

## **Vesico-vaginal fistula**

Fistula is an abnormal epithelialised tract between 2 epithelialised surfaces  
VVF common in developing countries due to birth trauma; uncommon in developed world – typically iatrogenic

### Aetiology (developed world)

Congenital

Acquired

    Iatrogenic

        Surgical

            Hysterectomy\*

            Anterior colporrhaphy

            Colposuspension

            Subtrigonal phenol

        Radiotherapy

    Non-iatrogenic

        Advanced pelvic malignancy

        Tuberculosis

        Obstructed labour

        Foreign body erosion

\* Hysterectomy accounts for ~ 90% of iatrogenic causes. Bladder injury complicates 0.5-1% of all hysterectomies. Incidence of fistula 0.1%.  
Fistula 3 x more common with abdominal than with vaginal hysterectomy. NB. In the setting of a difficult hysterectomy, ureteric injury is the least likely cause of urinary fistula.

### Presentation

#### **Persistent dribbling incontinence**

‘Serous’ discharge and failure to progress after gynae op

Occasionally normal voiding and small loss per vaginum

### Diagnosis

History

    Gynae (malignancy, RT, surgery, endometriosis, cervical Rx)

    Obstetric (obstructed labour, caesarian)

    Urology (malignancy, RT, surgery, neurogenic bladder)

Examination

    Fluid for U+E

    Speculum vaginal examination (Cusco)

    Flexible cystoscopy

    Three pad dye test occasionally helpful for occult cases.

        [Methylene blue instilled into bladder. Staining of upper/mid pads suggests VVF, staining of lower pad SUI.

        Attempts to use IV dye to identify ureteric involvement inaccurate and does not obviate requirement for RPG]

    EUA, vaginoscopy, cystoscopy and bilateral RPG prior to contemplating repair (biopsy of the fistula edge mandatory in all patients with previous or suspected malignancy)

CT urogram with delayed images or VCUG for complex/occult cases

Management

(i) Conservative

Prolonged catheter drainage

Appropriate for surgically unfit patients

May occasionally suffice for patients with small non-epithelialised uncomplicated (no RT, malignancy, ischaemia TB) fistula following hysterectomy (give Abx: quote 10% cure rate)

**Unlikely to heal if remain open after 3 weeks of catheter drainage**

De-epithelialisation by curettage, silver nitrate, transvesical diathermy (Bugbee) and metal screws all tried followed by catheter drainage.

Generally poor results (<10%) with established fistula

Nephrostomy for urinoma, obstruction, ureteric fistulae

(ii) Surgical

Standard surgical principles important: tension-free well vascularised anastomosis with avoidance of overlapping suture lines

Remember SNAP:

S – eradicate sepsis

N – ensure adequate nutrition (?pre-op topical oestrogen)

A – define anatomy

P – determine surgical plan if unexpected problems

Timing of surgery

Iatrogenic 2-3 weeks\*

Obstetric injury 3-6 months

Radiation fistula 12 months + (allows tissue healing/angiogenesis following obliterative endarteritis)

\* Traditional teaching recommended a delayed period for all fistulas. However early repair at 2-3 weeks believed to be equivalent to delayed repair, and reduces psychological and therefore medico-legal 'complications'

However best chances of repair = first chance. Therefore:

< 72 hrs immediate repair

> 72 hrs 6-8 wks delayed uncomplicated

6 months baby/infected

12 months radiotherapy

Transvaginal and abdominal approaches described. In experienced hands minimally invasive TV approach a/w equivalent success rates (82-100%); depends on surgeons preference

Vaginal repair

Labial stitches

Ring retractor

Weighted Simms speculum

Interposition with Martius fat pad

Problems with supply of blood/proliferation

Difficult to get Martius high (but dual supply - can divide below and rotate from above)

Alternative coverage with gracilis, gracilis-based myocutaneous flap, labial or gluteal flaps

Complications include recurrence, vaginal shortening/stenosis and ureteric injury

Abdominal approach reserved for complex fistulae and those requiring ureteric implantation, augmentation etc.

Abdominal repair

Bivalve bladder

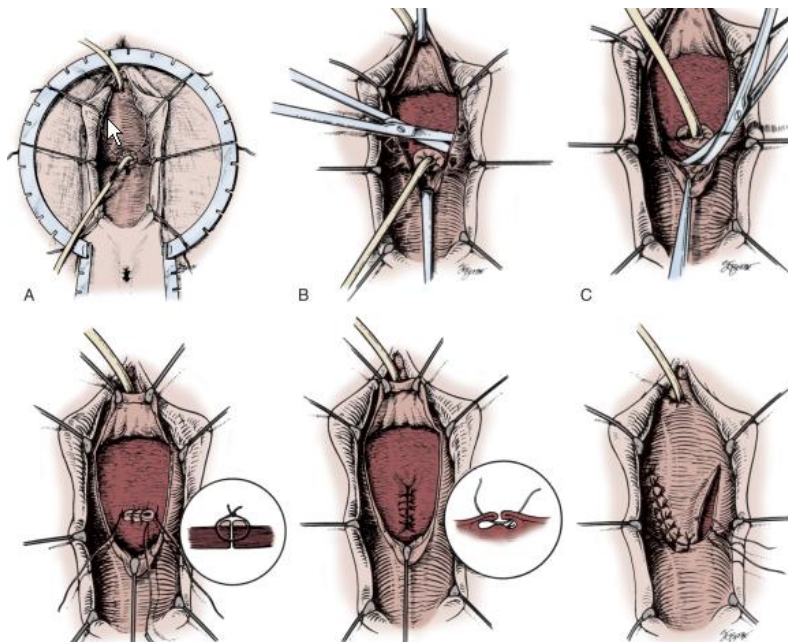
Excise fistula

Close bladder 2 layers

Freshen and close vagina

Interposition with omentum if possible, or peritoneal window from pouch of Douglas

Irrespective of approach, excision of fistula tract not thought to be essential for adequate healing and may be detrimental (bleeding loss of reconstructive tissue)



**Figure 12** Technique of vaginal repair of a post-hysterectomy VVF. **A**, Retraction including ring retractor, vaginal speculum, and Foley catheter in the VVF track. A Foley catheter is seen in the VVF track providing traction on the vaginal cuff. **B**, Mobilization of anterior vaginal wall flap. Lateral flaps are developed as well, thereby isolating the VVF track. **C**, Mobilization of posterior vaginal wall flap. **D**, Initial layer of closure is performed without excising the edges of the fistula track. **E**, The perivesical fascia is closed with Lembert-type sutures. This line of closure is perpendicular to the initial suture line. **F**, The vaginal wall flaps are advanced to avoid overlapping suture lines. (From Ganabathi K, Sirls L, Zimmern P, Leach GE: Vesicovaginal fistulas: Reconstructive techniques. In McAninch J, ed: *Traumatic and Reconstructive Urology*. Philadelphia, WB Saunders, 1996:317.)

