4 Perineal trauma and suturing

Vicky Chapman

Introduction

> *A significant body of robust research exists to inform perineal care but it is almost all about process and outcome variables reflecting practitioners' interests. It is scandalous that women's concerns and priorities have been largely sidelined. This reflects the largely patriarchal culture that exists within hospital-based maternity services.* (Walsh, 2000)

Many women sustain perineal trauma when giving birth. The midwife is in a key position to offer advice and support, suturing if necessary or referring to a more specialist professional if required. Current UK research has tended to focus on severe perineal trauma, also known as obstetric anal sphincter injury (OASI), because of its impact on long-term continence. However, OASI is relatively uncommon; research should also look at morbidity from other types of perineal trauma, including women's experiences. While the degree of pain and morbidity women experience is normally directly related to the degree of perineal injury, the pain of even comparatively minor perineal trauma can come as a shock to women and can severely restrict their daily activities in the early postnatal period (Aasheim *et al*., 2011; Way, 2012; Edqvist *et al*., 2017). Primiparous women often describe an unexpected level of pain, feeling it must be abnormal (Edqvist *et al*., 2017).

> *I couldn't go to the toilet. I couldn't sit in the car. And I basically couldn't do anything: I was standing up and I was so tired, I could barely even lie down, it hurt that much that I just couldn't think of anything else. (Matilda)* (Priddis *et al*., 2014)

The Midwife's Labour and Birth Handbook, Fourth Edition. Edited by Vicky Chapman and Cathy Charles.

Timely and accurate assessment and appropriate pain-free repair are important, and women tend to prefer their midwife to conduct the perineal repair if appropriate (Jackson, 2000). Using the correct repair material and suture technique has an impact on postnatal pain and morbidity (Kettle *et al*., 2010, 2012).

Incidence and facts

- Perineal trauma affects around 85% of UK mothers per year (350 000 women) and at least 70% women undergo suturing (Webb *et al*., 2014; Thiagmoorthy *et al*., 2014).
- Women report the experience of being sutured as highly unpleasant; those receiving local anaesthetic, rather than regional, report high levels of pain during the procedure (Saunders *et al*., 2002; Kindberg, 2008).
- Short-term complications of wound infection and dehiscence affect 6–10% of women with perineal trauma (Johnson *et al*., 2012; Webb *et al*., 2014).
- Long-term complications include dyspareunia, urinary/faecal incontinence, pelvic organ prolapse, vesicovaginal fistula, psychosocial problems and postnatal depression.
- Around 20% of UK women giving birth receive episiotomies (Thiagmoorthy *et al*., 2014). Substantial evidence supports only performing episiotomy selectively if clinically indicated.
- Some degree of labial trauma probably affects 40% of first-time mothers (Kindberg, 2008).
- Third-/fourth-degree tears (OASI) occur in 2.9% of UK women (6.1% of primiparas and 1.7% of multiparas) (RCOG, 2015a). The rate in England tripled for primigravidae between 2000 and 2010 (Gurol-Urganci *et al*., 2013).
- Women with an intact perineum are more likely to resume intercourse earlier and report less pain with first and subsequent sexual intercourse (McDonald and Brown, 2013). They also report greater sexual sensation and likelihood of orgasm at 6 months postpartum (Williams, 2007). Women who had an episiotomy or forceps reported greater sexual morbidity (McDonald and Brown, 2013).
- Studies including a Cochrane review on suturing versus non-suturing second-degree tears have found no significant statistical morbidity differences between the two groups (Metcalfe *et al*., 2006; Elharmeel *et al*., 2011).
- Around 1.5% of women delivering in England and Wales each year have female genital mutilation (Macfarlane and Dorkendoo, 2015).

Reducing perineal trauma

Evidence suggests that perineal trauma (including OASI) can be reduced by:

- **Giving birth at home** or in a **midwifery-led birthing centre:** this results in fewer interventions, more intact perineums, reduced perineal lacerations and higher rates of spontaneous delivery compared with obstetric unit care (BECG, 2011; Hodnett *et al*., 2012; NICE, 2014).
- **Continuous support in labour** (Hodnett *et al*., 2013).
- **Restrictive use of episiotomy:** this reduces OASI tears by 30% and results in more intact perineums compared with routine episiotomy (level 1 evidence) (Jiang *et al*., 2017).

- **Application of a warm compress** to the perineum (Dahlen *et al*., 2009; Aasheim *et al*., 2011).
- **Non-directed pushing** and a gentle, unhurried birth (Cooke, 2010; Cooper, 2016).
- **Freedom to choose the birth position:** there is no evidence to support the restriction of birth position (Dahlen *et al*., 2015). The lateral birth position has the highest intact perineum rate and upright/squatting postures the lowest (Shorten *et al*., 2002; Bedwell, 2006). However, upright birth positions reduce epidural anaesthesia and instrumental births, both of which are associated with an increased incidence of OASI (Gupta, 2012), as is the lithotomy position.
- **Antenatal perineal massage** in primigravidae (Beckmann and Stock, 2013). Intrapartum perineal massage is controversial; there is some evidence of benefit but many women find it intrusive and painful (see Chapter 1). The National Institute for Health and Care Excellence (NICE, 2014) currently advises against it.
- **Restrictive use of oxytocin augmentation** (often used when women labour in non-upright positions) may reduce control over contractions and cause over-rapid birth, which increases the risk of perineal injury (Rygh *et al*., 2014).
- **Avoiding instrumental delivery**, which includes good midwifery support, which reduces the need for epidural, and avoidance of arbitrary restrictions on a slowly progressing second stage (see Chapter 9).
- '**Hands on**' or '**hands off**' the perineum? There is hot debate over this. A Cochrane review suggests that there is no particular benefit to either method (Aasheim *et al*., 2011). However, recently a Scandinavian package of care including 'manual perineal protection' at birth demonstrated a 50% reduction in the incidence of OASI (Laine, 2012; OASI Care Bundle Team, 2017). See Appendix 4.1 for more details.

Assessment of perineal trauma

Systematically examine the genitalia using a good light (Box 4.1).

- Explain what you are about to do, and obtain consent for this intimate, often uncomfortable, examination; offer Entonox.
- Be gentle and careful, using wet gauze to part and inspect the labia.
- Gently insert two fingers in the vagina and move slowly outwards towards the perineum; remove any clots as you go, checking for trauma.
- Perform a *digital* and *visual* inspection of the anus to ascertain any anal involvement (NICE, 2014). Increased practitioner vigilance, including training, can double the detection of OASI (RCOG, 2015a):
    - Part the perineum where it meets the anus: an absence of 'puckering' around the anterior aspect of the anal sphincter suggests possible trauma.
    - Warn the woman before *gently* inserting a well-lubricated forefinger into the rectum: if you suspect trauma ask the woman to squeeze her sphincter. If the external anal sphincter is damaged the separated ends may be seen to retract backwards.
    - Slowly withdraw the finger, feeling for injury to the surface of the normally smooth rectal mucosa and anus.

Box 4.1 Classification of perineal trauma.

Anterior perineal trauma

- Injury to the labia varying from painful grazes to deeper, sometimes bilateral, labial lacerations which may require sutures.
- Less commonly involves the anterior vagina, urethra or clitoris.

Posterior perineal trauma (RCOG, 2015a)

- **First degree:** injury to the perineal skin and/or vaginal mucosa.
- **Second degree:** injury to the skin, vaginal tissue and perineal muscle.
- **Third degree:** injury to the perineum involving the anal sphincter:
  - **3a** less than 50% of the external anal sphincter (EAS) torn
  - **3b** more than 50% of the EAS torn
  - **3c** both the EAS and internal anal sphincter (IAS) torn.
- **Fourth degree:** injury to the EAS, IAS and also the anorectal mucosa.

Labial tears

Labial trauma may consist of a graze or laceration; unilateral, bilateral or even multiple. Most labial trauma is minor and heals well. Assessment, classification and repair of this type of injury is poorly researched. Jenkins (2011) found that labial trauma comprised:

- 55% grazes
- 36% lacerations
- 6.3% both trauma types.

Labial tears were sutured in 67% of cases and grazes in 26%. Doctors were more likely to suture labial trauma than midwives, possibly because midwives tend to leave minor lacerations alone.

Bilateral tears or grazes are particularly painful during urination. Commonly midwives advise women to part the labia daily to minimise the lacerations fusing to each other as they heal, although the literature suggests labial fusing is a rare phenomenon (Jenkins, 2011).

Urethral tears

Rare in the developed world, trauma involving the urethra should be referred immediately to a urologist, as serious urinary tract/bladder injury is possible, particularly if labour has been prolonged and/or ended in instrumental delivery. Trauma of the urethral meatus should *not* be sutured, since this risks urethral damage. A catheter may be contraindicated as this risks extending any internal urethral injury. Urinary tract injuries usually present with a triad of symptoms: pain, problems passing urine and haematuria (Rackley *et al*., 2009).

First- and second-degree tears

See Box 4.1 for the definitions of first- and second-degree tears.

A few decades ago midwives were taught to suture any type of tear, regardless of severity: 'If it flapped, we flipping well sutured it …' (Cathy Charles, personal communication). However, trends have changed.

Women dislike being sutured, but usually endure it because they believe it to be beneficial. Non-suturing avoids the pain and unpleasant experience of being sutured

(Lundquist *et al*., 2000) and for this reason many women – and staff – find it attractive. Underconfident suturers may also readily avoid suturing!

There have been various small studies involving non-suturing of first-/second-degree tears (Head, 1993; Lundquist *et al*., 2000; Fleming *et al*., 2003) and several larger studies (Langley *et al*., 2006; Metcalfe *et al*., 2006; Leeman *et al*., 2007). Midwives and women may have strong views on which option they prefer, often resulting in difficulties in recruiting participants and staff compliance in randomised studies.

Women are more likely to have second-degree tears not repaired in midwife-led birth centres (12%) than in acute units (5.9%) (Thiagmoorthy *et al*., 2014).

NICE (2014) recommends suturing for the following:

- first degree tears if the skin is not well opposed
- all second-degree tears.

However, this advice is based on limited research. A Cochrane review of suturing versus non-suturing first-/second-degree spontaneous tears concluded:

> *At present there is insufficient evidence to suggest that one method is superior to the other with regard to healing and recovery in the early or late postnatal periods. Until further evidence becomes available, clinicians' decisions whether to suture or not can be based on their clinical judgement and the women's preference after informing them about the lack of long-term outcomes and the possible chance of a slower wound healing process, but possible better overall feeling of well being if left unsutured.* (Elharmeel *et al*., 2011)

Findings from studies on non-suturing include:

- similar outcomes (subjectively assessed) at 6 weeks
- non-sutured women had lower initial healing and poorer wound approximation in the immediate postnatal period, and more risk of 'gaping', asymmetry or open perineal wound at 6 weeks (Fleming *et al*., 2003; Langley *et al*., 2006; Metcalfe *et al*., 2006; Leeman *et al*., 2007)
- no difference in *reported* postnatal pain, but increased analgesia use following suturing (Langley *et al*., 2006; Leeman *et al*., 2007)
- overall, few differences in secondary measures of pain, longer term healing times, incontinence, dyspareunia, pelvic floor strength, infection rates and resumption of sexual intercourse, but more long-term research is recommended
- Langley *et al*. (2006) suggest that, while the balance of evidence tends towards suturing, it is based on limited evidence and weak trials.

Women should be aware that *suturing remains strongly advisable for* extensive perineal trauma, a large second-degree tear, a third-/fourth-degree tear, if bleeding continues, if the wound is very misaligned/complicated or the wound is the result of an unnatural straight-edged cut from an episiotomy.

Third- and fourth-degree tears (obstetric anal sphincter injury)

Priddis *et al*. (2014) found that women particularly disliked the term OASIS ('Obstetric Anal Sphincter InjurieS') and preferred 'severe perineal tears' (SPTs). This author uses the term OASI (in the singular), with reservations, in this chapter, since OASI is so widely used in the literature.

OASI affects 2.85% of mothers in the UK (Thiagmoorthy *et al*., 2014). Prevention has been discussed earlier in this chapter. This is a contentious area, involving, on occasions, inappropriate blaming of health professionals and sometimes of women themselves. It appears that the OASI rate is rising in the UK; this may be in part due to increased awareness and training on reporting and detection (RCOG, 2015a). Overall, the UK incidence is 2.9%, but the reported OASI rate in singleton, term, cephalic, vaginal *first births* in England tripled from 1.8% in 2000 to 5.9% in 2012 (RCOG, 2015a).

Appropriate recognition and management means that most women recover completely. However, long-term morbidity can include dyspareunia, stress or urge urinary incontinence, flatus and/or faecal incontinence, and occasionally pelvic organ prolapse and vesicovaginal fistula (Priddis *et al*., 2014; RCOG, 2015a). Some women are unable to perform basic parenting tasks in the first few weeks due to the perineal pain and other symptoms.

> *I mean I couldn't even sit properly in the lounge. I couldn't get on the floor and do things with him, like I couldn't sit on the floor and change a nappy. (Poppy)* (Priddis *et al*., 2014)

Many women also report a deep sense of sadness, shame and disgust at this embarrassing injury, feeling they or their body have somehow failed and now they are left broken or devalued: 'just hideous' like 'a baby wearing a nappy'. It may be difficult to discuss urinary or faecal incontinence with family and friends, and they suffer in silence. Some women describe feeling disembodied, socially isolated and suffer more serious long-term mental health issues, particularly if they felt they were not well supported by health professionals during the birth and suturing process (Priddis *et al*., 2014).

Risk factors and management of obstetric anal sphincter injury

Most OASI trauma occurs during spontaneous deliveries with a baby of normal size. Previous studies have shown that antenatal scoring systems based on patient risk factors are not predictive.

However, risk factors for OASI include (Geller *et al*., 2014; Rygh *et al*., 2014; RCOG, 2015a; Webb *et al*., 2017):

- birthweight >4 kg
- Asian ethnicity
- occipitoposterior position
- instrumental delivery – particularly forceps
- shoulder dystocia
- prolonged second stage
- medial and close to medial episiotomies
- short perineal body length <3 cm
- oxytocin augmentation: an independent risk factor for OASI even in spontaneous births of normal-sized infants

The risk factors for sustaining *recurrent* OASI in a subsequent pregnancy include Asian ethnicity, forceps delivery and birthweight >4 kg.

What can be done to mitigate OASI is the subject of much current national focus. Application of a warm compress to the perineum in the second stage has been shown

to significantly reduce the incidence of OASI (Aasheim *et al*., 2011). Many women find this acceptable and comfortable (Dahlen *et al*., 2009, 2015; Aasheim *et al*., 2011), but, despite being effective and easy to do, it is often not routinely offered. A study by Laine (2012) found that 77% of OASI injury occurred in primiparous women having normal deliveries and normal weight infants. This study thus concluded that all women should receive certain interventions, which were found to halve the OASI rate; see Appendix 4.1 for further discussion.

Once identified, OASI should be referred to an experienced obstetrician, who will assess and perform repair in theatre, usually under regional anaesthesia. Failure to diagnose OASI causes much increased long-term morbidity and enormous distress; it is one of the highest causes of medical litigation.

Care following repair includes (RCOG, 2015a):

- broad-spectrum antibiotics
- laxatives or bulk agents (not both)
- physiotherapy.

In addition, women should be:

- informed that 60–80% of women are asymptomatic 12 months following delivery
- encouraged to raise any ongoing problems at a follow-up review 6–12 weeks post-partum.

Episiotomy

Few would deny that episiotomy has its place occasionally, but the problem is deciding when it is appropriate. Some practitioners are particularly enthusiastic about performing it.

- Twenty per cent of women delivering in the UK undergo episiotomy (Thiagmoorthy *et al*., 2014). The instrumental delivery episiotomy rate is 60–95% (RCOG, 2016).
- Episiotomy is heavily driven by professional norms, experiences and training, and individual provider preference rather than evidence or physiological necessity.
- Clinical indications include fetal distress, instrumental delivery (mainly forceps) and rigid perineum (the latter is subjective).
- Evaluating the evidence for episiotomy can be problematic: it relies on studies which vary widely in inclusion criteria, type/timing of episiotomy and method of repair.
- The Royal College of Obstetricians and Gynaecologists (RCOG, 2015a) states that for women with a previous OASI the role of prophylactic episiotomy in subsequent pregnancies is not known, so an episiotomy should only be performed if clinically indicated.
- A Cochrane review stated that evidence does not support routine episiotomy for non-instrumental birth (Jiang *et al*., 2017). It increases the risk of OASI, moderate/severe pain, long-term dyspareunia and urinary incontinence (at least 6 months) when compared with selective episiotomy. Jiang *et al*. conclude: 'selective episiotomy in a normal birth results in that fewer women have OASI. Thus the rationale for conducting routine episiotomies to prevent OASI is not justified by current evidence and we could not identify any benefits of routine episiotomy for the baby or the mother.'

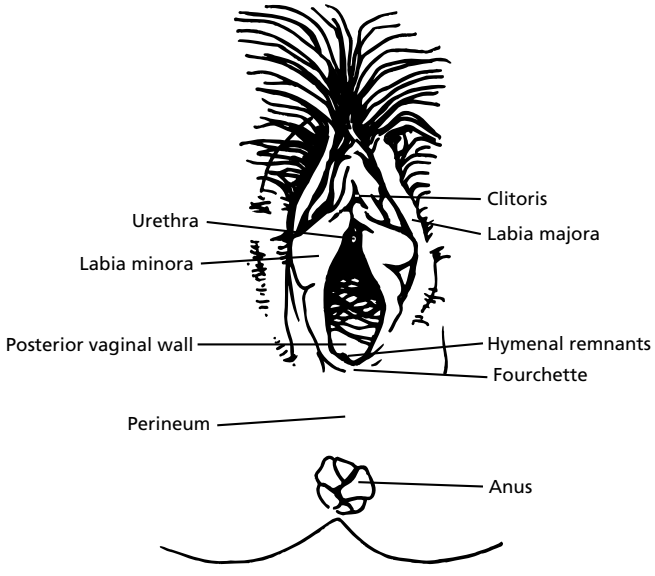

Figure 4.1 Anatomy of the female genitalia.

- The OASI Care Bundle Team (2017) recommends routine episiotomy for all forceps births, and all nulliparous ventouse births, although this has been criticised (see Chapter 10); evidence is unclear and is usually grouped with other factors, including hands-on perineal support.

If episiotomy is undertaken, a wider angle (at least 60°) *may be* protective of OASI (RCOG, 2015a) (Figure 4.1), although further research is required to confirm this (Dahlen *et al*., 2015). Studies suggest that most clinicians do not perform a truly mediolateral episiotomy, as recommended by the RCOG (Wong *et al*., 2014). Angled episiotomy scissors, aimed at achieving an incision angle of 60°, are being enthusiastically adopted in the UK. However, they have been under-researched. One study found they possibly lowered OASI injury (non-significant finding) but caused significantly higher pain for women (El-din *et al*., 2014).

Questions remain: Will introduction of the OASI Care Bundle and angled 60° episiotomy increase the incidence of episiotomy? Is episiotomy an independent protective factor or a risk factor in OASI? What is the true morbidity? What do women think? Walsh (2000) states: 'disregarding women's views and experiences when developing evidence-based clinical guidelines is regarded as not only an injustice to women but an indictment of the professional care ethic'. Dudley *et al*. (2017) present some open and honest women's narratives that have the potential to inform future practice.

Providing care for survivors of childhood sexual abuse

Symptoms exhibited by sexual abuse survivors can be misinterpreted and result in women being labelled as 'difficult patients'. Lack of awareness can result in inappropriate treatment causing further psychological trauma (Aldcroft, 2001). For some women the restriction of the lithotomy position makes them feel they are at the

mercy of an authoritative figure and are submitting to a painful, invasive and sexually threatening procedure. This can leave them feeling violated and powerless and can have far-reaching psychological consequences. For more information see Chapter 2.

Female genital mutilation

Female genital mutilation (FGM) involves partial or total removal of the external female genitalia, or other female genital injury, for cultural or non-medical reasons (Box 4.2). There are no known medical benefits. The World Health Organization (WHO, 2011) estimates that 91.5 million girls/women live with FGM globally. Fortunately, the practice is declining.

> *The practice of FGM exerts an intolerable physical and psychological burden on girls and women and has long term consequences for their reproductive health, including sexual discomfort, chronic pain, infection, infertility, HIV and in some cases death. The psychological effect can range from severe psychological trauma, including flashbacks, anxiety, and depression and in some cases post-traumatic stress disorder.* (RCM, 2012)

Less serious forms of FGM may be comparatively straightforward for birth, particularly if the introitus is sufficiently open to permit vaginal examination and the urethral meatus is visible. However, in the UK 60% of women have type III mutilation, which severely narrows the introitus (Macfarlane and Dorkendoo, 2015); obstructed labour and OASI tears are a serious risk, and episiotomy/deinfibulation may be necessary.

Deinfibulation is incision of scar tissue caused by FGM type III to free the vagina for birth. It may be performed antenatally, in the first stage of labour or at the time of delivery. It is usually performed by a specifically trained midwife or obstetrician under local/regional anaesthetic in a birthing room or perioperatively after caesarean section. In hospitals with FGM expertise 91% women with type III FGM had deinfibulation

Box 4.2 Classification of female genital mutilation (from WHO, 2011).

Type I: partial or total removal of the clitoris and/or the prepuce (clitoridectomy).

Type II: partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora (excision).

Type III: narrowing of the vaginal orifice with creation of a covering seal by cutting and appositioning the labia minora and/or the labia majora, with or without excision of the clitoris (infibulation).

Type IV: all other harmful procedures to the female genitalia for non-medical purposes, for example pricking, piercing, incising, scraping and cauterisation.

RCOG (2015b) states:

- FGM and reinfibulation are illegal in the UK.
- If FGM is confirmed in a girl under 18 years old (either on examination or because the patient or parent says it has been done), reporting to the police is mandatory and this must be within 1 month of confirmation.
- The health professional must understand the difference between recording (documenting FGM in the medical records for data collection) and reporting (making a referral to police and/or social services) and their responsibilities with regards to these.

prior to labour, resulting in similar obstetric outcomes to women without FGM (Varol *et al*., 2016). However, if deinfibulation is deferred until labour the risk of morbidity increases, including significantly greater episiotomy risk and prolonged hospital stay of >2 days (Albert *et al*., 2015).

Health professionals should be sensitive and non-judgemental. Examination or deinfibulation should be carried out in a safe private environment. RCOG (2015b) recommends the use of professional interpreters, not family members, to translate. This is a highly physically and culturally sensitive issue and the woman can feel intensely vulnerable and exposed to physical and moral scrutiny. Offering counselling to women and their partners may help in enabling them to explore and understand the problems caused by FGM. This may also help them make informed decisions about the care they might receive (Balogoun *et al*., 2013).

Reinfibulation, even if requested by the woman, is forbidden by UK law. RCOG (2015b) states:

> *Any repair carried out after birth, whether following spontaneous laceration or deliberate defibulation, should be sufficient to appose raw edges and control bleeding, but must not result in a vaginal opening that makes intercourse difficult or impossible.*

RCOG (2015b) recommends that obstetricians and midwives receive mandatory training on FGM and its management, including the deinfibulation technique. They should complete the programme of FGM e-modules developed by Health Education England (http://www.e-lfh.org.uk/programmes/female-genital-mutilation/). All acute trusts/health boards should have a designated consultant and midwife responsible for the care of women with FGM (RCOG, 2015b).

Suturing procedure

Pain relief

Woman: *Oh …* [high shrill] *… sorry* [using Entonox deeply].
Midwife: *You're OK, you're OK … it's tiredness, it's exhaustion, everything's getting to you … just try and use the gas and air without moving your bum though … OK. So if you could do that for the last stitch that would be great … excellent, well done … Big slow breaths … is that OK?*
Woman: *No but you want to do it … so go on …* [using Entonox deeply].
Midwife: *But if you keep moving your bum I'm not going to be able to …*
Woman: *Sorry I can't …* [crying] *… I'm sorry* [using Entonox].

(Briscoe *et al*., 2015)

Studies on the experience of women undergoing perineal repair make for uncomfortable reading: many experience high levels of pain during suturing (Salmon, 1999; Saunders *et al*., 2002) and current approaches to pain relief for suturing are inadequate. Saunders *et al*. (2002) found that 17% of women reported 'distressing', 'horrible' or 'excruciating' pain. Several studies suggest that local anaesthetic is *inadequate* for >50% of women undergoing perineal repair (Kindberg, 2008). One study demonstrated variation in practice around how health professionals ignored or responded to and managed women's pain (Briscoe *et al*., 2015).

Secondary to poor pain management is the issue of substandard communication; frequently, the woman's distress is treated as inconsequential (Kindberg, 2008). The ability of the clinician to exhibit sensitivity and gentleness was important to women and created a feeling of being looked after (Briscoe *et al*., 2015).

Salmon (1999) identified three elements that were particularly important in shaping women's experience of perineal repair:

(1) **Gender of the practitioner:** women continue to raise the issue of gender in studies on perineal issues. Suturing involves the private, sexual parts of a woman's body; it is sexually invasive and potentially threatening.
(2) **Good quality pain relief throughout suturing:**
    - Current local anaesthetic dosages and route of administration may be inadequate (Kindberg, 2008).
    - Topical, local anaesthetic cream (EMLA) applied an hour before injectable local anaesthetic results in lower pain scores in women compared with injectable anaesthetic: 83.8% versus 53.3% in one small study (Franchi *et al*., 2009). These interesting results combining topical and injectable local anaesthetic raise issues around maximum dosage as lidocaine has the potential for toxicity.
    - Epidural anaesthesia (if *in situ*) should be continued for suturing, as this offers superior pain relief during suturing compared with local anaesthetic (Saunders *et al*., 2002; NICE, 2014).
(3) **Practitioner's attitude:** pain control and the relationship between the woman and the suturer are intertwined. *Communication* and *sensitivity* are important components of effective analgesia.

> *The midwives and the obstetricians they were just brilliant. They really were good. Just to have that midwifery support and the gas and air! [laughs] and that's it. As long as you have that I was fine during the actual stitching.* (Briscoe et al., 2015)

Optimising the effect of local anaesthetic

The duration of action of a local anaesthetic is related to the time it is in contact with nervous tissue. Anything that prolongs contact time increases its effectiveness. The golden rule if giving local anaesthetic is: *really wait for it to work!* So why not get into the habit of giving it first, then going to grab a coffee?

Local anaesthetic is absorbed readily into the systemic circulation after administration, affecting peripheral nerves. It can therefore have side effects. See Table 4.1.

Suturing materials

The suture material of choice is rapid-absorption polyglactin 910 (Vicryl™); a good second choice is polyglycolic acid. These synthetic sutures are associated with less perineal pain, analgesic use, dehiscence and resuturing (but increased suture removal) when compared with catgut (Kettle *et al*., 2010). Catgut has been withdrawn in the UK since 2002.

Table 4.1 Lidocaine (lignocaine).

Action	Local anaesthetic
Dosage	5–20 ml, depending on concentration and effectiveness **Maximum dose 200 mg** 0.5% (5 mg/ml) 1% (10 mg/ml) 2% (20 mg/ml)
Route	Tissue infiltration by injection
Contraindications	Cardiac problems including bradycardia, sinoatrial disorders and complete heart block
Side-effects	Dizziness, paraesthesia, drowsiness, hypovolaemia, hypotension, bradycardia, rarely anaphylaxis, respiratory depression, convulsions; may lead to cardiac arrest (JFC, 2017)
Cautions	Epilepsy, hepatic or respiratory or cardiac impairment, bradycardia
Reducing pain when injecting local anaesthetics	○ Ideally apply topical anaesthetic an hour before suturing (e.g. EMLA cream) ○ **Warm** the lidocaine: then injection is less painful. You can use your pocket or hand ○ **Location.** Drizzle a little over the wound before actually injecting: this is less painful than piercing the tough, nerve-rich skin ○ **Inject *slowly:*** this is less painful ○ **Aspirate:** pulling back the plunger of the syringe before injecting allows you to check that you are not in a blood vessel and is standard practice ○ Always aspirate every time you move/relocate the needle
Local anaesthetic toxicity Talk to the woman and ask her how she feels while you are injecting: look out for **confusion, dizziness**, and **abnormal taste**. **The most common cause of local anaesthetic toxicity is inadvertent intravenous injection.** Also a very vascular site can cause rapid absorption and maternal collapse. In toxicity get help and think **ABCD** (airway, breathing, circulation, drugs).	

Suturing techniques

Suturing is an aseptic technique. See Figure 4.2 (right-handed individuals) or Figure 4.3 (left-handed individuals) for the basic sequence of inserting a stitch and tying a knot for right-handed individuals.

The tear may involve different layers (Box 4.1), so will influence the suturing technique:

- **Muscle layer.** Current evidence supports a loose, continuous, non-locking technique for vaginal tissue and perineal muscle. Subsequent stitch tightness and tension from reactionary oedema are transferred more evenly throughout the whole length of the single knotless suture, which appears to reduce short-term pain and subsequent suture removal for tightness and discomfort (Kettle *et al.*, 2012) See also 'Perineal suturing procedure'.
- **Skin layer.** Subcuticular continuous suturing, just underneath the skin, is less painful than interrupted sutures (Kettle *et al.*, 2012). All midwives should learn and use this simple technique as it reduces postnatal pain and constitutes best practice.

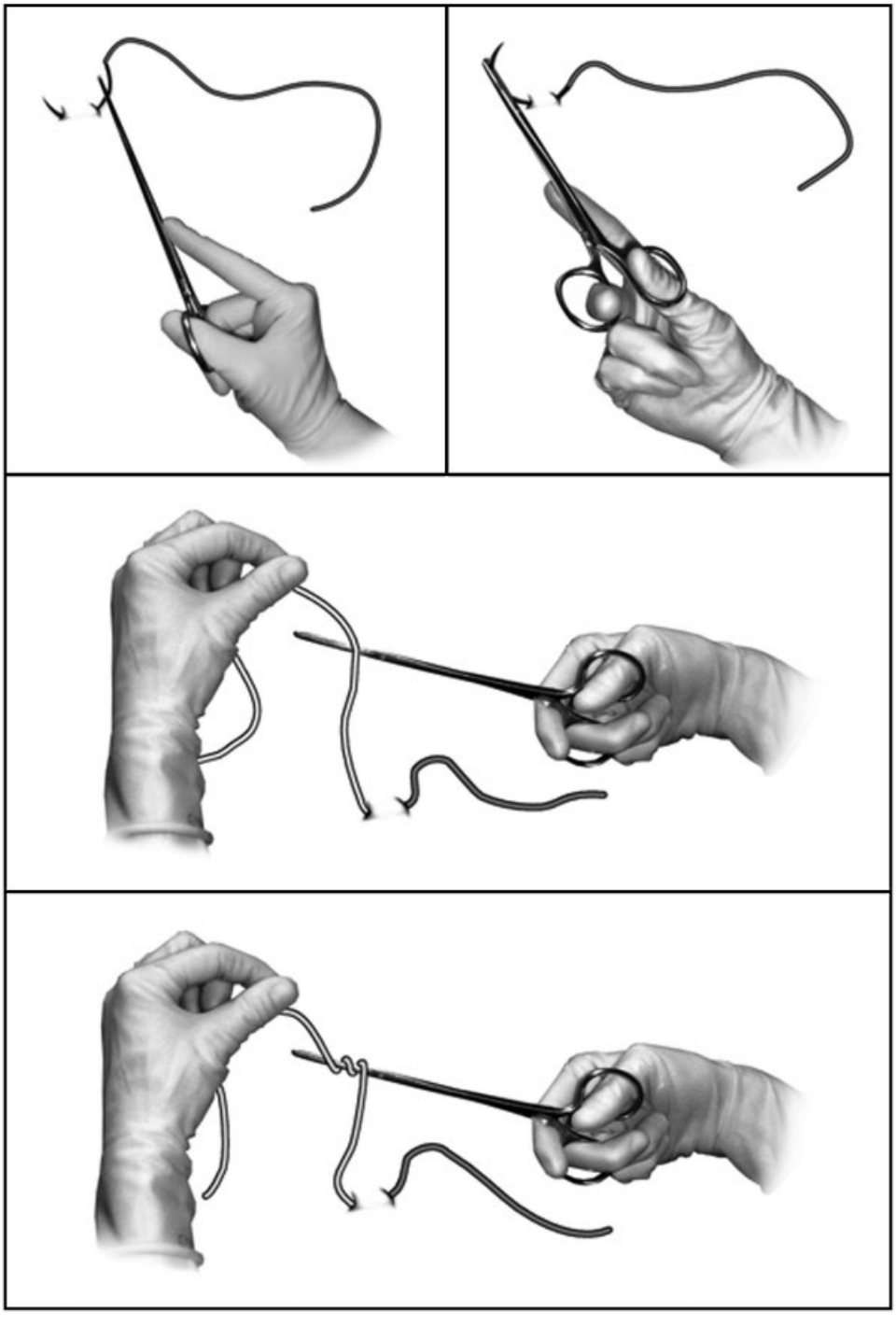

Figure 4.2 Right-handed suturing. Knots can be hand-tied if preferred.
Artwork by Vicky Chapman.

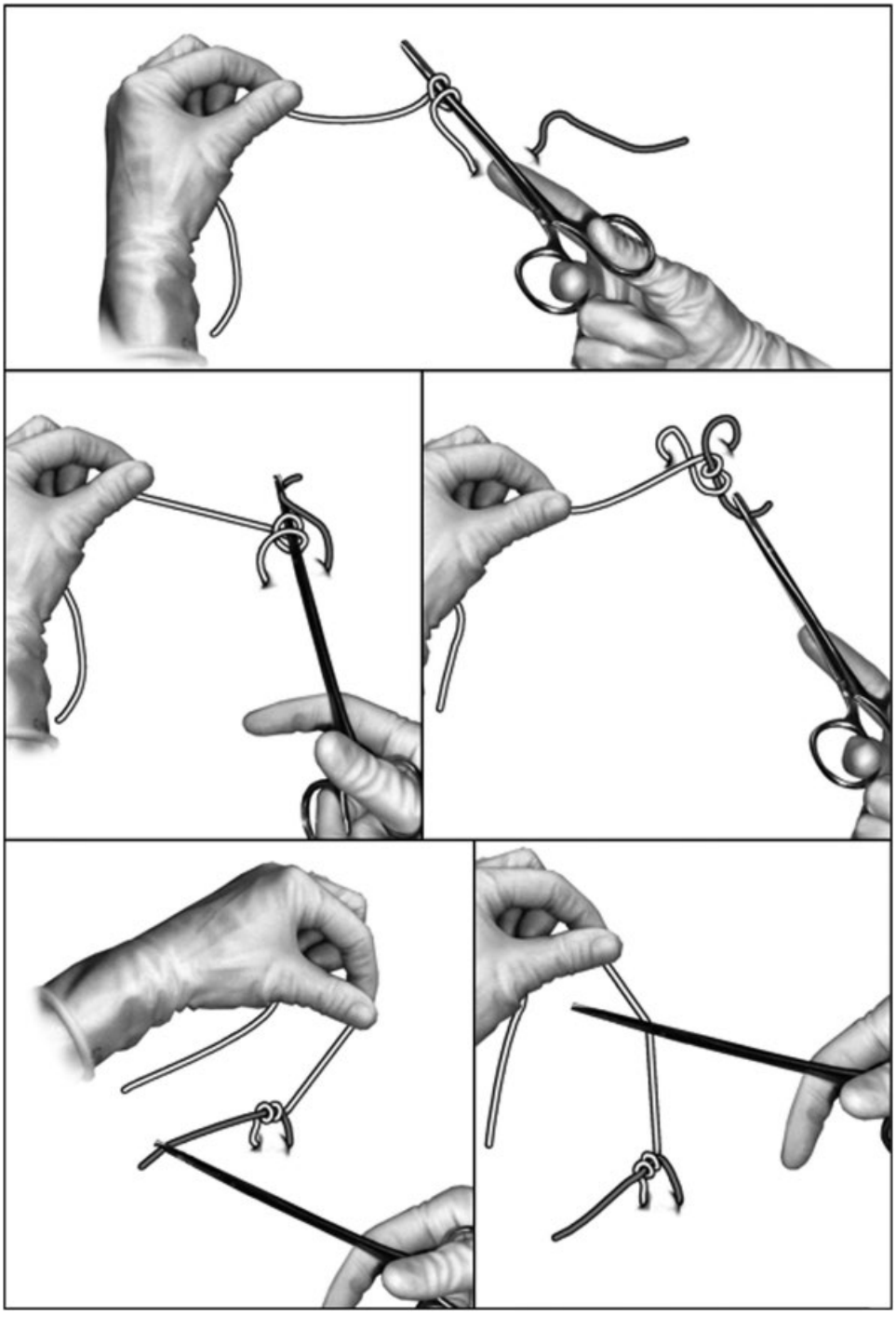

Figure 4.2 continued Right-handed suturing. Knots can be hand-tied if preferred.
Artwork by Vicky Chapman.

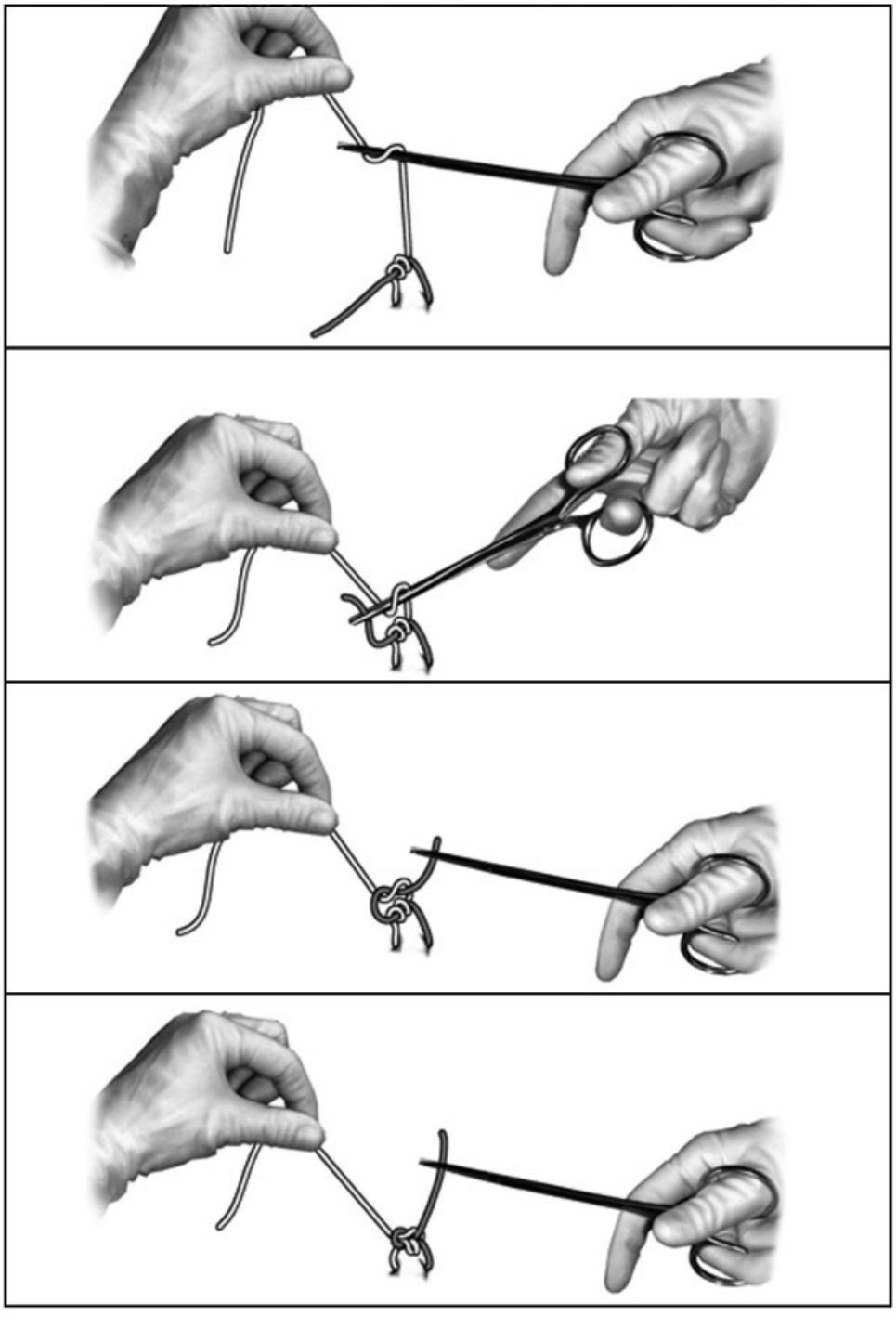

Figure 4.2 continued Right-handed suturing. Knots can be hand-tied if preferred.
Artwork by Vicky Chapman.

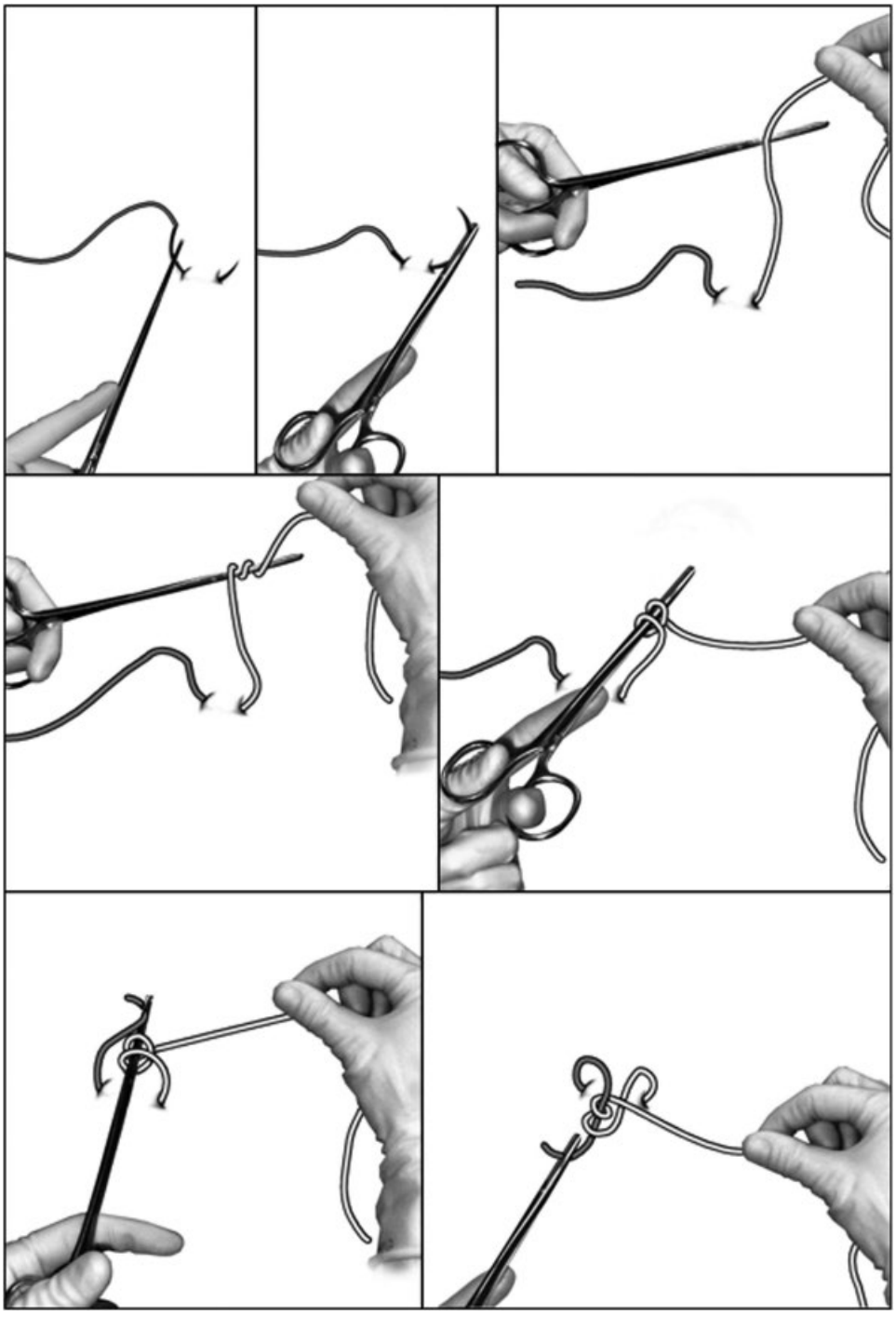

Figure 4.3 Left-handed suturing. Knots can be hand-tied if preferred.
Artwork by Vicky Chapman.

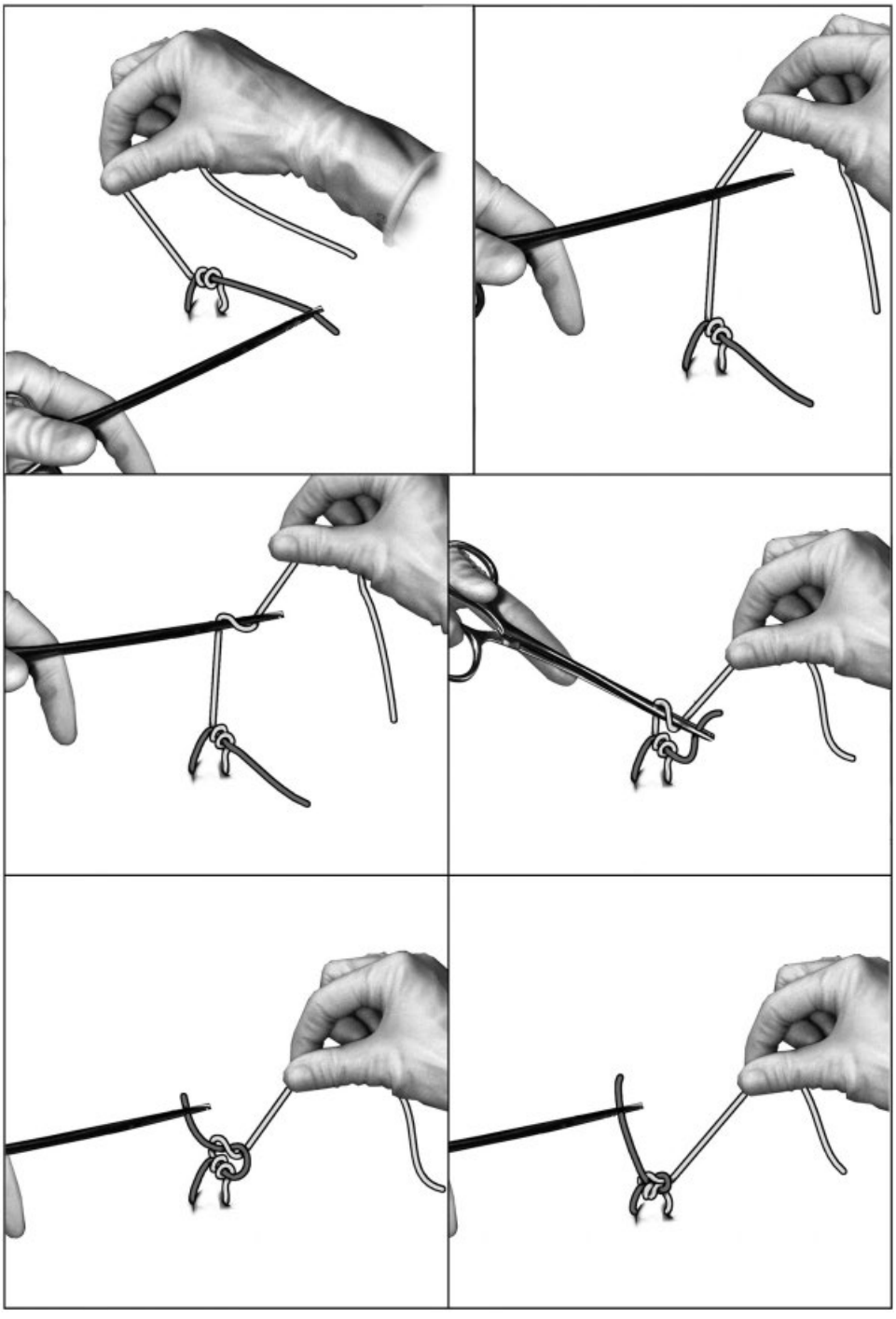

Figure 4.3 continued Left-handed suturing. Knots can be hand-tied if preferred.
Artwork by Vicky Chapman.

- **Skin layer unsutured.** Studies have evaluated suturing only the vagina and perineal muscle layers, leaving the skin unsutured. NICE (2014) suggests this is appropriate for second-degree trauma if the skin sits well apposed. There is a slightly increased incidence of wound gape up to 10 days postpartum, but a significant reduction in adverse outcomes (e.g. pain) compared with interrupted skin sutures. It is also cost-effective in using less suture material (Kettle *et al*., 2012).

Left-handed suturing

Twelve per cent of the population are left-handed. Left-handed surgeons report difficulties in handling and using instruments designed for right-handed use: one-third felt more prone to needlestick injury, among other hazards (Adusumilli *et al*., 2004). Needlestick injury risk is 1.6 times greater for left-handed than for right-handed healthcare workers (Naghavi and Sanati, 2009). Left-handers should *double glove* to protect against injury when training (especially if having to learn using right-handed instruments).

Needlestick injuries may be more likely because operating and releasing right-handed ratcheted instruments can be awkward within the restricted space of the vagina. Needle-holders are designed to be secured and released easily by the action of the thumb and forefinger of the right hand. However, this action is reversed when used by a left-hander so the ratchet locks tighter rather than releasing; some counter-force is required to open the teeth. This makes releasing needle-holders clumsy and uncomfortable, risking needlestick injury.

For left-handers who struggle, or are learning to suture, practising left-handed suturing techniques under the guidance of a left-handed suturer is likely to improve their technique and speed and reduce injury. Practitioners should not struggle to use right-handed techniques, just as they would not attempt skills requiring fine motor control, like writing, with a weaker non-dominant hand (Chapman, 2009). See Figure 4.3 for suturing the left-handed way.

Left-handers should raise the issue of left-handed instruments for suturing under risk management and health and safety protocols.

Suturing at home

Midwives must be resourceful! A good fixed light source is essential. Ensure the woman can lie comfortably with her bottom on the edge of a firm bed with the midwife positioned kneeling on the floor or sitting on a low stool. The woman may find it most comfortable to rest her legs on separate chairs or she can abduct them herself, but this is comfortable usually for only a short time. If both woman and midwife are on the floor it is very hard on the midwife's back and visualising/accessing the perineum can be awkward. Serious/complex tears may require transfer to hospital.

Perineal suturing procedure

> *When was the last time a woman thanked you for stitching with Vicryl Rapide or for using a subcuticular method instead of another repair technique?* (Walsh, 2007)

Research around perineal care and repair reflects medical priorities. As Walsh highlights, most clinical trials have concentrated on outcomes that are important to professionals

and have, on the whole, ignored women's experiences. Women are more interested in the *sensitivity of staff*, *receiving adequate pain relief* and whether *suturing* is an intervention than *can be avoided* if necessary.

Following discussion, explanations, reassurance and informed consent, prepare everything ready for suturing, including a fixed light source and post-suturing analgesia.

Before starting the repair address the following questions:

- Is the woman as comfortable as possible?
- Does she understand what has to be done and how long it will take?
- Can I see what has to be done?
- Can I do it?

An overview of the perineum is shown in Figure 4.1.

Placing the woman's legs in the lithotomy position may not be necessary. A particularly nervous woman may feel more in control with her legs resting apart so she can close them if something hurts or distresses her. The midwife's patience and sensitivity will help her through this ordeal. Whatever the position, the midwife must feel confident that s/he can see and access the tear properly.

Women described feeling vulnerable, uncomfortable and exposed both physically and emotionally during suturing. Many clearly recall the facial expressions, actions and words used by the health professionals who attended them (Priddis *et al*., 2014).

Ensure the woman is comfortable, normally skin to skin with her baby. Many women are unsure of this, fearing the pain may make them jump. In reality, their baby is a positive distraction from pain.

Even optimum analgesia will not eradicate all sensations. Women often find the sensations of pressure, tugging, wiping and tampon insertion unpleasant, uncomfortable and sometimes distressing: *something many clinicians fail to recognise*. Prepare the woman verbally prior to each occurrence and also offer *adequate* Entonox (at least six breaths).

- Extend the sterile field by placing a sterile sheet under the woman's buttocks.
- Warn the woman before touching, wiping or injecting anything. As you earn her confidence, she will begin to trust you, relax and stop anticipating pain.
- Infiltration of local anaesthetic more than 15 minutes before suturing will give a better block. Initially clean only enough of the perineum to inject the local anaesthetic, otherwise this will burn and sting: not a good start … .
- Infiltrate local anaesthetic (offer Entonox): drizzle over the wound first, and avoid injecting through the sensitive skin; instead, go through the wound.
- Prepare the instruments and count the swabs. Best practice is to confirm with a second person.
- Clean the area more thoroughly if required.
- Insert a tampon. This keeps the area blood-free and visually clear. Warn the woman this is very uncomfortable; she may wish to use Entonox again. Secure the tampon string to drapes (if used) or the sheet covering the woman (the end of the string does not need to be sterile).
- Move the tear 'back together' to realign and visualise significant meeting points; ensure there is no anal involvement.
- Locate the apex in the vagina; secure the first stitch just above it.
- Using a continuous suture technique, bring the muscle layers together (Figure 4.4a–c).

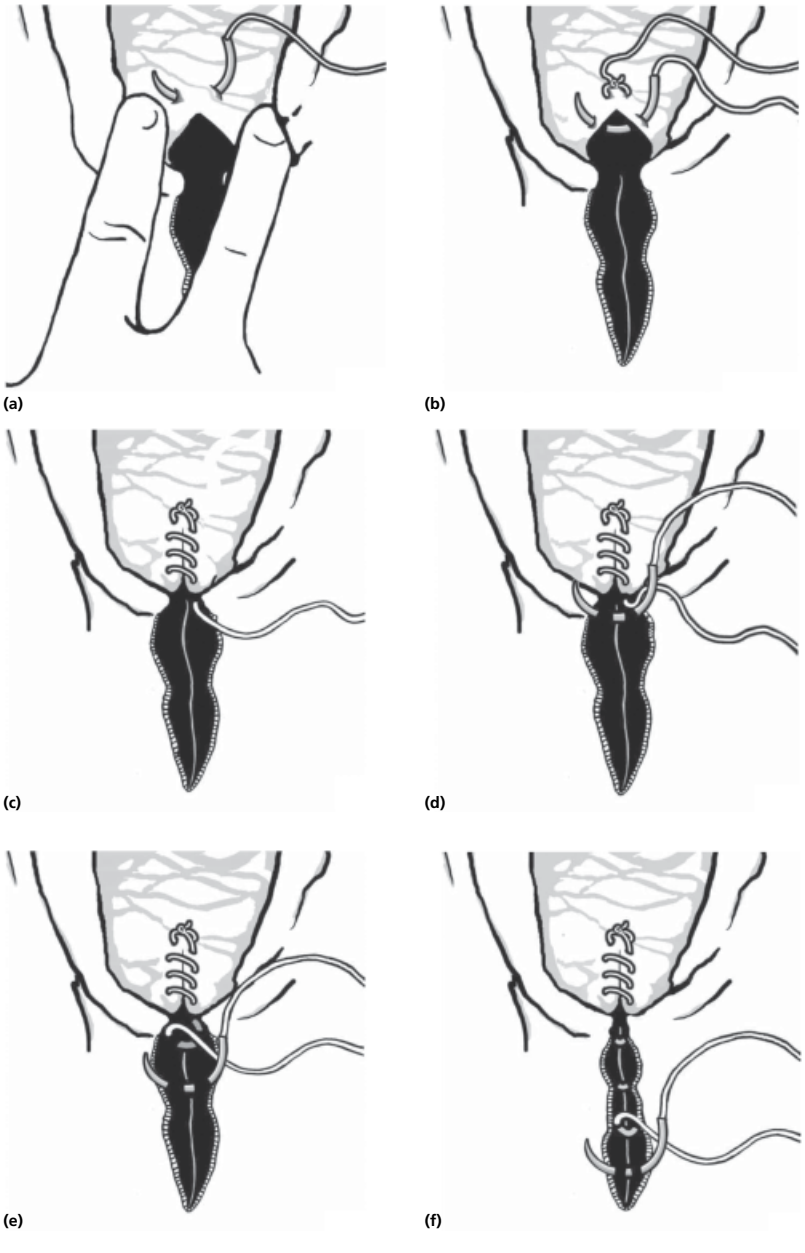

Figure 4.4 Suturing a second-degree tear.
Place the first stitch above the apex of the vaginal trauma, in order to secure any deeper bleeding points (a, b). Place the loose, continuous sutures from the apex along the tear. Do not use a locking or blanket stitch, or pull sutures too tight (c). The perineum stitches are placed loosely and deeply in the subcuticular tissue (d–g). Place subcuticular, continuous sutures just under the skin (avoid placing any sutures in the fourchette) (h–k). Finish with the thread in the vagina, where a knot is tied (l).

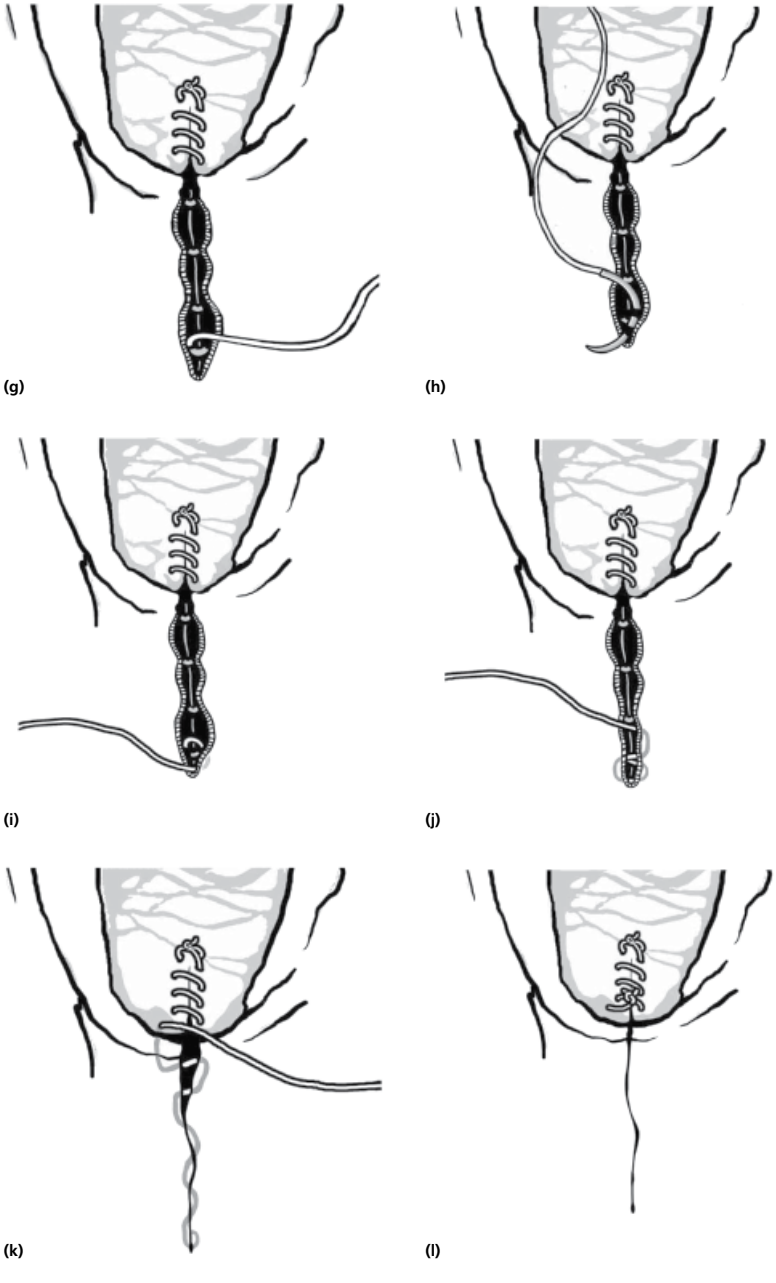

Figure 4.4 continued Suturing a second-degree tear.

- If the woman reports inadequate pain relief at any point, *address this immediately* (NICE, 2014).
- Avoid placing sutures in the fourchette skin as this can result in an unyielding scar, which forms an 'introital bridge' at the fourchette. This stretches during intercourse, causing pain; a Fenton's perineorrhaphy is sometimes required to cure it.
- If a stitch appears misplaced then, unfortunately, the needle needs to be cut free to allow unpicking, then a knot tied. Recommence a new set of continuous sutures from the point left off.
- **For the skin:** if the edges are apposed after suturing the muscle layer, the skin can be left unsutured (NICE, 2014). If sutures are required, use a subcuticular continuous suturing technique (Figure 4.4d–h). Do not insert interrupted stitches.
- Visually inspect the stitches and alignment.
- Inform the woman and gain consent before checking her rectum. Gently insert a lubricated finger, fleshy side up and slowly withdraw it, checking the anus visually as well as feeling for any stitches that may have gone through, for 'buttonholes' or a tear.
- Prepare the woman for the uncomfortable removal of the tampon.
- If the woman wishes (providing no contraindications), administer diclofenac 100 mg rectally post-suturing (NICE, 2014). This reduces additional analgesia use and perineal pain for around 24 hours, even up to 48 hours (Parsons and Crowther, 2007).
- Place a sanitary pad over the perineum and assist her back into a comfortable position.
- Count up and account for needles, swabs, tampon and instruments. Confirm with a second person, and record in the notes.

Document findings accurately and comprehensively in black ink, including a diagram to illustrate the trauma, anaesthetic used, suture material and repair technique (e.g. 'continuous, loose, non-locking sutures in vagina and perineal muscle; subcuticular to skin'). Document anything unusual, e.g. difficulty controlling bleeding, tying off a bleeding vessel, a branch tear, graze, skin flap or awkwardly shaped tear.

Midwives may like to access the online MaternityPEARLS training tool (Health Foundation, 2013). Access is free for Royal College of Midwives (RCM) members, and many trusts have purchased it for in-house training.

Some general information can be shared with the woman during or after suturing:

- Suggest to the woman she tries to pass urine following suturing; it may be less painful as the local anaesthetic may still be effective. The timing and volume of the first void should be monitored and documented (NICE, 2014). This recommendation is unfortunate for those women who find relief passing urine in a warm bath.
- Discuss taking *regular* oral analgesia and different breastfeeding positions for comfort. Advise regular showers; soaking in warm water (no bath products) is especially beneficial, as is the use of a cool pack for 20 minute intervals (de Souza Bosco Paiva *et al*., 2016) and a bottle of lukewarm water to spritz/pour over when needing to pass urine.
- Avoid walking far, standing or lifting; even doing chores or picking up toddlers can be painful.

- The reported incidence of knot migration is 7%, which can be reduced by trimming the ends or burying the knots in the perineal muscle (RCOG, 2015a). Warn the woman that these can cause irritation, or appear on her pad or as she wipes herself; sometimes many months later. A word of warning can pre-empt anxiety!
- Most women do not have their bowels opened until day 3 postpartum; discuss this and explain to the woman that she will not 'come undone'. Advise about hygiene and washing, wiping gently from front to back, supporting the perineum with a pad when opening the bowels.
- Around 20% of childbearing women experience urinary incontinence. Layton (2004) suggests that midwives may give women insufficient information about this unpleasant and socially embarrassing problem. Suturing can be an opportunity for midwives to communicate to women the importance of regular pelvic floor exercises, explaining that these can be effective in preventing urinary incontinence (Boyle *et al*., 2012) and are particularly recommended following OASI injuries (RCOG, 2015a).
- It may be appropriate to discuss first sexual intercourse after the baby. Suggest the couple both feel relaxed and aroused enough before having full intercourse and consider using lubricating jelly.
- Midwives caring for women in the postnatal period should ask appropriate questions and review the wound to ensure adequate healing. Medical advice (GP or obstetrician) may be necessary for concerns about dehiscence or infection.
- Written information can be very helpful (e.g. http://www.royalsurrey.nhs.uk/wp-content/uploads/2017/03/PIN216_Perineum_w.pdf). This is an excellent example of good practical information, including advice on how to carry out antenatal perineal massage and postnatal care of stitches.

Recommended reading

Dahlen, H., Priddis, H., Thornton C. (2015) OASI is rising, but let us not overreact. *Midwifery* 31, 1–8.

Salmon, D. (1999) A feminist analysis of women's experiences of perineal trauma in the immediate post-delivery period. *Midwifery* 15(4), 247–56. A humbling, insightful and essential read.

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Appendix 4.1: Obstetric Anal Sphincter Injury (OASI) Care Bundle Project

In 2012 a Scandinavian retrospective cohort study (not a randomised controlled trial) compared OASI incidence before and after implementation of a 'perineal protection programme' (Laine *et al*., 2012). The OASI incidence dropped from 4% to 1.9%. The protocol (Box 4.3) includes a package of care, including low-intervention advice on slow head delivery, but also hands-on 'manual perineal protection' (MPP), and selective 60° angle episiotomy. Enthusiastic support for these interventions has spread to other countries. In the UK, the RCOG and RCM have developed a care bundle for the prevention of OASI that is being piloted across 16 UK sites, presented as an evidence-based group of interventions that will reduce OASI. There is no randomisation or control group: it is being offered to all women who deliver vaginally.

Many researchers are concerned that this care package relies on questionable correlation evidence and may be focusing on the wrong interventions (Dalen *et al*., 2015; Poulsen *et al*., 2015). Of serious concern is that the project is not being evaluated objectively as part of a randomised controlled trial. It is impossible to dissect elements of the package individually and there are concerns about the effects of these interventions in normal birth and other unintended increased maternal morbidity. Poulsen *et al*. (2015) state that while a reduction in OASI is attributed to the Scandinavian intervention in seven observational studies, they all had a low level of evidence.

Box 4.3 Obstetric Anal Sphincter Injury (OASI) Care Bundle

There are four basic elements:

(1) Discuss and record in the woman's birth plan that she is aware of the OASI care bundle.

(2) Episiotomy is 60°, right-sided mediolateral, at crowning, for:
- fetal distress
- delayed second stage of labour
- suspected imminent severe perineal tear (feel digitally for remaining space/stretch), e.g. where the perineal blood flow is significantly reduced or if 'button-holing' is occurring in the second stage
- all instrumental deliveries (unless multigravida ventouse after careful consideration).

(3) Documented use of manual perineal protection:
- for spontaneous births unless the woman objects or her chosen birth position does not allow manual perineal protection (MPP)
- for assisted births, MPP should be used.

(4) Following delivery, examine the perineum and perform a rectal check even when the perineum appears intact; document in the case notes.

Manual perineal protection
- At crowning, place one hand on the baby's head to slow its delivery.
- Support the perineum with the other hand and squeeze with fingers (thumb and forefinger) from the sides of the perineum towards the middle in order to lower the pressure in the central perineum. (Imagine closing a book with one hand.) The other fingers should be curled and pressing against the central perineum.
- Encourage slow, controlled breathing and do not allow the head to 'pop out'.
- Support the baby following the curve of Carus, until the shoulders have delivered.

The two elements that cause greatest concern to midwives are **manual perineal protection** and **episiotomy**

> *Knowledge about the potential perinatal and maternal side effects and women's perceptions of the intervention is extremely limited and the biological mechanisms underlying the Finnish intervention are not well documented. Studies with a high level of evidence are needed to assess the effects of the intervention before implementation in clinical settings can be recommended.* (Poulsen *et al*., 2015)

Manual perineal protection

While some midwives are in favour of MPP and practise it readily, or use it selectively, it has never before been presented formally to women as an evidence-based intervention that will reduce their likelihood of an OASI injury. UK trusts implementing the OASI Care Bundle are giving verbal and written information to women at their birth plan discussion, informing them that while they may still choose the position of their choice, including waterbirth, MPP is advised for any dry land birth if possible, as it is protective of OASI. This will undoubtedly lead some women to doubt the advisability of waterbirth or any other hands-off scenario (Cooper, 2016).

Of further concern is the mixed message being transmitted to staff, i.e. offer choice but then undermine it. 'During a spontaneous birth, the woman should have the opportunity to choose a birthing position which she finds most comfortable. If this position restricts visualisation of the perineum, and therefore the ability for the clinician to use MPP, then the clinician should communicate to the woman that they may not be able to visualise and protect their perineum, thereby it may increase her risk of sustaining an OASI' (OASI Care Bundle Project advice to staff).

This sounds coercive. It may distress a woman at a very intense time, and also damage the relationship between the midwife and the woman. It may be compounded by staff who are not enthusiastic fans of waterbirth: 'Well you *can* have a waterbirth, but of course we won't be able to protect your perineum … .'

Some of the OASI Care Bundle advice is probably sound, e.g. slow head delivery, encouraging the woman to use slow, controlled breathing, and supporting the baby's weight until the shoulders have delivered. However, how much impact techniques such as perineal 'pinching' or 'guarding' actually have on perineal integrity, when the pressures of the advancing head are internal and not external, is hotly debated. It may also be painful for women; worth the pain if it works, but does it work?

Meta-analysis of research data on 'hands-on' versus 'hands-off' consistently fails to demonstrate clear benefits of MPP (Bulchandani *et al*., 2015). A Cochrane review finds that keeping 'hands-off' the perineum appears to reduce the risk of episiotomy while making no difference to OASI (Aasheim *et al*., 2011).

> *Current evidence is insufficient to drive change in practice. An adequately powered randomised trial with an efficient design to evaluate the complex interventions adopted as part of manual perineal support policies, ensuring controlled childbirth, is urgently needed.* (Bulchandani *et al*., 2015)

Poulsen *et al*. (2015) state that further research should examine factors such as episiotomy, the duration of the second stage of labour and birth position as confounders or competing risk factors for OASI when evaluating the effect of the OASI Care Bundle.

It is also sad that so much attention is focused voyeuristically and aggressively on the perineum at the point of birth, without even considering why 'normal birth' managed in an obstetric unit has higher rates of OASI than birth elsewhere (see earlier in

the chapter). Intervention as a probable cause of increased OASI is often not considered in the obstetric discourse around this issue.

Episiotomy

When applying routine invasive interventions to all women, with the intention of preventing OASI in the few, clinicians should be sure that each element does more good than harm.

While the OASI Care Bundle advocates selective, not routine, episiotomy for spontaneous birth, studies implementing its intervention have showed a significant increase in episiotomy. Also the OASI Care Bundle advocates routine episiotomy for all nulliparous instrumental births, and multiparous forceps birth. Many would argue that *routine* episiotomy for ventouse is inappropriate and heavy-handed (see Chapter 10).

> *Although the perineal damage caused by episiotomy is less severe than the damage related to OASIS and therefore preferable, interventions that increase the use of episiotomy should be closely monitored. The pain and discomfort of perineal trauma perceived by women essentialise efforts to minimise not only OASIS but also all traumas to the genital tract.* (Poulsen *et al*., 2015)

Räisänen *et al*. (2012) estimate that 909 lateral episiotomies are needed to avert one OASI. Laine *et al*. (2013) suggest that episiotomies have increased as OASI incidence has dropped, but limited evidence for this causal relationship is presented (Poulsen *et al*., 2015).

More encouragingly, another study implemented MPP successfully, halving OASI with a low episiotomy rate of 8.4%. 'The incidence of OASIS in nulliparous women was modifiable by using a hands-on technique without increasing the rate of episiotomy' (Rasmussen *et al*., 2016).

Conclusion

The OASI Care Bundle may prove to be the way forward for preventing OASI. It may also prove to be a case of the emperor's new clothes. Some of its content, however sensitively presented, is anathema to those midwives who believe in evidence-based care, women's freedom to choose and the belief 'first do no harm'. There are a host of other interventions to reduce the risk of OASI which may be more safe and acceptable to women, including warm compresses, continuous female labour support and birth at home/in a birthing centre (see Chapter 1).

Dahlen *et al*. (2015) also remind us of the Hawthorn or halo effect, where a new intervention apparently improves outcomes when another factor (unaccounted for) is in fact responsible. It may be that, in implementing the OASI Care Bundle, clinicians become more reflective and thoughtful about ways of preventing OASI, but it would be a shame if it takes a prescriptive set of interventions to make them do so.

> *It is important that thoughtful, appropriate and coordinated multidisciplinary action is taken and that this action is based on high level evidence, and most importantly is acceptable to women. Overreacting, or reacting without a full understanding of the problem at hand should never be acceptable in today's enlightened, evidence-based health care environment. Consideration of possible unintended consequences and acceptability to women is most important when making major changes in clinical practice.* (Dahlen et al., 2015)