Risk factors and management of obstetric perineal injury

Ruwan J Fernando

Abstract

Perineal injury sustained during childbirth is a major aetiological factor in the development of perineal pain, sexual dysfunction, prolapse and disturbance in bowel and bladder function. Preferential use of the vacuum extractor, restricting the use of episiotomy, repair of anal sphincter rupture by a trained doctor and selective caesarean section in these women can be beneficial in preventing complications. More focused training of midwives and doctors in perineal and anal sphincter anatomy and repair is needed to minimize the morbidity associated with inadequate repair and missed tears. Future research must address ways to predict and minimize severe perineal injury, and the management of subsequent pregnancies following anal sphincter injury.

Keywords anal sphincter; childbirth; delivery; episiotomy; incontinence; perineum; third degree tears

Introduction

The morbidity associated with perineal injury related to childbirth is a major health problem that affects thousands of women. As many as 91% of women report at least one new persistent symptom 8 weeks after delivery. Over 60% of women suffer perineal injury (either perineal tear or episiotomy) following spontaneous vaginal delivery and approximately 1000 women per day require perineal repair following vaginal birth.

Complications of perineal trauma following childbirth include haemorrhage, haematoma and abscess formation, perineal pain and discomfort, fistula formation, dyspareunia and anal incontinence. In addition, there has been an increase in litigation related to the complications of perineal trauma following childbirth.

Increased awareness of maternal morbidity following vaginal birth has led some women to request elective caesarean delivery despite being without any medical indications for this. However, elective caesarean delivery is associated with a fourfold risk of maternal morbidity compared with vaginal birth. In view of these facts, the modern obstetrician needs focused training to identify and manage women who are at high risk of developing postpartum morbidity and thereby re-establish women's confidence in vaginal delivery.

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Classification of perineal injury

Traditionally, perineal trauma following childbirth has been classified as first-, second- or third-degree tears. However this classification is incomplete and has created considerable confusion. The following descriptive classification (Figure 1) suggested by Sultan has now been incorporated into the Royal College of Obstetricians and Gynaecologists and international guidelines.

1 First-degree tear – involving the perineal or vaginal skin only
2 Second-degree tear – perineal skin and muscles torn, but intact anal sphincter
3 Third-degree tear – perineal skin, muscles and anal sphincter are torn
   a – less than 50% of the external anal sphincter thickness is torn
   b – more than 50% of the external anal sphincter thickness is torn, but internal anal sphincter intact
   c – both external and internal anal sphincters are torn, but anal mucosa intact
4 Fourth-degree tear – perineal skin, muscles, anal sphincter and anal mucosa torn
5 Buttonhole tear – anal sphincter intact but anal mucosa torn

Third- and fourth-degree tears that involve the anal sphincter complex are also termed 'obstetric anal sphincter injury'. Anatomically, an episiotomy involves the same structures as a second-degree perineal tear.

Causes of and risk factors for perineal injury

Greater birthweight

Birthweight of more than 4 kg is associated with maternal perineal injury, especially third- and fourth-degree tears. This may be attributed to the larger head circumference, prolonged labour and difficult delivery, particularly when this is instrumental. A large baby is also likely to disrupt the fascial supports of the pelvic floor and cause stretch injury to the pelvic and pudendal nerves. Even after safe delivery of the head, shoulder dystocia is associated with perineal and anal sphincter trauma.

Malposition and malpresentation

Malposition, particularly the persistent occipitoposterior position, leads to a larger presenting diameter and is associated with difficult delivery. Face and brow presentations are known risk factors for anal sphincter injury. Breech deliveries do not appear to increase the risk, but this may be attributed to stringent selection criteria and a low threshold for caesarean section during labour.

Duration of labour and rate of delivery

Precipitate labour is associated with cervical, perineal, labial and urethral injury due to the lack of time available for the maternal tissues to adjust to the forces of delivery and for controlled delivery with an episiotomy if necessary. Furthermore, delivery following precipitate labour is more likely to occur under less favourable circumstances such as during transit to hospital, in a standing position and often without experienced assistance. There is evidence to suggest that a prolonged active second stage of labour causes pudendal nerve damage. There is evidence that perineal damage may occur in the first stage of labour. Caesarean

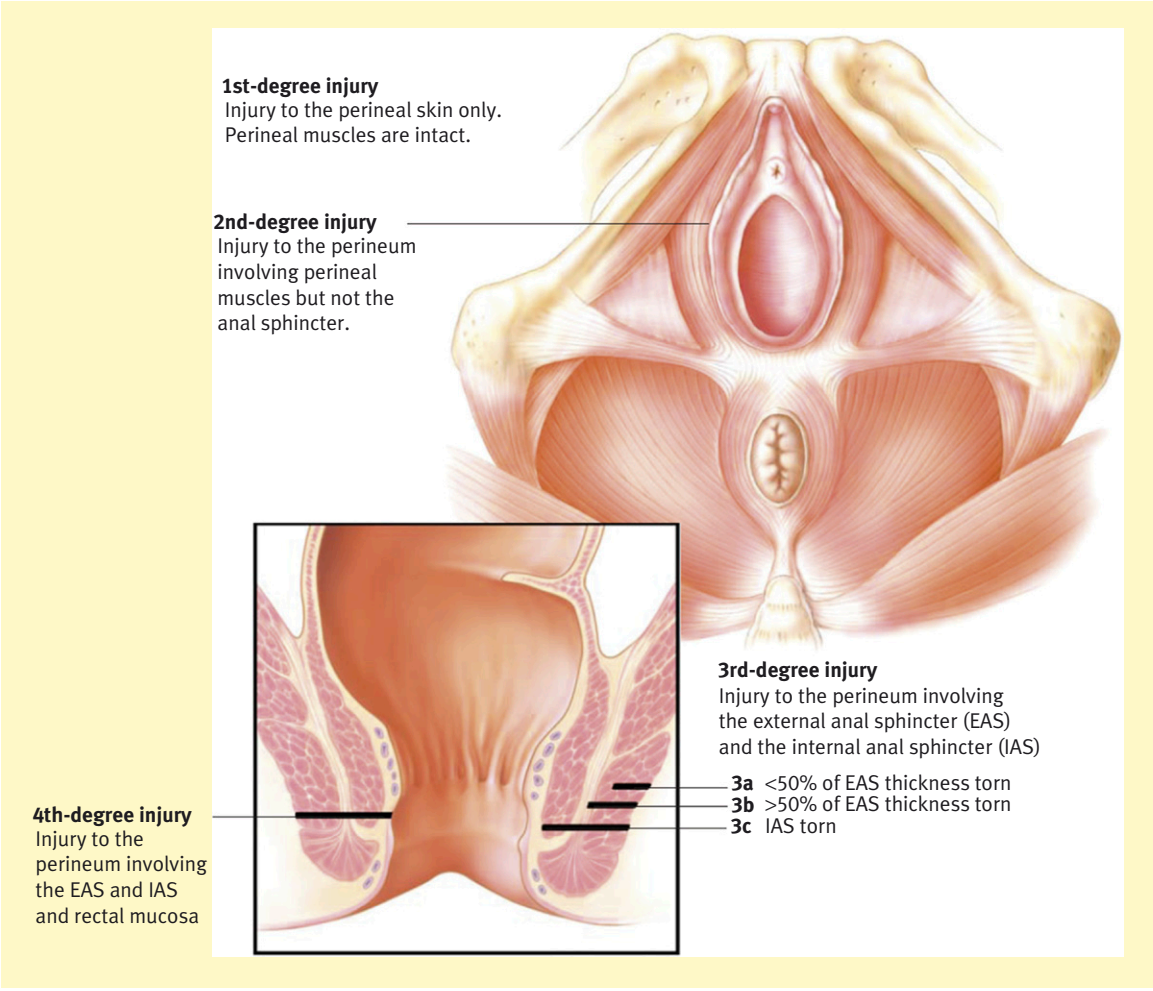

Figure 1 Classification of obstetric anal sphincter injury.

section performed after the onset of labour, resulting in cervical dilatation of more than 8 cm, may be associated with pudendal nerve damage. It has been suggested that the passive second stage of labour should be accelerated with oxytocics particularly in women who have an epidural, rather than resorting to instrumental delivery, which can cause more trauma.

Episiotomy

Episiotomy is defined as surgical excision of the perineum to facilitate delivery. Although episiotomy is the commonest operation performed in obstetrics, there is little evidence to demonstrate any benefit with its routine use. Randomized studies have shown that median episiotomy is more likely to extend into the anal sphincter than mediolateral episiotomy (12% vs 2%). The Cochrane database shows that restriction of the use of episiotomy is associated with less posterior trauma. Although anterior perineal trauma was increased it had no effect on the development of urinary incontinence. It has been suggested that the ideal episiotomy rate should be no more than 20–30%.

Instrumental delivery

Instrumental delivery is an integral part of obstetrics, and though it reduces the caesarean section rate, maternal morbidity is higher than that following unassisted delivery. The injuries caused by instrumental delivery include both cervical laceration and anal sphincter injury. Although it is well recognized that forceps delivery has a higher maternal injury rate than vacuum extraction, it is important for the operator to be versatile with the use of both instruments. Certain circumstances preclude the use of the vacuum extractor; these include prematurity, face presentation, potential fetal bleeding tendency, delivery of the aftercoming head at breech presentation, lift out at caesarean section and equipment failure. Forceps delivery is likely to cause injury as the instrument occupies almost 10% more space in the pelvis. The shanks of the forceps stretch the perineum and can cause injury, particularly to the anal sphincter when pulling in the posterolateral direction to encourage flexion of the head. Unlike the vacuum extractor, which can become detached, the forceps does not have such a fail-safe mechanism and therefore excessive force can be applied, particularly under epidural anaesthesia.

As mentioned above, the benefits of episiotomy during spontaneous delivery have been questioned, and while an episiotomy is not absolutely necessary with the vacuum extractor, it is invariably performed with the forceps. Interestingly, one study has reported that a reduction in the episiotomy rate from about 90% to 30% during instrumental delivery (n = 2041) was associated with a reduction in the rate of fourth-degree tears and no significant change in the third-degree tear rate. Metal cups appear to be more suitable for occipitoposterior, transverse and difficult occipitoanterior position deliveries, while soft cups seem to be