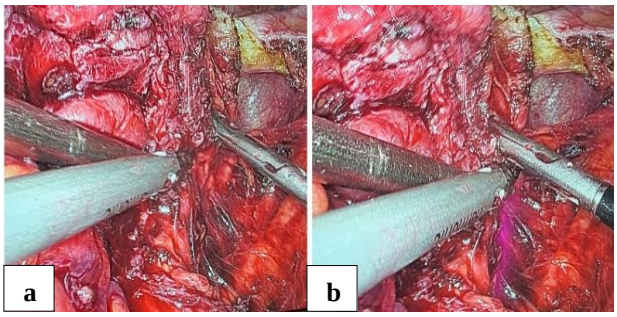

Figure 2 (a and b): This picture depicting, how close the dissection of the cyst being done, near the ureter with the help of lighted ureteric stent.

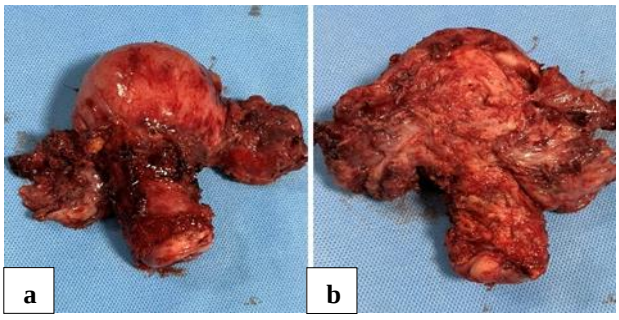

Figure 3 (a and b): Specimen of uterus, cervix, both tubes and ovaries.

Under general anesthesia and cystoscopic guidance, bilateral lighted ureteric stents were placed. This stent is popularly known as infrared illuminated system (IRIS). Intraoperatively, the rectosigmoid was adherent to posterior wall of the uterus. Bilateral ovarian endometriotic cysts were stuck with the rectosigmoid and posterior wall of uterus. Right distal ureter was seen encased within the right ovarian cyst wall. With the help

of lighted ureteric stents, both the ureters were traced with ease, throughout the surgery. Careful and fine dissection was done between cyst wall and the rectosigmoid; chocolate coloured fluid was aspirated from within the cyst. Hysterectomy with bilateral salphingo-oopherectomy was completed. Bilateral ureteric stents were removed at the end of the procedure. Post-operative period was uneventful.

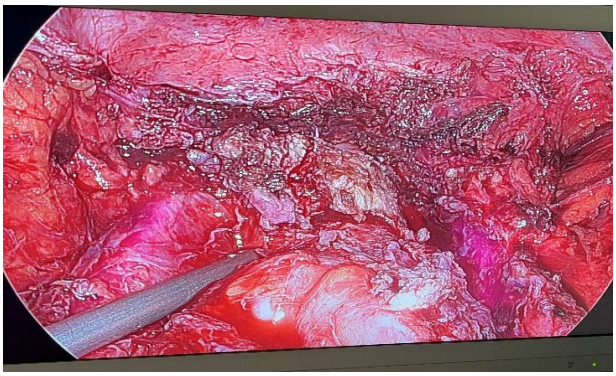

Figure 4: After hysterectomy image with identification of ureters with illuminated bilateral stents.

DISCUSSION

Iatrogenic injury is one of the biggest concerns in any surgery. In the past, operating surgeons had to depend on their knowledge of anatomy and course of ureter for identification and prevention of ureteral injury. Ureteral identification is really difficult in distorted pelvic anatomy in cases of pelvic endometriosis and pelvic adhesions, in which injury to ureter is possible. Minimally invasive surgery like laparoscopy and robotic surgeries need electrocautery which further increases the risk of ureteric injury in terms of thermal injury. Lighted ureteric stent is used to minimize ureteric injury in difficult cases where pelvic anatomy is distorted. These infrared lighted stents allow constant visualization of ureter in minimally invasive surgeries to overcome the major limitation of lack of tactile feedback. Complications associated with this lighted stent insertion are ureteric injury, hematuria and urinary tract infection. Another disadvantage is that it is expensive and has its own procedural complications like perforation and thermal injury. There is no strong evidence saying that use of this illuminated stent will definitively prevent ureteral injury.

Certain studies said that these stents do not really decrease the ureteric injury but, may help in early recognition of injury.[5] Therefore, routine use of ureteral stent remains controversial. Gulab et al concluded in their study that use of the ureteral stents for complicated hysterectomies prevents ureteral injury significantly.[6] Pedro et al told about the safety of lighted ureteric stent by histological analysis which revealed no signs of thermal injury to the urothelium or any significant changes in the ureteral mucosa after using lighted stent.[7] Many studies support the use of these illuminated ureteric stents where difficult periureteral dissection is anticipated.[8]

CONCLUSION

Extensive knowledge about pelvic anatomy and careful surgical technique is essential in avoiding ureteric injury. With the advent of illuminated stents, we can know the exact course of ureter and helps in clean dissection. Use of prophylactic ureter stents may help in decreasing ureteric injury. However, literature review says that these stents will not definitely avoid ureteric injury but, may assist surgeon in early recognition of injury and immediate management intraoperatively. We suggest that the use of these lighted stents only in indicated cases.

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