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Diagnosis of Perineal Trauma

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2.1 Prevalence

More than 85% of women sustain some form of perineal trauma during vaginal delivery in the UK.¹ However, the prevalence is dependent on variations in obstetric practice, including rates of episiotomy, which vary not only between countries but also between individual practitioners within hospitals. In the Netherlands, the rate of episiotomy is 8% compared to 14% in England, 50% in the USA and 99% in East European countries.²⁻⁴ Episiotomy rates also vary between hospitals in the same country: for example, in the USA the rates varied between 20% and 70% in individual units.⁵

2.2 Classification

Previous classifications of perineal trauma particularly in the UK have been inconsistent. Sultan and Thakar systematically reviewed all relevant obstetric text books in the library of The Royal College of Obstetricians & Gynaecologists (RCOG) and found that 17% did not mention any classification, while 22% classified anal sphincter injury as “second degree”.⁶

Fernando et al.⁷ surveyed 672 consultants in active obstetric practice and found that 33% classified a complete or partial external sphincter tear as “second degree”. There was up to a tenfold regional variation in the “misclassification” and a distinct increasing trend towards the northern parts of the UK whereby a complete external

anal sphincter tear was considered to be a second degree tear. This may reflect the teachings of Professor Ian Donald⁸ from Glasgow, who defined a third degree tear as one in which both the anal sphincter and anal mucosa were torn.

In order to standardise the classification of perineal trauma, Sultan⁹ proposed the classification shown in Figure 2.1, which has been adopted by the RCOG¹⁰ and also internationally.¹¹ The classification is depicted in a schematic representation of the anal sphincter complex (Figure 2.2). The intact anal sphincter appears as a circular band of muscle (Figure 2.3a) that can be demonstrated by insertion of a finger in the anal canal (Figure 2.3b).

Isolated tears of the anal epithelium (button-hole) and vagina but without involvement of the anal sphincters are rare¹² (Figure 2.4). In order to avoid confusion, such tears are not included in the above classification.

It is also possible to sustain a full-thickness third degree tear that only involves part of the length of the anal sphincter (Figure 2.5). In such circumstances or situations when the clinician is doubtful, the higher classification should be selected. For example, if there is uncertainty between a 3a and 3b tear, the tear should be classified as 3b.

Some refer to first and second degree tears as minor perineal trauma as opposed to major perineal trauma for third and fourth degree tears. However, as alluded to in Chapter 4, second degree tears can extend to become complex tears.

First degree: laceration of the vaginal epithelium or perineal skin only.

Second degree: involvement of the perineal muscles but not the anal sphincter.

Third degree: disruption of the anal sphincter muscles which should be further subdivided into:

3a: <50% thickness of external sphincter torn.

3b: >50% thickness of external sphincter torn.

3c: internal sphincter also torn.

Fourth degree: a third degree tear with disruption of the anal epithelium as well.

FIGURE 2.1. Classification of perineal trauma.⁹⁻¹¹

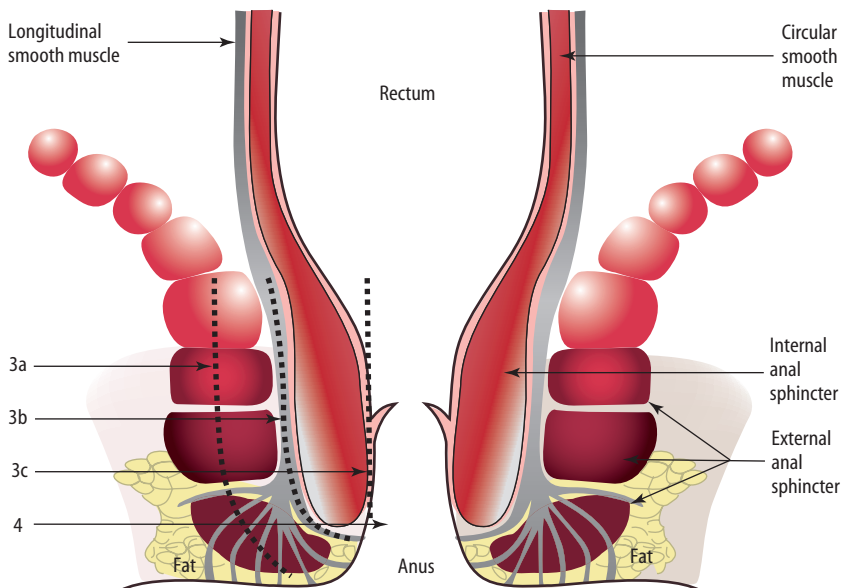


FIGURE 2.2. Classification of perineal trauma depicted in a schematic representation of the anal sphincters.

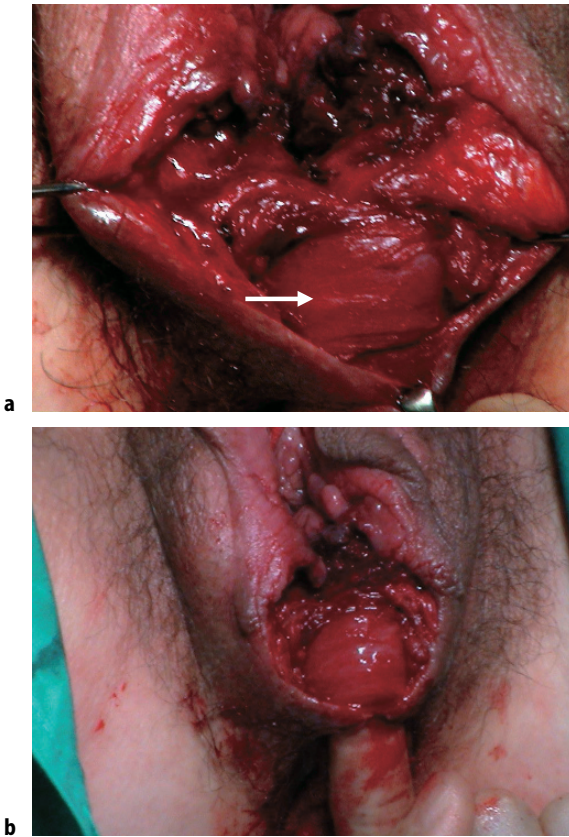


FIGURE 2.3. An intact anal sphincter (*arrow* in **a**) is demonstrated more clearly during a digital rectal examination (**b**).



FIGURE 2.4. A "buttonhole" tear of the rectal mucosa (*arrow*) with an intact external anal sphincter demonstrated during a digital rectal examination (with permission).¹²

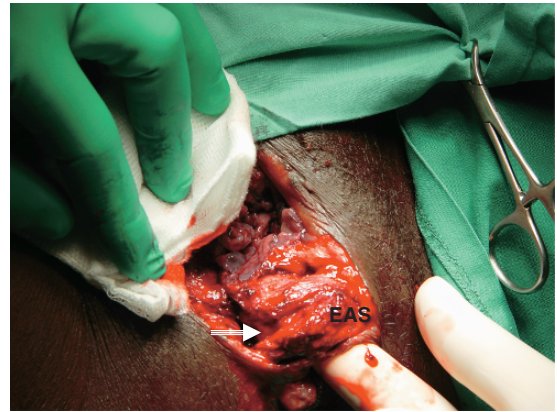


FIGURE 2.5. A partial tear (*arrow*) along the length of the external anal sphincter.

2.3 Objective Assessment of Perineal Trauma

The Birmingham Perineal Research Evaluation Group (BPREG) developed the Peri-Rule as part of their work to aid the assessment and objective measurement of second degree tears. The tool consists of a measuring device (Peri-Rule) and assessment proforma. The Peri-Rule is made of hollow, soft medical-grade plastic with a millimetre scale moulded on one side (105 mm long, 10 mm wide and 4 mm deep) and it can be sterilised; however, it is for single use only. The assessment proforma guides the midwife through each stage of the assessment procedure with clear diagrams illustrating the three measurements required (the depth of the tear from the fourchette into the greatest depth of the perineal body, the length of the tear from the fourchette to the apex of the tear of the vaginal wall and along the perineal skin towards the anus), in a specific order to reduce the risk of infection.

During the development phase, the inter-rater reliability of the Peri-Rule was assessed by requesting two midwives to measure the perineal tear, the second midwife being blinded to the results of the first midwife's assessment and measurements. There was a good level of agreement between the two raters (within 5 mm of each other) when measuring the three dimensions of perineal tears ($n = 130$), which were assessed using Cohen's Kappa (K) statistic (depth of tear $K = 0.67$

[$P < 0.05$]; vaginal wall length $K = 0.71$ [$P < 0.05$] and perineal skin length $K = 0.75$ [$P < 0.05$]). The researchers also found that the mean size of second degree tears that were sutured was significantly higher than those that were left unsutured for all three measurements taken ($P < 0.001$ for depth, vaginal tear length and perineal tear length).¹³

The midwives who used the Peri-Rule found that it was easy and quick to use and that it assisted them in making a thorough assessment of the perineal trauma. Moreover, several experienced midwives reported that the Peri-Rule aided them in diagnosing third degree tears, which they had missed prior to assessment with the measuring tool. The Peri-Rule and proforma provides practitioners with an objective tool that encourages a standardised approach to perineal assessment and enables accurate measurement and documentation of second degree tears. The measurement tool is of particular value when recording objective baseline data for research or audit that is specifically related to the management of perineal trauma.

Further research work is currently underway to assess the use of Peri-Rule in relation to measuring more complex tears and episiotomies and to establish if the length of the perineum (from the fourchette to the anus) has any influence on the type and size of perineal trauma sustained. In addition, more work is planned to evaluate the efficacy of using the tool as part of routine perineal assessment compared to standard midwifery practice (S. Tohill, personal communication, 2005).

2.4 Making an Accurate Clinical Diagnosis

1. Informed consent should be obtained for a vaginal and rectal examination.
2. There must be good exposure of the perineal injury and, if this is not possible, the woman should be placed in lithotomy.
3. Good lighting is essential.
4. If the examination is restricted because of pain, adequate analgesia must be given prior to examination.
5. Following a visual examination of the genitalia, the labia should be parted and a vaginal

examination performed to establish the full extent of the vaginal tear. When multiple or deep tears are present, it is best to examine and repair in lithotomy. The apex of the vaginal laceration should always be identified.

6. A rectal examination should then be performed (Figure 2.3b) to exclude injury to the ano-rectal mucosa and anal sphincter. The vagina should be exposed by parting the labia with the index and middle fingers of the other hand. We believe that every woman should have a rectal examination prior to suturing in order to avoid missing isolated tears such as "buttonhole" tears of the rectal mucosa (Figure 2.4). As can be seen in Figure 2.4, there is a rectal laceration with an intact anal sphincter. Furthermore, a third or fourth degree tear may be present beneath apparently intact perineal skin (Figure 2.6a, b, c), highlighting the need to perform a rectal examination in order to exclude obstetric anal sphincter injuries (OASIS).

7. In order to diagnose OASIS, clear visualisation is necessary and the injury should be confirmed by palpation. By inserting the index finger in the anal canal and the thumb in the vagina, the anal sphincter can be palpated by performing a pill-rolling motion. If there is still uncertainty, the woman should be asked to contract her anal sphincter and if the anal sphincter is disrupted, a distinct gap will be felt anteriorly. If the perineal skin is intact, there will be an absence of puckering on the perianal skin anteriorly. This may not be evident under regional or general anaesthesia. As the external anal sphincter (EAS) is in a state of tonic contraction, disruption results in retraction of the sphincter ends. Therefore, the sphincter ends need to be grasped and retrieved. The internal anal sphincter (IAS) should also be identified and repaired separately.

8. The IAS is a circular smooth muscle (Figure 2.7) that appears paler (similar to raw fish) than the striated EAS (similar to raw red meat). Under normal circumstances, the distal end of the IAS lies a few millimetres proximal to the distal end of the EAS. However, if the EAS is relaxed following regional or general anaesthesia, the distal end of the IAS will appear to be at a lower level. If the IAS or anal epithelium is torn, the EAS will invariably be torn.

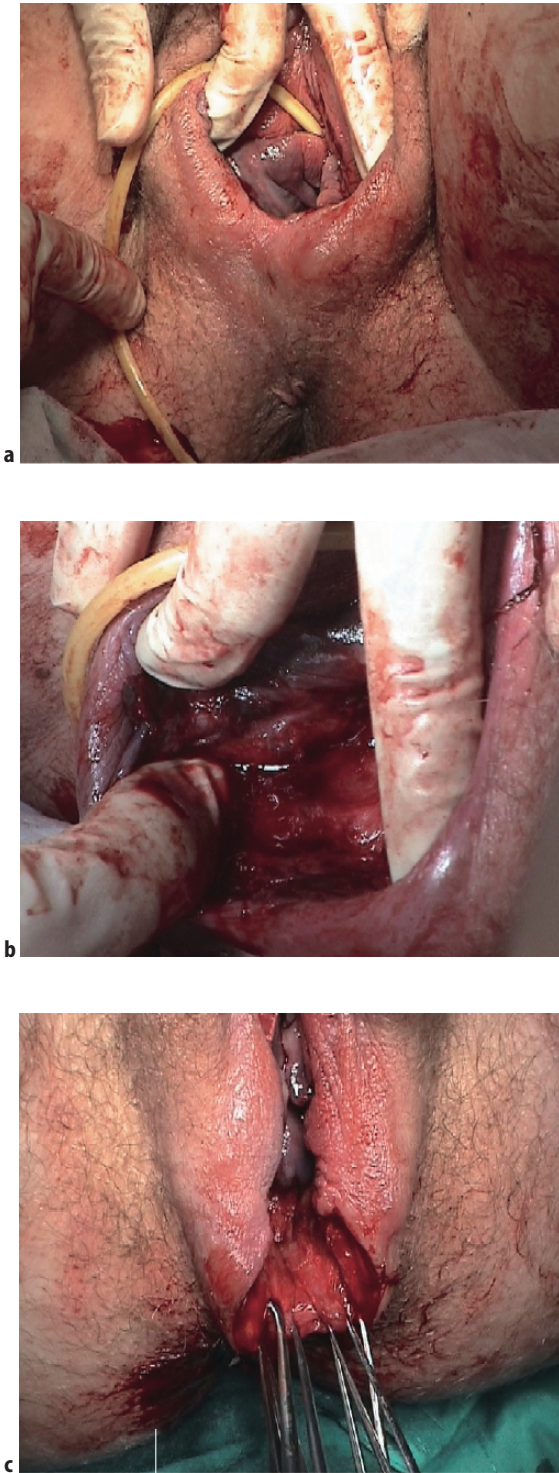


FIGURE 2.6. Third degree tear with an apparent intact perineum. (a) A “bucket handle” tear is demonstrated behind the intact perineal skin (b). The torn external sphincter is shown (c).

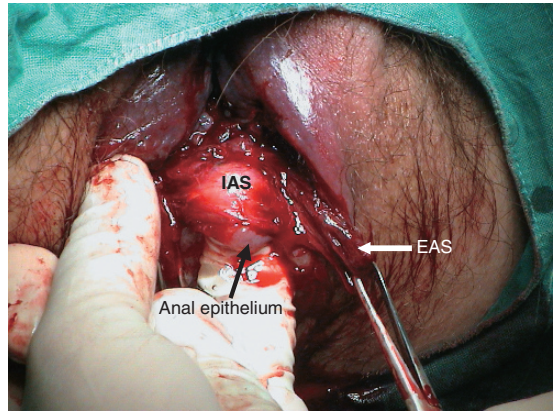


FIGURE 2.7. A grade 3b tear with an intact internal anal sphincter (IAS). The external sphincter (EAS) is being grasped with Allis forceps. Note the difference in appearance of the paler IAS and darker EAS.

2.5 “Occult” OASIS

Following the advent of endoanal ultrasound (see Chapter 10), Sultan et al.¹⁴ demonstrated that 33% of women sustained “occult” OASIS that were not identified at delivery (see Chapter 8 for pathophysiology). Prospective studies¹¹ have identified “occult” injuries ranging between 20¹⁵ and 41%.¹⁶ However, it remained to be established whether these injuries were truly occult or in fact unrecognized at delivery. Andrews et al.¹⁷ reported a study in which 241 women having their first vaginal delivery had their perineum re-examined by an experienced research fellow and endoanal ultrasound was performed immediately after delivery and repeated 7 weeks postpartum. When OASIS were identified by the research fellow, the injuries were confirmed and repaired by the duty registrar or consultant. The prevalence of clinically diagnosed OASIS increased from 11% to 25% ($n = 59$). Every clinically diagnosed injury was identified by postpartum endoanal ultrasound. However, there were three women with sonographic defects in whom the injury was not identified clinically. Two of these had only small IAS defects with an intact EAS; one would not expect to detect these clinically. The other was a defect of both the IAS and

EAS and this could represent an occult but most probably an undiagnosed tear. At 7 weeks no de novo defects were identified by ultrasound. This study concluded that most sphincter defects that have previously been designated as “occult” injuries were in fact injuries that could have been recognisable at delivery but were not identified.

It was alarming to find that 87% and 27% of OASIS were not identified by midwives and doctors respectively. Although it is likely that some of these would have been detected at the time of suturing the tear, it is of some concern that clinical recognition of OASIS is suboptimal. This finding is not unique, as Groom and Paterson-Brown¹⁸ found that the rate of third degree tears rose to 15% when all “second degree tears” were re-examined by a second experienced person.

These studies^{17,18} suggest that there is a need for more focused and intensive training in the identification of OASIS. Sultan et al.¹⁹ conducted an interview of 75 doctors and 75 midwives and reported that 91% and 60% respectively indicated inadequate training in perineal anatomy and 84% and 61% respectively reported inadequate training in identifying third degree tears.

However, there are also other possible reasons for underdiagnosis. Misclassification of OASIS as second degree has already been alluded to above. A further reason for under-reporting by the accoucheur is the stigma associated with OASIS. In many units, OASIS constitute a risk management trigger that may be regarded as punitive and it is therefore a disincentive to accurate reporting.

If OASIS are being missed, one would expect to see more women with anal incontinence, who apparently had only an episiotomy or a spontaneous second degree tear. Lal et al.²⁰ showed that significantly more women develop anal incontinence following a second degree tear than with an intact perineum (23% vs 3%, $P = 0.01$). Benifla et al.²¹ identified a 16-fold increase in anal incontinence following a second degree tear ($P < 0.05$). Both these studies support the findings of Andrews et al. that a large number of OASIS were undiagnosed and wrongly classified as second degree tears.

2.6 Can Routine Anal Endosonography Immediately after Delivery Improve Accuracy in Detection of OASIS?

Faltin et al.²² randomised 752 primiparous women with second degree lacerations to conventional examination (control group) and additional postpartum endoanal ultrasound (experimental group) and demonstrated that a considerable number of women have full-thickness OASIS that are not recognised at delivery. However, they excluded partial-thickness sphincter tears from their study. On identifying new injuries in the experimental group, a formal sphincter repair was performed. Overall, severe faecal incontinence was significantly reduced from 8.7% in the control group to 3.3% in the experimental group.

However, endoanal ultrasound is a technique that requires specific expertise, particularly in the immediate postpartum period when the anal canal is lax (even more with an epidural). Ultimately, the diagnosis rests on clinical assessment and a rectal examination because even if a defect is seen on ultrasound, it has to be clinically apparent to be repaired. As Faltin et al.²² found in their study, when routine postpartum anal endosonography was used as the gold standard of diagnosing OASIS, five women had unnecessary intervention as the sonographic defect was not clinically visible despite exploration of the anal sphincter. As a result of this unnecessary exploration based on anal endosonography, 20% developed severe faecal incontinence. We therefore believe that with improvement in clinical diagnostic skills, detection of OASIS immediately after delivery can be significantly improved¹⁷ and in practice, postpartum anal endosonography is of limited value. It would be prudent to divert resources towards clinical training (see Chapter 4) instead of attempting to teach new trainees the art of postpartum anal endosonography with its attendant limitations.²³

2.7 Conclusions

We believe that current concepts need reappraisal and in particular, the stigma of causing OASIS needs to be removed. Causing a third or fourth

degree tear is rarely culpable; missing it, however, is regarded as negligent. Postpartum endoanal ultrasound is an invasive and expensive alternative that requires expertise and may result in over-diagnosis of OASIS that cannot be identified clinically.¹⁸ The keystone to diagnosis of OASIS lies in improved clinical training of doctors and midwives (see Chapter 4). To minimise the risk of undiagnosed OASIS, a digital anorectal examination should be performed in every woman following vaginal delivery and certainly prior to any suturing.^{17,23}

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