

2 UNDERSTANDING THE CAUSE AND NATURE OF VESICO-VAGINAL FISTULAE

Vesico-vaginal fistulae are caused simply by unrelieved obstructed labour. Prolonged pressure of the baby's head against the back of the pubic bone produces ischaemic necrosis of the intervening soft tissues, i.e. some part of the genital tract and bladder (Figure 1). In a labour taking long enough to produce this, the baby almost always dies. The head then softens and the mother eventually delivers a stillborn infant if she survives that long.

When the baby's head is stuck deep in the pelvis, the most common site for ischaemic injury is the urethro-vesical junction, as indicated in Figure 2, but other positions can occur either in isolation or confluenty.

The extent of the injury depends on the duration of labour and the strength of the mother to survive this ordeal. In the most severe cases, ischaemia will affect the whole of the anterior wall of the vagina and sometimes the rectum as well, leading to a recto-vaginal fistula. Varying degrees of vaginal stenosis are common.

The prolonged pressure in the pelvis on the lumbar and sacral nerves may lead to neurological damage. In its most severe form, this causes complete paralysis of the lower limbs, but milder ischaemia will commonly cause foot drop. Fortunately, even those with a serious paralysis usually recover after many months, although foot drop will be the last to recover, if at all. The presence of neurological signs usually indicates a bad vesico-vaginal fistula.

The exact site, size and amount of scar are functions of the position of the baby's head when it gets stuck, and the duration of the obstruction.

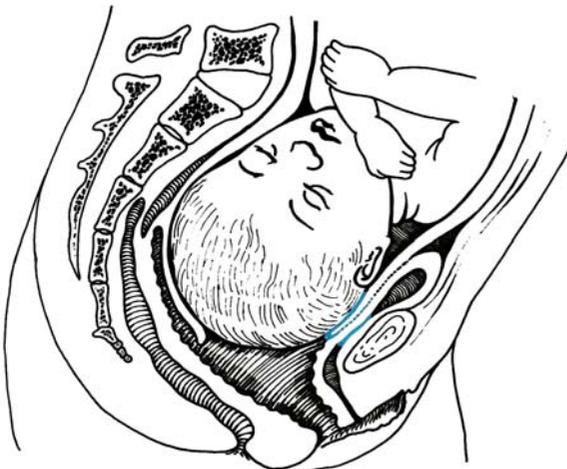


Figure 1 The area coloured blue is the first to undergo ischaemic necrosis.

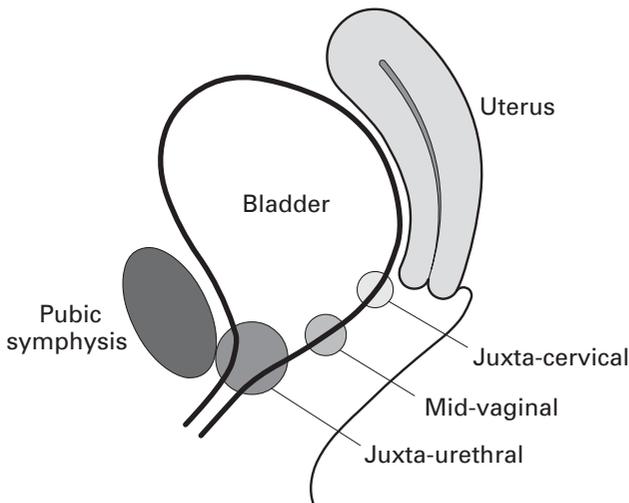


Figure 2 The various positions of ischaemic injury.

Many mothers die of exhaustion or a ruptured uterus in unrelieved obstruction – the fistula patients are the survivors.

Classification

A simple classification of vesico-vaginal fistulae is based on three factors:

- site
- size
- scar

The site of the fistula

Juxta-urethral (i.e. at the urethro-vesical junction) This is the commonest situation. Mild ischaemia will produce just a simple hole (Figure 3), but prolonged ischaemia will produce circumferential tissue loss where the urethra and bladder are separated to a variable extent (Figure 4).

Mid-vaginal Small defects 4 cm or more from the external urethral orifice are not that common, but are very easy to repair. Larger defects extend back as far as the cervix and laterally to the pubic bone.

Juxta-cervical (i.e. in the region of the cervix) (Figure 5) This is common where there is a high incidence of Caesarean section. Sometimes the defect extends into the cervical canal, with the anterior cervical canal being completely open (Figure 6). This presumably results from a vertical tear in the lower segment with associated bladder injury at Caesarean section.

Intra-cervical (i.e. between the bladder and the cervical canal) (Figure 7) This is not very common and almost always follows a Caesarean section. There may be a

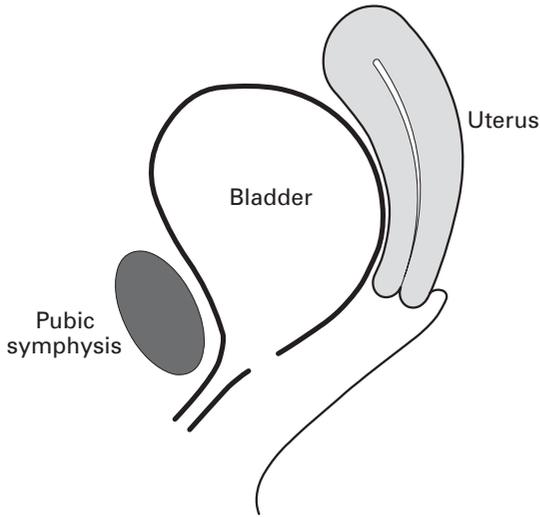


Figure 3 A simple juxta-urethral fistula.

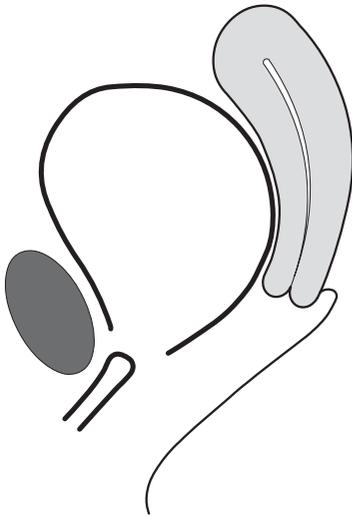


Figure 4 A small circumferential juxta-urethral fistula. A gap exists between bladder and urethra. The latter is often blocked.

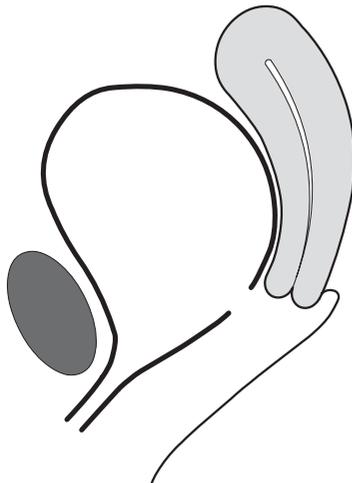


Figure 5 A juxta-cervical fistula.

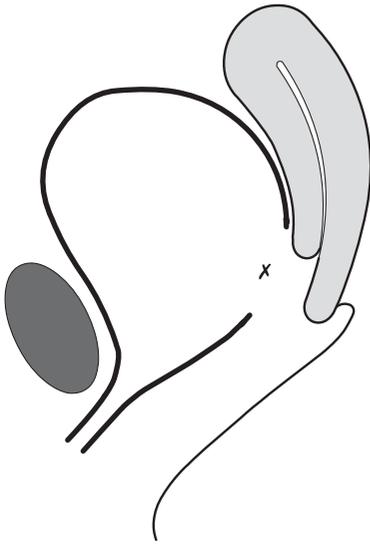


Figure 6 A large juxta-cervical fistula with an open anterior cervical canal (the cross indicates the ureteric orifice).

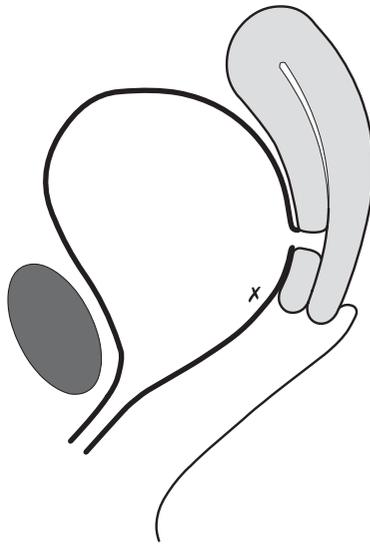


Figure 7 An intra-cervical fistula (the cross indicates the ureteric orifice).

history of a live baby, suggesting that the cause was iatrogenic. An alternative explanation is that the patient has been pushing for days with an incompletely dilated cervix.

Miscellaneous fistulae These include ureteric fistulae due to accidental damage at Caesarean section or hysterectomy, and vault fistulae following an emergency hysterectomy for a ruptured uterus.

The size of the fistula

Fistulae may be:

- tiny (admitting only a small probe)

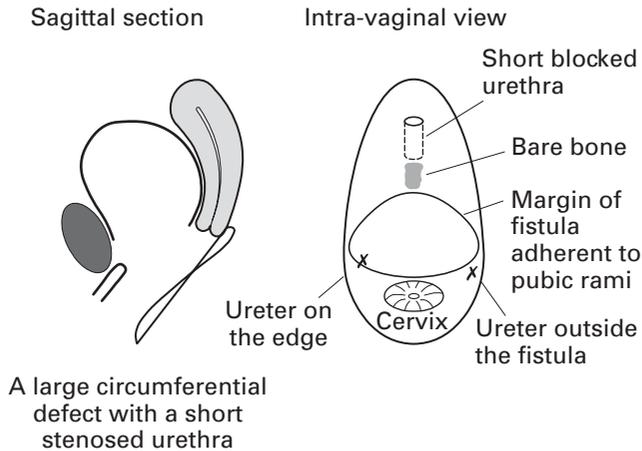


Figure 8 An extensive fistula. The whole of the anterior vaginal wall has been lost; there is a gap between the stenosed urethra and the anterior bladder wall. Bare bone is exposed at the back of the pubic symphysis. The antero-lateral margins of the bladder defect are adherent to the underside of the pubic arch, and the ureteric openings will be on the edge of or even outside the bladder, as indicated by the crosses on the intra-vaginal view.

- small (0.5–1.5 cm)
- medium (1.5–3 cm)
- large (>3 cm): these usually involve loss of most of the anterior vaginal wall and a circumferential loss of the urethro-vesical junction
- extensive (Figure 8)

The amount of scar

This varies from minimal when the margins of the fistula are soft and mobile to extreme scarring when the fistula margins are rigid and fixed. Scar also affects the lateral and posterior wall of the vagina, causing complete stenosis in extreme cases.

Scar is the big enemy, and any fistula with scar should be left to an experienced surgeon.

Prognosis

The critical factors are the length of the urethra and the amount of scar. Almost all defects can be closed (although bladder capacity may be reduced). However, if the urethra has been crushed, denervated and shortened, it will not function and the patient may have total stress incontinence. *The shorter the urethra and the greater the scar, the higher the chance of stress incontinence.* Destroyed urethras can be repaired, but the prognosis for continence is uncertain.