

Vesico-vaginal fistula as a complication of total laparoscopic hysterectomy: a case report and literature review

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ABSTRACT

Complications are possible in all type of surgeries including hysterectomy irrespective of the route of surgery, experience of the operating surgeon or the associated risk factors present. If the surgeon is careful from the beginning of the surgery and follows all the preventive measures complications like urinary tract injuries and vesico-vaginal fistula formation following hysterectomy can be avoided. Here we are presenting a case of vesico-vaginal fistula formed following total laparoscopic hysterectomy (TLH) and reviewed literature regarding incidence, preventive measures for this complication.

Keywords: Vesicovaginal fistula, Laparoscopic hysterectomy, Complication

INTRODUCTION

Total hysterectomy for benign lesions is one of the frequent surgeries in women.¹ Most hysterectomies are done by laparotomy but laparoscopic hysterectomies are increasing these last years.^{2,3} In Total laparoscopic hysterectomy (TLH) the entire operation is performed laparoscopically and there is no vaginal component.⁴ Reich reported the first case of TLH in 1989.⁵ Laparoscopic hysterectomy is indicated when the vaginal route is potentially difficult because of an immobile uterus or a poor vaginal accessibility.⁶ By 1996 TLH in Finland, France, USA and UK was 24%, 13.2%, 9.9% and 3% respectively of all hysterectomies and in Denmark by 2000, it was 6%.^{2,7-10}

This operation requires the highest degree of surgical skill. Bladder injury is one of the intra-operative complications of TLH and if undiagnosed can develop post-operative vesico-vaginal fistulas (VVF). The bladder injuries after hysterectomies can be detected if a cystoscopy is performed at the end of surgery.^{11,12}

The benefit of laparoscopy over laparotomy is well known.¹³ A meta-analysis demonstrated that in laparoscopy there is the increased risk of urologic complications upon which bladder injuries are the most frequent.^{7,13-15} Here we report a case of bladder injury during TLH by probably an inexperienced surgeon which if could have detected in proper time morbidity of the patient could have reduced.

CASE REPORT

A 39 year old lady from upper middle class socioeconomic status admitted to gynaec ward with complaints of dribbling of urine per vaginum starting on post-operative day 7 of TLH done at private hospital, for fibroid uterus 6 month back. There was history of prolonged catheterization for 15 days, intraabdominal drain kept till day 10, intermittent dribbling of urine per vaginum since post-operative day 7 with Foley's catheter in situ. She had continuous dribbling of urine per vaginum after catheter removal. She had sensation of bladder fullness, and was able to void per urethra. There was no h/o of fever,

abdominal distention/pain, urgency/abnormal urinary stream, hematuria / suprapubic pain/flank pain/ burning micturition in post-operative period. She did not have fever/ discharge per vaginum or bowel complaints. She was para 2 and her 1st child was by vaginal delivery at hospital, 2nd child was 15 yrs back cesarean section at private hospital, tubal ligation done 13 years back. Her BMI was 23.2 kg/m². Her vitals and systemic examination was normal. On per abdomen examination-Infraumbilical vertical right paramedian scar and five port site scar of TLH present.

Local Examination: Excoriation marks present on labia majora. Per speculum examination in dorsal lithotomy position showed a defect of 3-5mm at left side of vaginal vault, margins not seen clearly. Same defect 3-5 mm felt at left vaginal vault with puckering of vaginal mucosa transversely and surrounding fibrosis.

Investigations: Three swab test, top and middle swab stained blue indicative of high VVF. Renal function tests were within normal limits, Urine routine & culture – 3 samples sterile, Cystourethroscopy: A fistulous tract of 3-5 mm seen 1.5 cm above interureteric ridge. Catheter put through vagina seen coming out of the fistulous tract. No ureteric involvement. Intravenous urography: Bilateral kidney, pelvicalyceal system, ureter normal, Urinary bladder partially distended shows faintly contrast opacified tract between bladder and vagina.

She was operated by transperitoneal and transvesical repair of fistula and postoperatively suprapubic and transurethral foley's catheter was put. Transurethral catheter was removed on postoperative day 14 and suprapubic catheter was removed on day 21. She was given antibiotics peri-operatively and was continent and able to void urine normally. At six week follow up she was continent and healthy.

DISCUSSION

Bladder injury is linked to anatomic considerations as TLH needs vesico-uterine pouch dissection, when a bladder injury may occur. The risk factors are previous cesarean section/laparotomy, no previous vaginal delivery. Armenakas and colleagues reviewed 65 patients in whom intraoperative bladder cystotomy was identified and immediate repair was accomplished with the success rate of 98.4%.¹⁶ However, an unrecognized cystotomy or partial tear of the bladder muscularis or avascular necrosis secondary to crush injury may lead to VVF. Animal studies showed, an electrosurgically induced cystotomy and repair of the bladder during TLH is associated with formation of VVF postoperatively.¹⁷

Tea H.I. Brummer et al in their study showed incidence of VVFs during 2000–2005 was 0.16%. There were 22 VVFs. Two fistulas treated by Foley catheter drainage and by electrocoagulation via cystoscopy and 20 were repaired by laparotomy. Four patients had multiple laparotomies, for VVF repairs.¹⁸ Double-layer repair appears to be superior to single-layer repair for the prevention of VVF after monopolar cystotomy.¹⁹

The rate of bladder injuries during TLH of most study series is given in the table. In Canadian and FINHYST study 18% and 82% of bladder injuries were discovered intra-operatively.^{12,20} A large prospective study in Norway gives 1.3% of bladder injuries for TLH, which decreases from 2% for the first 30 procedures to 0.8% after 30 procedures.⁷ Marie-Christine et al had 2% in the first 40 procedures of all surgeons and 0.4% for the hysterectomies performed after 100 cases of the surgeons' experience. The rate of bladder injuries during TLH decreases when the learning curve is excluded and the risk factors are controlled.

Table 1: Studies showing bladder injuries during TLH.

Authors	Publication dates (surgery dates)	Type of studies	Bladder injuries of TLH, % (n/N)
Harkki-Siren <i>et al.</i>	1998 (1990-1995)	National register	0.88% (24/2741)
Cosson <i>et al.</i> ²²	2001 (1991-1998)	Retrospective	0.5% (1/190)
Garry <i>et al.</i>	2004 (1996-2000)	Multicentric randomized study (eValue study)	0.9% (3/336), 2.1% (12/584)
Vakili <i>et al.</i>	2005 (2000-2003)	Prospective multicentric study	2% (1/49)
Ng <i>et al.</i> ²³	2007 (2001-2005)	Retrospective study	0.2% (435)
Johnston <i>et al.</i>	2007 (2005)	Prospective multicentric study	0.5% (2/364)
David-Montefiore <i>et al.</i>	2007 (2004)	Prospective multicentric study	0.8% (1/121)
Marie-Christine <i>et al.</i>	2007 (1993-2007)	Retrospectively (1993-2000) Prospectively (2001-2007)	1%

To prevent bladder injuries Marie-Christine et al used uterine canulation with anterior vaginal packing which allows the assistant to push the uterus towards promontory to facilitate the dissection between the vaginal and the bladder. In case of difficult dissection, it is possible to visualize the limits of the bladder by filling it through the catheter with methylene blue solution. Hemostasis by bipolar coagulation in the vesico-vaginal space should be done carefully. Some bladder injuries have been described when introducing trocars, the safety rules of introduction have to be followed, particularly avoiding the Pfannenstiel scar.²¹

In the present case the operating surgeon must be an inexperienced for TLH as well as the knowledge of bladder injury management. He could have continued the Foley's catheter for 3 weeks and referred the patient at that time itself for management of VVF. The catheter could have continued for 3 months which itself can close small VVF before the surgery was planned.

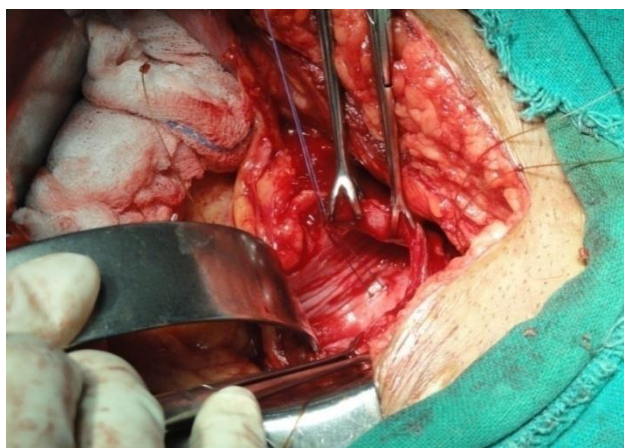


Figure 1: Intraoperative transvesical picture showing VVF above the interureteric ridge (stay suture with vicryl showing the area).

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