

M. Ramalingam, C. Mallikarjuna, and Suma Natarajan

29.1 Introduction

Open transabdominal and transvaginal approaches for repair of vesicovaginal fistula (VVF) are well described [1, 2]. Currently laparoscopic approach is widely practised in the repair of vesicovaginal fistula [5–9]. Transvesical transurethral repair has been described by Mc Kay et al. [3, 4], wherein he used a transurethral port for suturing. The repair continues to be a challenge even by open technique as recurrence results in about 5–10%. VVF due to obstetric causes are repaired 3 months after the onset of vaginal urinary leak. However iatrogenic VVF following pelvic surgery can be managed earlier as there is no ischemia to tissues.

29.2 Surgical Technique

Preliminary evaluation includes IVU/CT urogram and cystoscopy to know the location and relation of VVF to the ureteric orifice and to rule out an associated ureterovaginal fistula.

29.2.1 Transperitoneal Approach (O' Connor's Technique)

Cystoscopy and ureteric stenting is done for protection of ureteric orifice and ureters. Patient is placed in lithotomy position. Optimum sized three way urethral catheter is left in

and kept sterile and accessible for subsequent bladder filling. Four ports (a 10 mm supra umbilical camera port, two 5 mm ports in each midclavicular line for hand instruments and one 5 mm suprapubic port for suction and irrigation) are used. Cystotomy is done in the midline using electrocautery or ultracision till the edge of the fistula. Subsequently adequate mobilization of bladder wall from vaginal wall is done. The fistula is excised with cold scissors. The bladder defect and vaginal defect are trimmed. Initially the vaginal defect is closed horizontally using interrupted 3–0 absorbable monofilament sutures. Whenever possible omentum is mobilized and sutured over the anterior wall of vagina below the suture-line. Then the bladder defect is closed in two layers (inner layer with 3–0 continuous vicryl sutures and outer layer with 2–0 interrupted vicryl sutures) bringing in trimmed, healthy bladder wall over the previously fistulous area. 14 size transabdominal drain is left through one of the pararectus ports.

29.2.2 Transvesical Approach (Cystorrhaphy)

After preliminary cystoscopy and colposcopy to assess the defect, vagina is packed with large pad to prevent leak of water or air. Using cystoscopic view and irrigation, two 5 mm transvesical suprapubic ports are inserted for hand instruments. Usually some of the irrigating fluid escapes and the transvesical ports tend to slip out of the bladder. It is also important to keep the bladder distended to have some working space. Hence a trocar with self retaining mechanism needs to be used. Subsequently the pneumovesico insufflation is done. Urethra can be used as a third port for transurethral suturing. The edges of the fistula are trimmed (any suture material of previous surgery that is seen can be removed). Transurethral suturing of vesical defect is carried out using 3–0 interrupted vicryl.

If the vaginal defect is small it can be left alone. Otherwise the vaginal defect can be closed with continuous 2-0 vicryl suture by vaginal route as in open surgery. Urethral foley catheter is left in for about 10 days.

M. Ramalingam
PSG Hospitals, Coimbatore, India
e-mail: uroram@yahoo.com

C. Mallikarjuna (✉)
Asian Institute of Nephrology and Urology,
Hyderabad, Telangana, India
e-mail: mallikuro7@gmail.com

S. Natarajan
Department of Obstetrics and Gynecology, Ganga Women and
Child Centre, Coimbatore, India

29.3 Follow-Up

The tube drain can be removed on the eighth postoperative day if there is less drainage. The urethral foley catheter can be removed on the tenth postoperative day following a cystogram.

29.4 Comment

Laparoscopic repair of vesicovaginal fistula is feasible by minimally invasive technique. This is certainly more acceptable for the distressed patient than open repair. Transvesical cystorrhaphy appears to be the least morbid procedure.

29.5 Laparoscopic VVF Repair (O' Connor's Technique)



Fig. 29.1 CT image showing vesico vaginal fistula

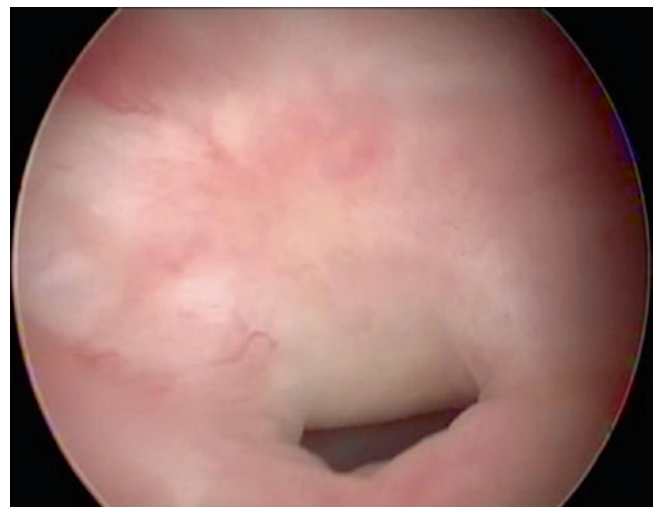


Fig. 29.2 Cystoscopic view showing a supra trigonal VVF



Fig. 29.3 Port position

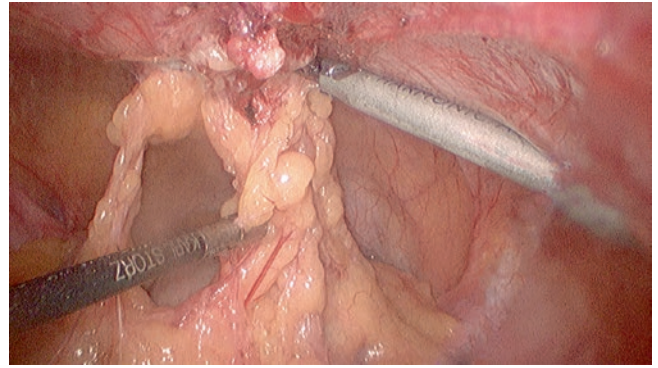


Fig. 29.4 Adhesiolysis in progress

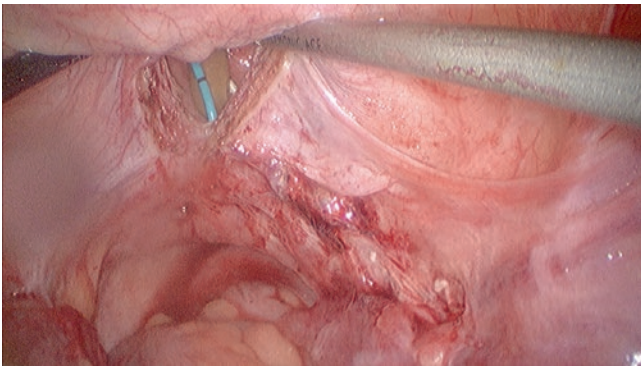


Fig. 29.5 Vertical cystotomy being done

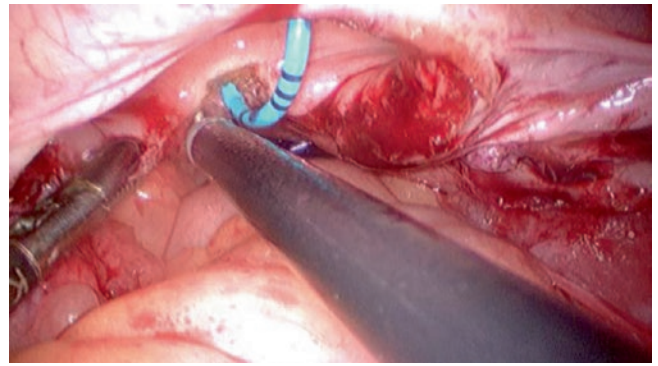


Fig. 29.6 Cystotomy extended around fistula (Note preplaced ureteric catheter in fistula)

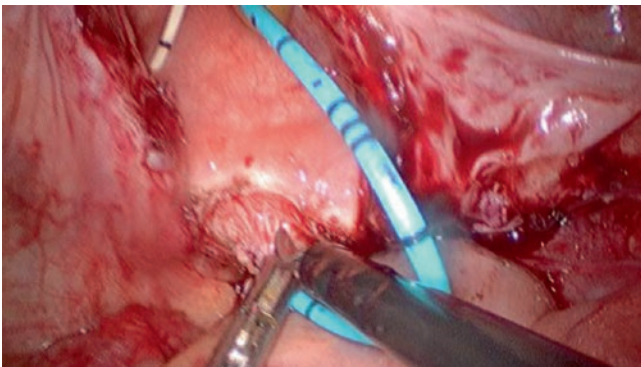


Fig. 29.7 Bladder mucosal incision around fistula

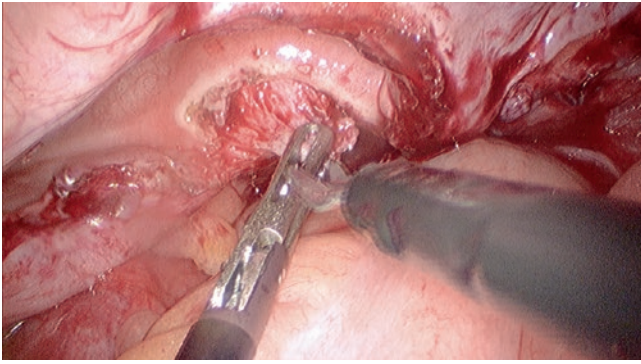


Fig. 29.8 Plane developed between posterior wall of bladder and anterior vaginal wall

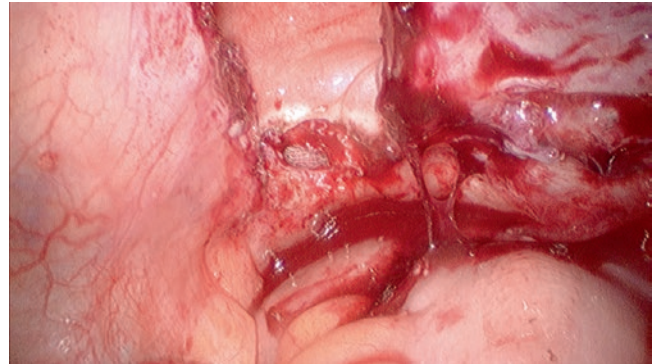


Fig. 29.9 Fistula completely excised

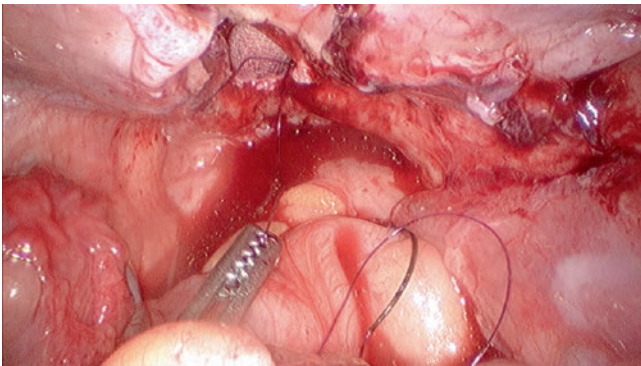


Fig. 29.10 Vaginal rent closure with 3-0 PDS suture in progress

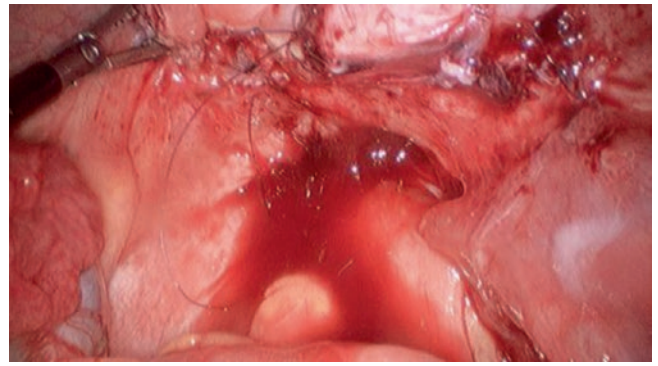


Fig. 29.11 Vaginal closure in progress

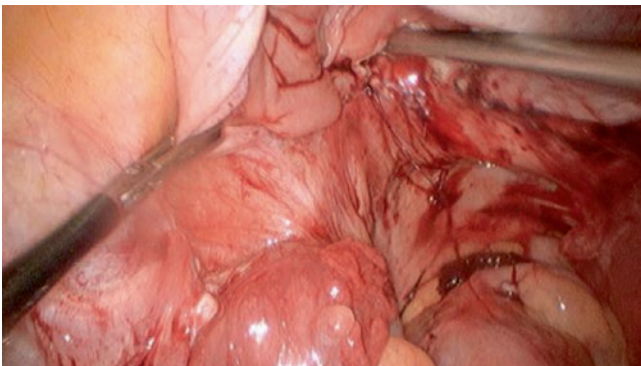


Fig. 29.12 Vaginal closure completed

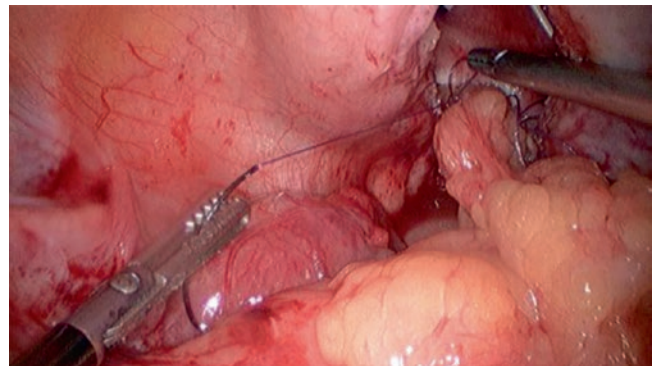


Fig. 29.13 Omental interposition anterior to vagina

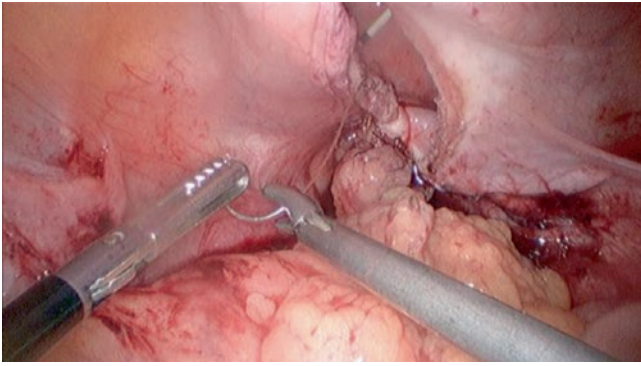


Fig. 29.14 Bladder closure started

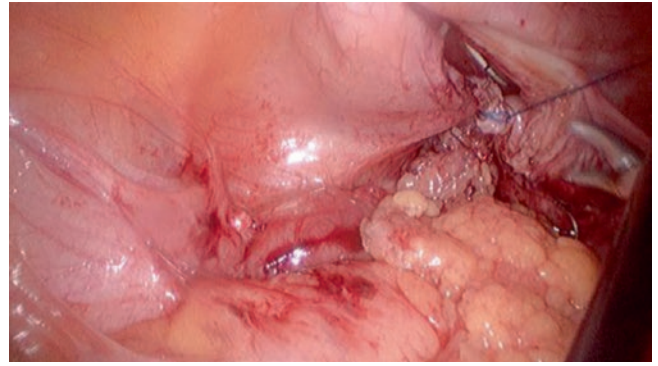


Fig. 29.15 Bladder closure with 3-0 V Lock suture in continuous fashion

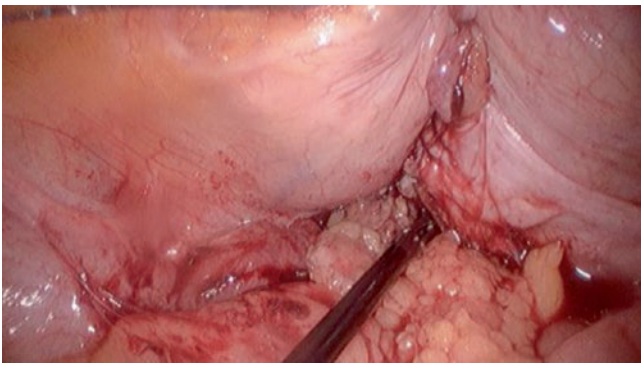


Fig. 29.16 Bladder closure in progress



Fig. 29.17 Bladder distended to look for any leak



Fig. 29.18 CT cystogram done 3 months later does not show any leak

29.6 Modification;1. Cystorrhaphy



Fig. 29.19 Cystoscopy showing the VVF in supratrigonal area following hysterectomy 1 week back

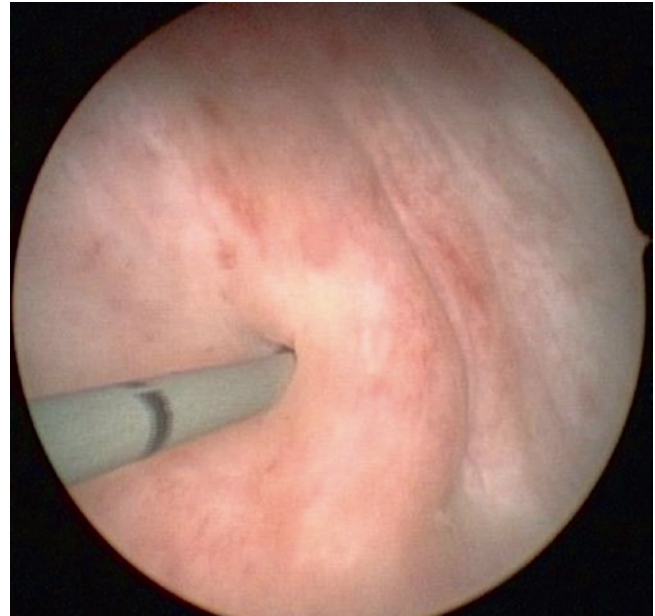


Fig. 29.20 Left ureteric catheterisation done to safeguard left ureter as it is close to VVF

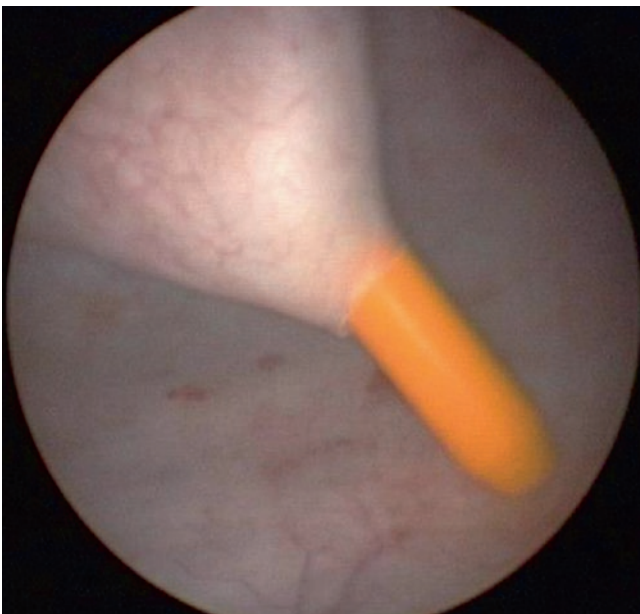


Fig. 29.21 Transvesical port insertion under cystoscopic guidance



Fig. 29.22 External view of ports position for transvesical approach. Note cystoscope through urethra as camera port

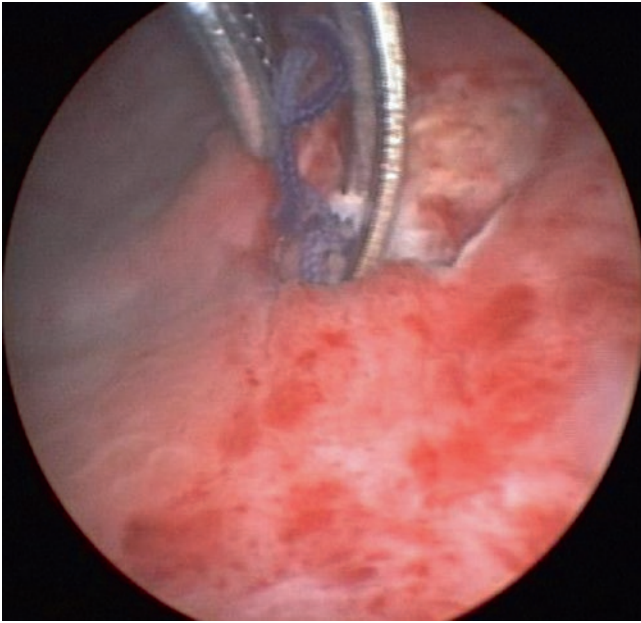


Fig. 29.23 Trimming the edges of the bladder defect

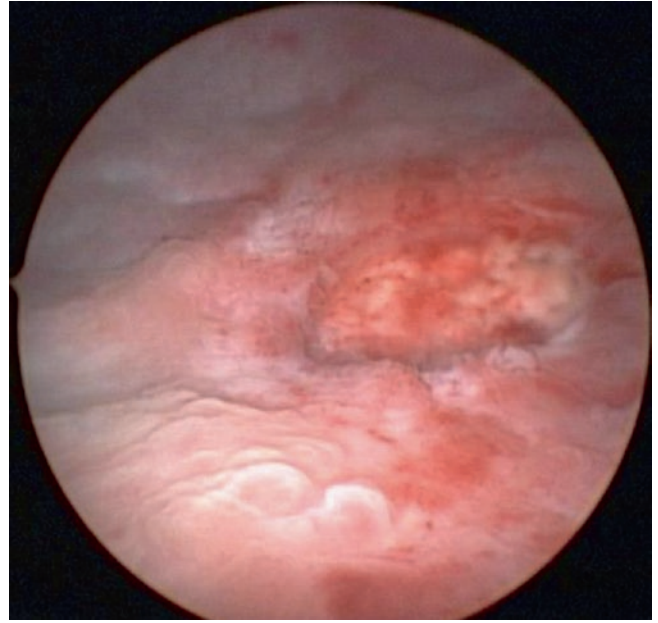


Fig. 29.24 View after trimming the edges

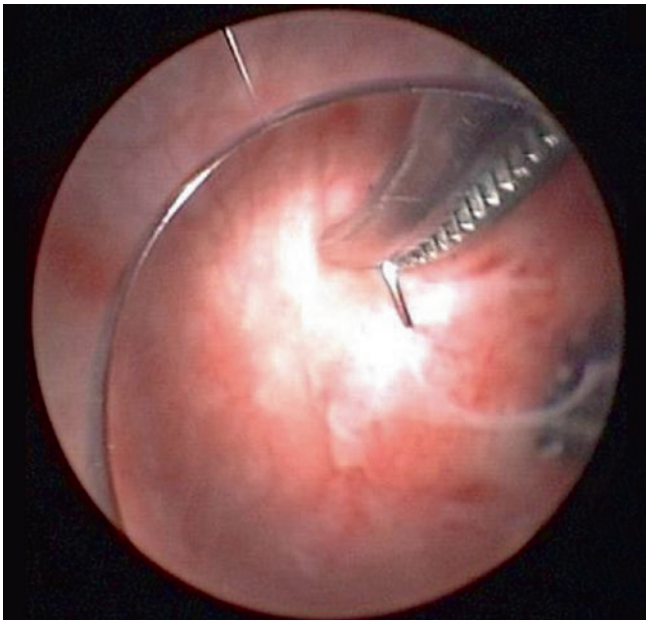


Fig. 29.25 Common difficulty in transvesical approach is escape of air through VVF preventing bladder distention

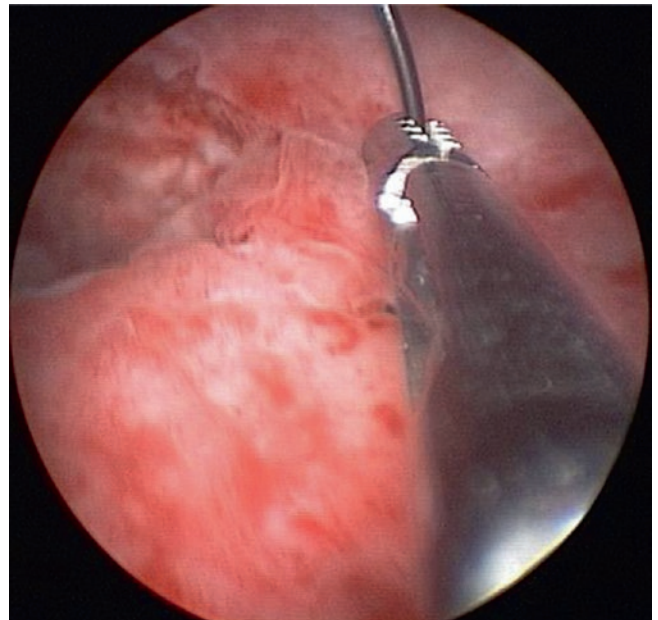


Fig. 29.26 Closing the bladder defect transvesically using 3-0 interrupted vicryl sutures

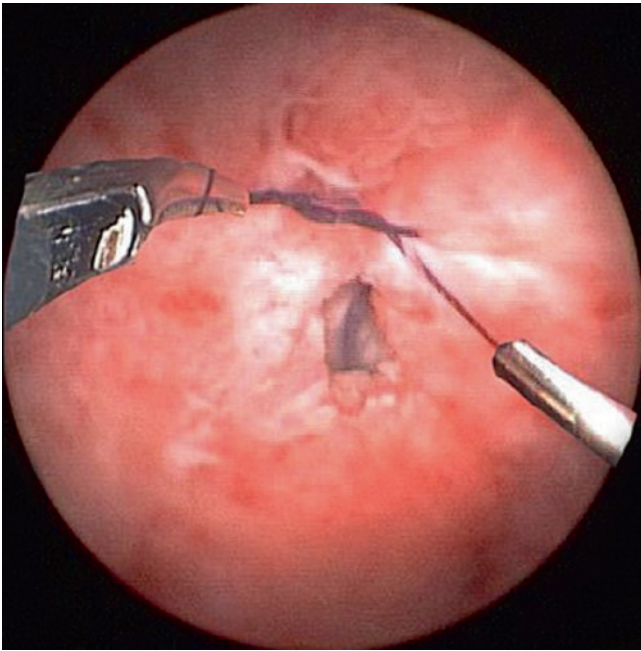


Fig. 29.27 Closure of the defect in progress

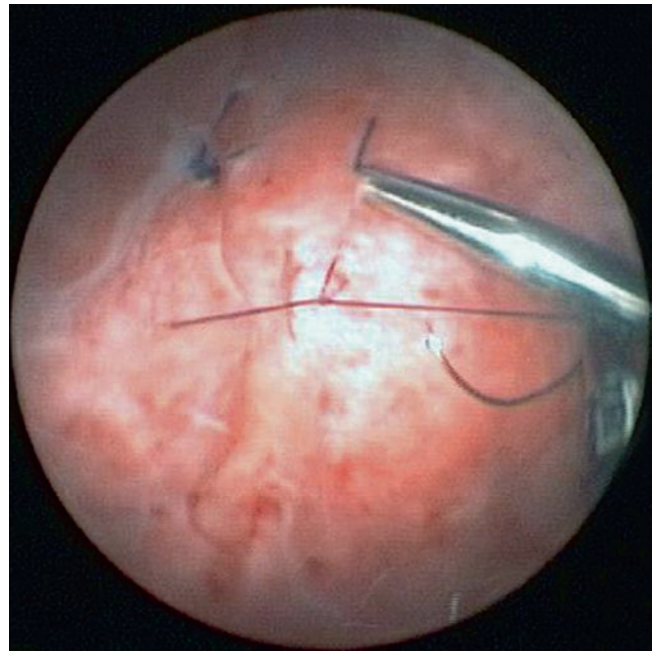


Fig. 29.28 Defect nearly closed

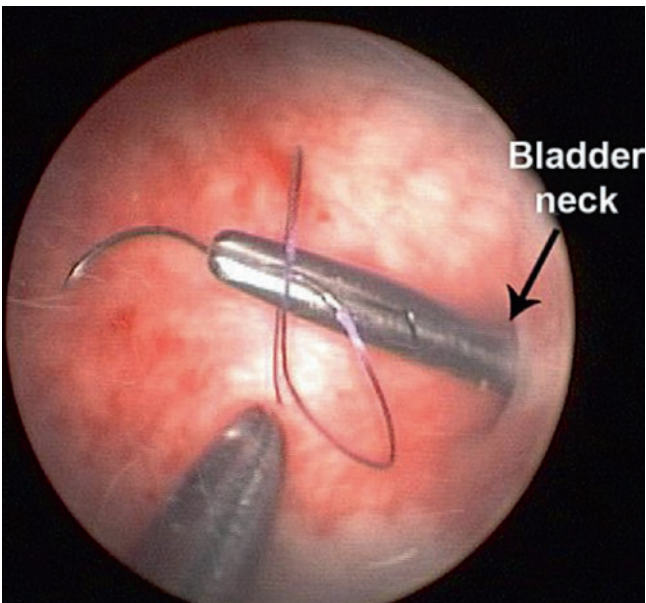


Fig. 29.29 If closure of defect is difficult urethra can be used as a port for the needle holder (as seen by transvesical 5 mm camera port)

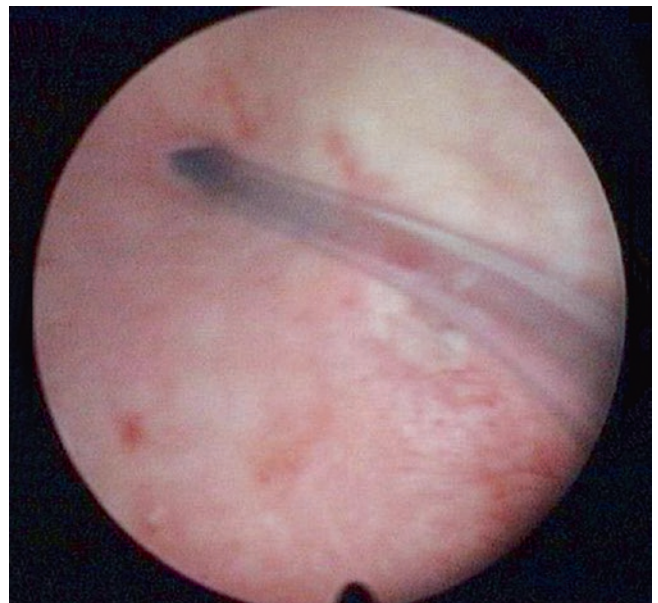


Fig. 29.30 Tube drain (a suprapubic catheter) introduced through transvesical port

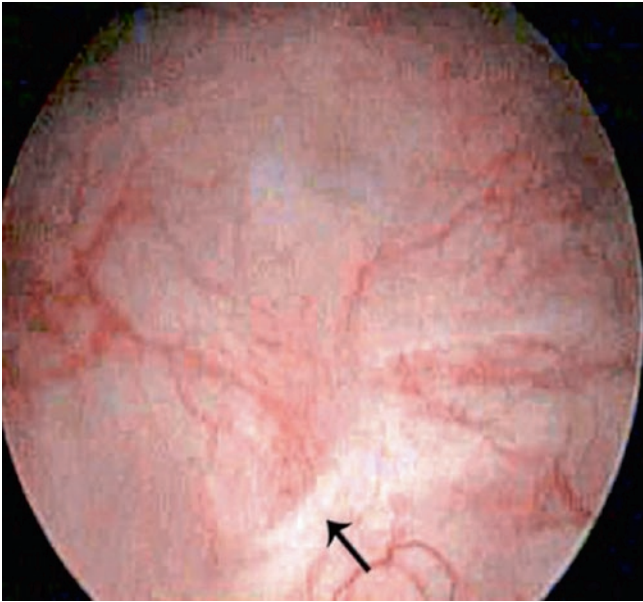


Fig. 29.31 Cystoscopic view 3 months later shows well healed scar (at the previous site of fistula)

29.7 Technical Modification 2. Transverse Cystotomy Approach

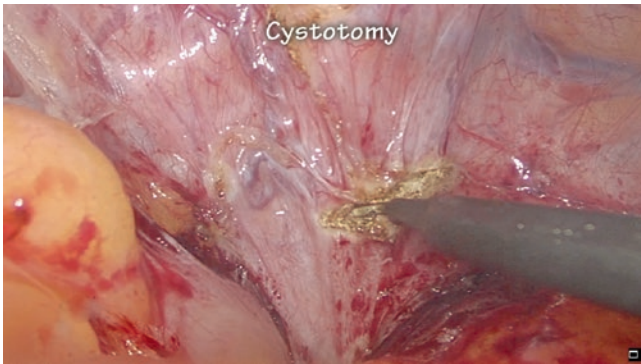


Fig. 29.32 Transverse cystotomy started

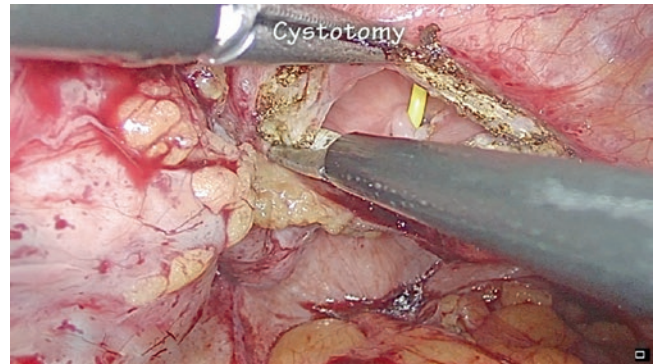


Fig. 29.33 Transverse cystotomy in progress – yellow ureteric catheter seen in the fistula

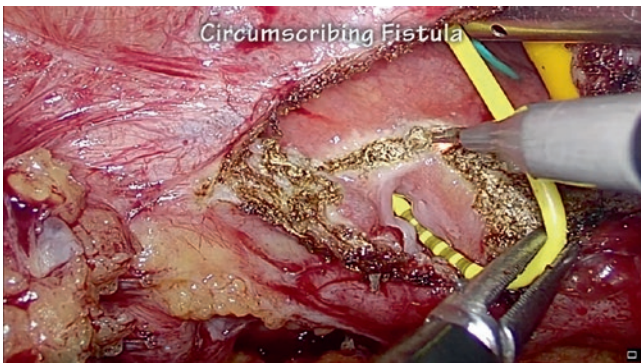


Fig. 29.34 Cystotomy extended to encircle the fistula

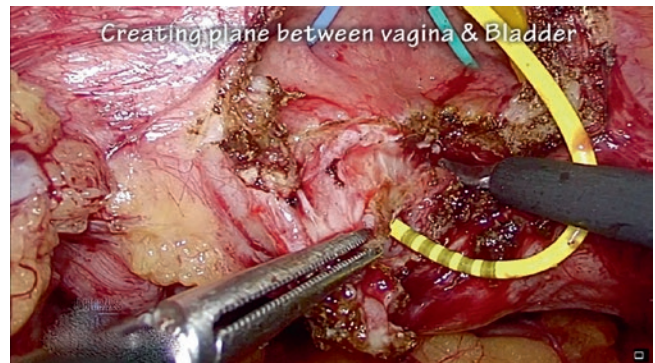


Fig. 29.35 Plane created between the bladder and vagina

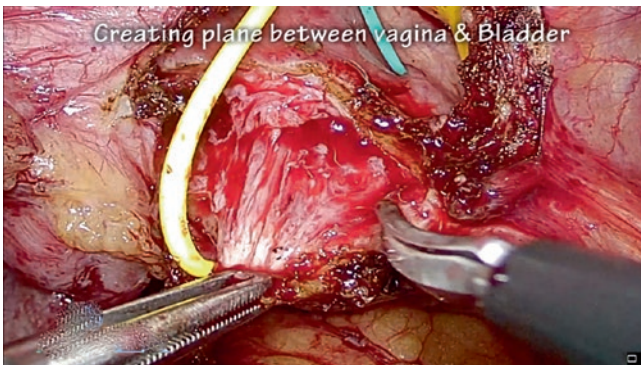


Fig. 29.36 Plane between bladder and vagina created

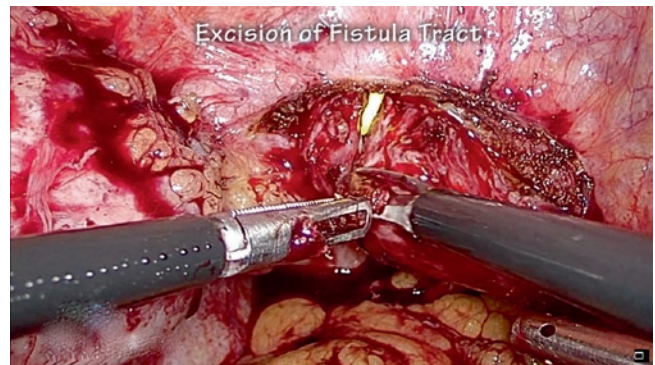


Fig. 29.37 Fistula margin excised

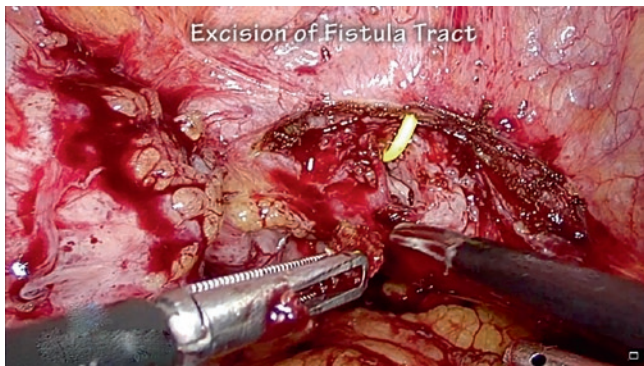


Fig. 29.38 Freshened fistula margin

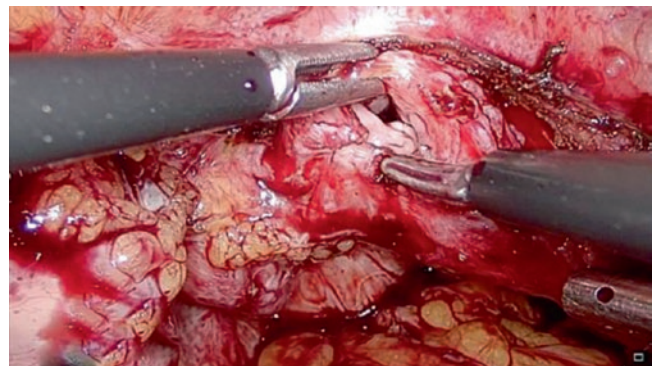


Fig. 29.39 Vaginal opening of the fistula



Fig. 29.40 Vaginal closure started

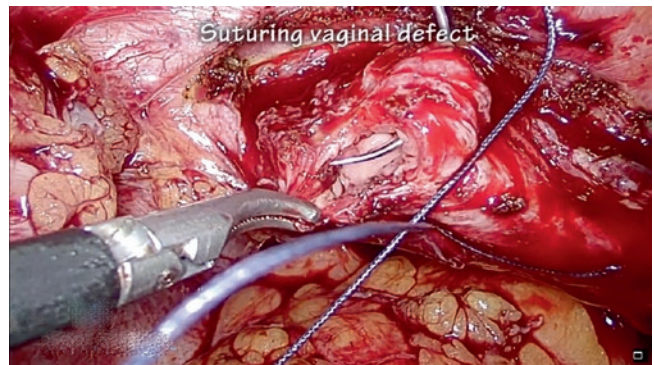


Fig. 29.41 Vagina transversely closed

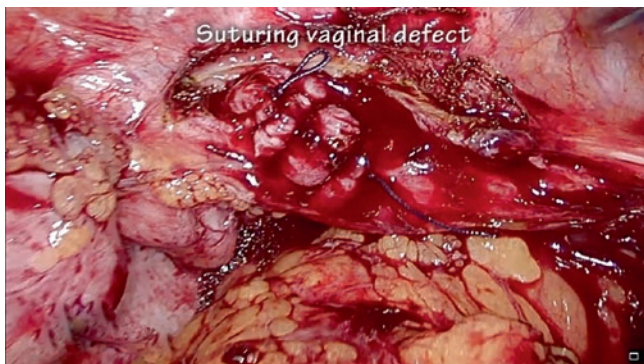


Fig. 29.42 Vaginal closure complete

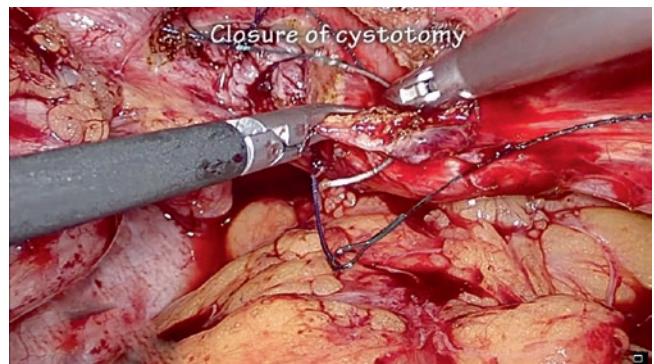


Fig. 29.43 Bladder closure started with barbed sutures

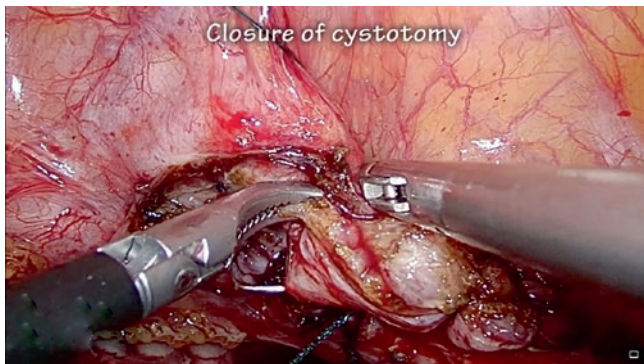


Fig. 29.44 Bladder closure in progress with 3-0 V loc suture

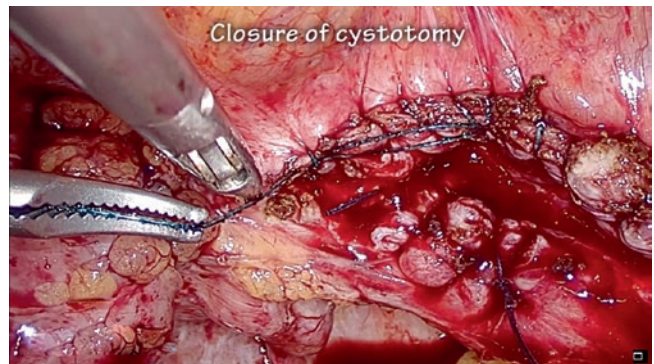


Fig. 29.45 Bladder closure complete

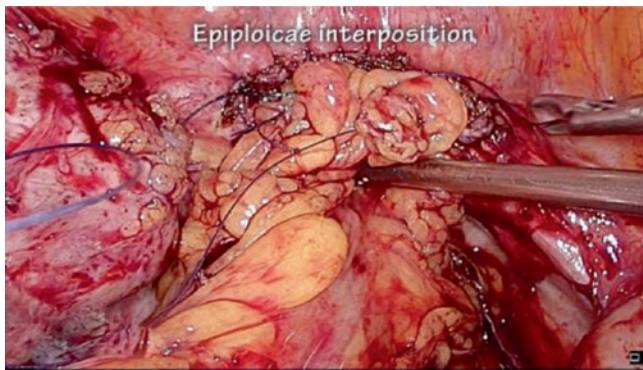


Fig. 29.46 Omental or colonic epiploica interposition

References

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