2 Diagnosis

History Taking

The following details are required:

- **Symptoms**. Confirm that the patient is wet all the time. If she is dry at night she probably does not have a fistula (although there are exceptions—see 'Dye Test' later in this chapter). The patient should be asked whether there is any leakage of faeces as well as urine. Unless extremely small, a small hole in the bladder leaks just as much as a large one, but some patients with a rectal fistula may only be aware of soiling when they have diarrhoea or only complain of passing flatus through their vaginas.
- **Age**.
- **Parity**. If the patient is multiparous which delivery caused the fistula?
- **How long has the patient been wet?**
- **Mode of delivery**. Was birth by vaginal delivery or caesarean section?
- **How long was she in labour?** The average is about three days.
- **Where did the delivery take place?** Home, maternity centre or hospital?
- **Did the child survive?** Almost all vaginal deliveries result in a stillbirth, but a few delivered by caesarean section are alive. This strongly suggests an iatrogenic injury.
- **Neurological symptoms**. Complete lower limb paralysis is rare, but minor degrees of foot drop are reasonably common.
- **Does she still menstruate?** Amenorrhoea is quite common after such a traumatic childbirth, but if the patient had a caesarean section one should suspect a hysterectomy for a ruptured uterus. Some patients do not know they have lost their uterus.
- **Have any attempts been made to repair the fistula?** Patients sometimes hide this information for fear they will be turned away and not get another chance of an operation. The more times a patient is operated on, the less likely it is she will be cured.
- **Social history**. Most patients with a long-standing fistula are single and live a very restricted life. The longer they have had the fistula, the more likely it is they will be alone and live a subsistence existence supported by relatives.

History taking does not help very much in selecting the easy cases. There are, however, some clues that should arouse suspicion of a serious injury:

- Neurological weakness (usually foot drop), even if it has recovered, is indicative of this.
- Rectal fistulae are usually associated with a serious bladder injury. This does not apply to

anal sphincter injuries, which often occur in isolation and should not be classified as recto-vaginal fistulae.

- Fistulae following a caesarean section are often in the cervix region, owing to a combination of ischaemia and operative trauma.
- A fistula following hysterectomy for a ruptured uterus or other elective reasons, will usually be in the vault. Always consider a ureteric fistula in these cases too, especially if the patient voids normally but also leaks continually. She will void normally from one ureter entering into an intact, functioning bladder, and leak continually from the other injured ureter leaking directly into her vagina. I was tricked once, a patient had bilateral ureteric injuries so both were leaking into the vagina and nothing was flowing into her intact bladder.

Examination

Inspection

The Abdomen

Are caesarean or other scars present?
Is any swelling visible?
The patient could be pregnant! In pregnancy repair should generally be avoided, unless it is the patient's only real chance of finding a skilled surgeon. Bleeding can be very troublesome if the repair is done during pregnancy unless it is well down in the vagina. Her delivery must be by caesarean.

The Perineum

- Look for obvious wetness and urine dermatitis. (Figure 2.1) The dermatitis is caused by concentrated urine. Ask the patient to drink more if it is not possible to operate immediately. Some people use a simple barrier cream such as vaseline, but the quicker you get the patient continent the better.

Figure 2.1
Urine dermatitis.

Figure 2.2
A severe case with complete loss of the urethra. The bladder fundus is prolapsing through the fistula and filling the vagina.

- Can the urethral orifice be seen? In very bad fistulae, it can be completely destroyed. (Figure 2.2)
- Is there any sign of stenosis in the vagina? (Figures 2.3 and 2.4)
- Are there faeces in the vagina or on the perineum? This will indicate a rectal/anal defect or fistula.
- Is her perineum intact? Are there any perineal tears?

Figure 2.3
Stenosed vagina.

Figure 2.4
Vagina completely closed by dense scar.

Palpation

Begin with the abdomen in order to exclude an unexpected pregnancy or other swellings. Follow this with a vaginal examination. Use the lubricated index finger gently.

- Is the vagina of normal size and depth? Can the cervix be felt? Is there any vaginal narrowing? Smaller degrees are felt as a band of fibrous tissue around the lateral and posterior circumference at any depth in the vagina. In extreme cases, the whole vagina is stenosed. In the presence of a fistula the anterior wall is frequently shortened. Carefully palpate the posterior wall for a recto-vaginal fistula.
- Can a defect be felt in the anterior vaginal wall? This will range from a large defect where the finger immediately enters the bladder, to smaller defects that just admit a finger, to the smallest ones where you might only feel a dimple even no defect at all. If a defect can be felt, where is it located in relation to the urethra and the cervix? If a defect can be felt, consider the margins carefully. Are they soft and supple, somewhat rigid or (as in the worst cases) stuck to the pubic rami?
- The anterior cervix is often torn in fistula patients. Defects in this region are often difficult to feel unless they are large. The cervix may easily be felt low down in the vagina when a large amount of anterior wall has been lost. Remember that the cervix is often damaged and the external os might be gaping. A common mistake for the novice is to mistake a torn, gaping cervical os for a fistula. Palpate the uterus bimanually. Is it enlarged due to an early pregnancy or perhaps fibroids? The uterus can be fixed by scar to the anterior abdominal wall (common after a caesarean), or it could be absent after a caesarean hysterectomy.

- Feel the posterior vaginal wall carefully for a rectal defect. Rectal fistulae are usually associated with severe vaginal scarring and a bad bladder fistula. Occasionally they are small, soft and easily overlooked or just hidden behind a posterior band of scar. If a rectal fistula is suspected, a rectal examination should also be performed, noting any strictures in the rectum. Look at the perineal body and anal sphincters for any tears.

If preferred, the fistula can be inspected. This is best done with the patient in the lithotomy position using a Sims speculum, although some surgeons prefer the left lateral position with the right leg supported.

If the Patient Says she is Wet but No Wetness or Fistula Can be Observed

In this situation ask the patient to drink plenty (ideally wearing a pad or using a gauze as a pad) and then re-examine her. Keep in mind that many patients drink very little, especially if they know they are going to be examined. If it is then confirmed that the patient is wet but the fistula cannot be felt, proceed as follows:

- With the patient in the left lateral position, expose the anterior vaginal wall with a Sims speculum. (Figure 2.5) Ask the patient to cough. A small fistula may be readily visible or she will leak through her urethra with a cough which indicates stress incontinence. Be wary that she may have both.
- Alternatively, perform a dye test in this position or the position shown in Figure 2.6.

Figure 2.5
Exposure of the anterior vaginal wall using a Sims speculum with the patient in the left lateral position.

Dye Test (Figure 2.6)

Dilute methylene blue (or gentian violet) should be used—interpreting the test will be difficult, if the dye is too concentrated, as it will stain everything.

1. Insert a catheter.
2. Fill the catheter balloon with 5ml of fluid and have two or three moist swabs ready to put into the vagina.
3. Insert the swabs well into the vagina.
4. Slowly instill about 60cm^3 of dye.
5. After 1 minute, ask the patient to cough.
6. Remove the swabs one by one.
7. If any of the swabs are stained, this indicates the presence of a fistula.
8. If none of the swabs is stained, there could still be a fistula. Repeat the test using up to 200cm^3 of dye. Insert the three swabs into the vagina and remove the catheter. The patient should walk around for 30 minutes or even up to an hour while the dye is in her bladder and the swabs are in her vagina, wearing a pad to catch any leakage from her urethra. Sometimes the hole is very small, especially if it is between the cervix or uterus and the bladder and it takes some time for the dye to work its way out. It is easy to overlook a tiny fistula. After 30–60 minutes examine her again in the lithotomy position, remove the pad and then remove each vaginal swab, checking it for staining by the dye. If there is only leakage on the pad and perhaps the very distal swab then it could indicate urethral (stress) leakage. If the vaginal swabs are stained it reveals the fistula.
9. If this second test is negative but the proximal vaginal swab is wet with clear urine, there is a ureteric fistula.

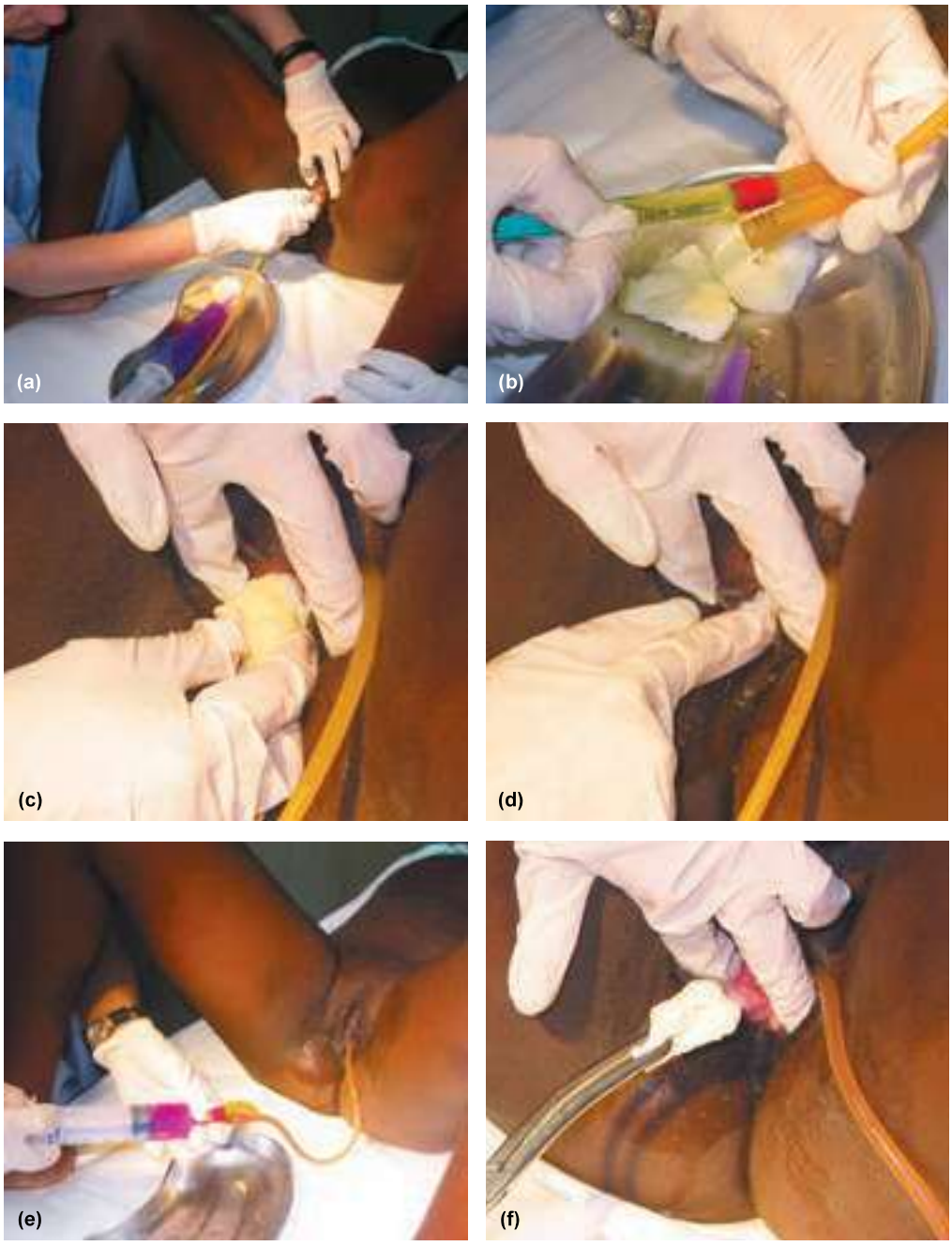

Figure 2.6
Dye test. a) Insertion of the catheter. b) The balloon of the catheter is inflated and three damp swabs are inserted into the vagina (note later—if you are looking for a ureteric fistula you should put dry swabs in the vagina to see if it becomes wet with clear urine—but it is uncomfortable. Putting in moist swabs causes less friction and pain). c) and d) the swabs are inserted well into the vagina, spaced from top to bottom. e) About 60ml of dye is slowly inserted. f) The swabs are removed one by one. The first is not stained but in this case g) the second is, revealing a fistula in the mid-vagina.

(g)

Ureteric Fistulae

A ureter can be damaged accidentally during a caesarean section, but injury is more likely during an emergency hysterectomy for a ruptured uterus. The ureter may be ligated and included in the lower-segment repair. Later, urine starts leaking through the cervix. After a hysterectomy, urine may leak into the pelvis, and some days later finds a way out between the sutures in the vaginal vault. With the increased availability of caesarean section, we are seeing these injuries more and more. Interestingly, it is almost always the left ureter that is involved. Ureters can be repaired easily by an abdominal operation. (See Chapter 6—Ureteric Fistula)

To exclude a ureteric fistula, instill dye into the bladder and insert a dry swab into the vagina. Ask the patient to drink and walk around. Re-examine her after half an hour. If the swab is wet with clear urine there is a ureteric fistula. If the swab is stained with dye, then the patient has a bladder fistula. On questioning, the patient should admit to being able to pass urine normally, as the other ureter should be functioning normally and draining into the bladder. I was tricked once in a patient who had bilateral ureteric fistulae after a caesarean hysterectomy. She was wet all the time and not voiding, like a VVF, but she was negative to the dye test. At laparotomy it was found that both ureters were dilated and nothing was draining into her bladder. It was a miracle she survived.

Postpartum Stress and Chronic Retention

Postpartum stress incontinence is occasionally troublesome, and can be mistaken for a fistula. About 30% of women will have some degree of stress urinary incontinence following delivery but nearly all have resolved within six months as their pelvic muscles recover.

Perform a dye test. If it is negative, remove the catheter, leaving the dye inside. Watch to see if it dribbles out of the urethra, and then ask the patient to cough. If there is significant stress, dye will come out, often with a large spurt. In order to exclude retention with overflow check her residual urine after voiding (see the next paragraph). Management of stress urinary incontinence within six months post-partum is primarily conservative with pelvic floor exercises.

Surgery is occasionally needed after at least six months of this conservative management and rarely before that if the leaking is complete, similar to what women experience with a fistula.

Another cause of urinary incontinence is a postpartum atonic bladder leading to overflow incontinence. Bladder function is disturbed by prolonged labour or oedema of the urethra which leads to obstruction, overfilling the bladder which then loses its function. Check for retention with overflow by asking the patient to void and measure the voided volume (sometimes the patient can't void at all), then pass a catheter and measure the volume of urine remaining in her bladder after she voids. This should be less than 50% of the voided volume. Some centres use the value of less than 100ml. This condition should be managed by continuous bladder drainage post delivery for at least 5 to 7 days. If this is not done, chronic retention may result and may not be diagnosed until much later when it is harder to treat. It may settle after a period of continuous catheter drainage, although a better option is to teach the patient intermittent self-catheterisation 4 to 5 times a day or after each void.

Investigations

Investigations which may be advisable include the following:

- Testing haemoglobin levels.
- HIV screening and counselling in accordance with local policies. If positive, check the CD4 count. If it is <350 it is wise to wait until treatment has started and the CD4 count has increased acceptably. However each country has slightly different protocols of when to start HIV treatment and management has to be tailored to the individual country.
- Screening for diabetes with a random blood sugar level. If high, do a fasting level. I have had a number of patients fail their operation when they shouldn't have. Undiagnosed diabetes was discovered and then stabilised. The patients were operated on again and cured.
- It's prudent to routinely do a pregnancy test (except if the patient has had a hysterectomy or is postmenopausal).
- Ultrasound scanning, if available, should be used more often, especially for bad cases. Being forewarned of a dilated renal tract is useful.
- Intravenous urograms are rarely available, but they can give useful information about the function of the kidneys when ureteric involvement is suspected.