Open transabdominal and transvaginal approaches for repair of a vesicovaginal fistula (VVF) are well described [1,2]. Of late, the laparoscopic approach is also practiced in the repair of a VVF [5–9]. Transvesical transurethral repair has been described by McKay [3,4], wherein he used a transurethral port for suturing. But generally the repair continues to be a challenge even by the open technique as there is recurrence in about 5% to 10%. A VVF due to obstetric causes is repaired 3 months after the onset of vaginal urinary leak. But an iatrogenic VVF following pelvic surgery can be managed earlier as there is no ischemic etiology.

Surgical Technique

Preliminary evaluation includes an intravenous urogram (IVU) and cystoscopy to determine the location and relation of the VVF to the ureteric orifice and to rule out an associated ureterovaginal fistula.

Transperitoneal Approach (O’Connor’s Technique)

Cystoscopy and ureteric stenting are performed to protect the ureteric orifice and ureters. The patient is placed in the supine position. An optimum-sized urethral catheter is inserted and kept sterile and accessible for subsequent bladder filling. Four ports—a 10-mm supraumbilical 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 performed in the midline using electrocautery or ultracision up to the edge of the fistula. Subsequently adequate mobilization of the bladder wall from the vaginal wall is performed. 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 Vicryl sutures. Whenever possible, omentum can be mobilized and sutured over the anterior wall of vagina. Then the bladder defect is closed in two layers (an inner layer with 3-0 continuous Vicryl sutures and an outer layer with 2-0 interrupted Vicryl sutures), bringing in trimmed, healthy bladder wall over the previously fistulous area. A trocar suprapubic catheter is introduced extraperitoneally after distending the bladder. A 14-size transabdominal drain is left through suprapubic port or one of the pararectus ports.

Transvesical Approach (Cystorrhaphy)

After a preliminary cystoscopy and colposcopy to assess the defect, the vagina is packed with large packs to prevent the leak of water. 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 a self-retaining mechanism needs to be used. Subsequently the pneumovesicoinsufflation is performed. The 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 the 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 the vaginal route as in open surgery. The bladder is drained by a suprapubic catheter (inserted through one of the ports) and the urethral Foley catheter is left in for about 10 days.

Follow-Up

The suprapubic catheter can be removed on the seventh postoperative day. 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.

Conclusion

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

Fig. 19.1. A computed tomography (CT) scan shows contrast leaking into the vagina

Fig. 19.2. Cystoscopy shows a fistulous communication (ureteric catheter introduced through a simultaneous colposcope)

Fig. 19.3. Colposcopic view of the fistula with a guidewire and a ureteric catheter being passed through it

Fig. 19.4. Ureteric catheterization to safeguard the ureteric orifices; note another ureteric catheter through the supratrigonal fistula