In this article...

- Anatomy and physiology of the anal sphincter complex
- Classification and incidence of perineal tears in women
- Physical and psychological effects of obstetric anal sphincter injuries

Obstetric anal sphincter injury: causes, effects and management

Key points

1. Obstetric anal sphincter injuries (OASIs) are perineal tears that involve the anal sphincter
2. During childbirth, some women sustain OASIs and may develop symptoms such as pain and urinary or faecal incontinence
3. To minimise the impact of OASIs, it is vital to reduce the risk of them occurring in the first place and detect them when they have occurred
4. Women are often embarrassed to talk to health professionals about continence or sexual function issues
5. Pregnant women who have previously sustained OASIs should be helped to choose between Caesarean section and vaginal birth

In a woman's life, childbirth is often a watershed moment that gives rise to new life and opens up new experiences. However, this is not always the case. While giving birth, some women sustain perineal trauma that can have short- and long-term physical and psychological consequences. In approximately 5% of these women, the trauma involves the anal sphincter, resulting in third- or fourth-degree tears, which are also referred to as obstetric anal sphincter injuries (OASIs). OASI can cause symptoms such as pain and faecal and/or urinary incontinence (FI/Ur), which can negatively affect women's quality of life. Pregnant women are often unaware that OASI might happen when they give birth, and when it does, they are often not informed about the consequences.

The anal sphincter complex

Before looking at what happens during childbirth and how OASIs can cause issues such as incontinence, we need to understand the anatomy and physiology of the anal sphincters (Fig 1). These simple structures perform an extraordinary complex function (Emmanuel, 2004). The anal canal is approximately 4cm long and extends from the anal verge to the anorectal ring, which is defined as the proximal level of the levator – external anal sphincter (EAS) complex (Thakar and Fenner, 2007). The IAS is a thickened continuation of the circular smooth muscle of the bowel that ends in a well-defined rounded edge situated 6-8mm above the anal margin, at the junction of the superficial and subcutaneous part of the EAS (Thakar and Fenner, 2007). The IAS is controlled by involuntary muscles – a weak IAS can result in passive FI and/or flatus incontinence (that is, FI or flatulent gas incontinence) occurring without the person being aware of it. The EAS is divided into three parts: subcutaneous, superficial and deep; in women it is shorter anteriorly than in men (Thakar and Fenner, 2007). The EAS is under voluntary muscle control, and a weak EAS can result in urge FI – that is, the person

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Abstract Women who sustain obstetric anal sphincter injuries often experience burdensome short- and long-term effects that can include pain, faecal and/or urinary incontinence and sexual dysfunction. Health professionals involved in childbirth need to be aware of risk factors and symptoms to ensure women are adequately assessed and treated. This article explains how the anal sphincter complex works; defines perineal tears; outlines the prevalence of sphincter injuries, risks factors, symptoms and consequences; and describes how they are managed at the author's workplace, Croydon University Hospital.

first-time vaginal births tripled from 1.8% to 5.9% between 2000 and 2012 – this could, however, be partly due to an increase in detection, rather than in actual numbers, because health professionals are more aware of OASI and better trained in recognising it (Gurol-Urganci et al, 2013).

Minimising risks factors
It is increasingly acknowledged that childbirth is a risk factor on its own, both for UI and FI. The risk of developing anal incontinence increases with OASI (Scheer et al, 2008). In a large retrospective study, McPherson et al (2014) demonstrated that the following independently increased the incidence of OASI:

- Forceps delivery;
- Ventouse delivery;
- African-Caribbean ethnicity;
- Water immersion (in first stage of labour can help with pain relief);
- Water birth (birth of baby in water).

In water immersion, the position of the mother precludes surveillance of the perineum, which may lead to unrecognised tears during birth.

The following factors have been shown to reduce the incidence of OASI:

- Home birth;
- Smoking;
- Smoking;
- Vaginal mucosa;
- Pelvic floor muscles;
- EAS and IAS muscles;
- Rectal mucosa (lining of the bowel). When tears extend to the anal sphincter, they are called OASIs.

Box 1 outlines the classification of perineal tears devised by Sultan (1999), which has been adopted by the International Consultation on Incontinence and the Royal College of Obstetricians and Gynaecologists (RCOG, 2015).

Approximately a third of all women having first-time vaginal deliveries will sustain sphincter damage and a third of these will develop new symptoms of FI (Sultan, 1999). According to Farrar et al (2014), severe damage involving injury to the anal sphincters has been reported in up to 18% of vaginal deliveries.

In the UK, the incidence of OASI in first-time vaginal births is estimated to be around 6.1% (Thiagamoorthy et al, 2014). Over the last decade, there has been a steady rise in the rate of OASIs (Naidu et al, 2017). In England, the rate of OASI in

Perineal tears
Weakness of, or damage to, the anal sphincter (IAS and EAS) to snap shut at the end of rectal evacuation. Patients can enhance it by squeezing their EAS.

The recto-anal inhibitory reflex occurs when there is a distension of the rectum resulting in IAS relaxation and EAS contraction; the rectum fills and ‘a call to stool’ can be felt. This lasts <10 seconds, allowing the anal canal to distinguish solids from liquids and from flatus, which is important in maintaining continence (Emmanuel, 2004).

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Nursing Practice

Review

- Vaginal parity of >5;
- South-Asian descent (McPerson et al, 2014).

Modifying various risk factors and taking into account anatomical factors can reduce the risk of OASIs. In vaginal delivery, Kapoor et al (2015) recommend a safely angled episiotomy at 60 degrees, when indicated, to relieve pressure on the central part of the posterior perineum, and a slow and controlled delivery of the head.

In the first stage of labour, women with a short perineal length (<30mm) are more likely to sustain perineal tears and are also at higher risk of sustaining an OASI. A recent study by Naidu et al (2017) found that perineal support during vaginal delivery was associated with a significant reduction in the rates of OASIs. Warm compressions during the second stage of labour also reduces the risk of OASI; this involves holding a warm compress on the perineum continuously during and between contractions (RCOG, 2015).

Symptoms

OASIs are associated with significant short- and long-term morbidity. Once women have sustained OASI, they are at increased risk of developing pain and FI, either in the postnatal period or later in life. FI is often under-reported and under-recognised and, being associated with significant medical, hygiene and social problems (Walsh and Grivell, 2015), has a negative impact on quality of life.

Following childbirth and OASI, women may experience UI or FI – in fact, this might happen even if they have not sustained OASI. Some women remain asymptomatic, while others experience any or all of the following symptoms:

- Stress and/or urge UI;
- Flatus incontinence;
- FI;
- Haemorrhoids;
- Dyspareunia;
- Sexual dysfunction;
- Vesico-vaginal fistulas;

These symptoms can all lead to long-term psychological and physical sequelae.

Adequate detection of anal sphincter injuries is vital to minimise their impact on women (Cornell et al, 2016). Unfortunately, many women do not seek medical help because they feel embarrassed (Fernando et al, 2013). It is therefore all the more important for health professionals to adopt active case finding after birth or further down the line – especially in women who have had a third- or fourth-degree tears – so they can be treated as quickly as possible.

Post-partum sexual dysfunction

Apart from FI and UI, women may also experience problems with sexual function, which they are often too embarrassed to mention during medical appointments. A focus on the newborn baby is another reason why they might not talk about these problems. O’Reilly et al (2009) found that, as a result of severe perineal trauma, women experienced an altered perception of their sexual self; they described feeling that they had aged prematurely and that they were a failure, as symptoms meant they were unable to fulfil their partner’s sexual needs.

Sexual dysfunction is classified as disorders of sexual desire, arousal, orgasm and pain; in the post-partum period, the most common disorder appears to be pain. There is a lack of professional awareness of, expertise in and recognition of sexual dysfunction that causes distress to the individual (Abdool et al, 2009). Health professionals who see women with OASI need to be aware of this potential issue and ask their patients not only about continence, but also about sexual function.

Enhancing professional training

Training in digital rectal assessment can improve the detection of OASI, thereby minimising the risk of FI (Andrews et al, 2006). Midwives and doctors should attend focused multidisciplinary training, which should be mandatory, to enhance their understanding of perineal anatomy and their skills at recognising anal sphincter trauma (Thiagamoorthy et al, 2014).

Andrews et al (2009) carried out an audit to evaluate the effectiveness of a course in OASI management at imparting knowledge. The course was delivered by experts in the field and included practical sessions undertaken using models of anal sphincters and cadaveric pigs’ anal sphincters. Anonymous questionnaires completed before the course, and eight weeks after it, showed that participants classified OASI more accurately and adopted evidence-based practice after the course. This provides evidence that structured training can be effective in changing clinical practice.

A multidisciplinary perineal clinic

At Croydon Health Services Trust, a dedicated, consultant-led multidisciplinary perineal clinic is held on a weekly basis for patients who have sustained OASI. The team comprises a midwife, a specialist registrar and a consultant urogynaecologist who has a special interest in this area as well as in endo-anal scanning. For patients who have urinary and/or faecal continence problems, the team can arrange direct access to a colorectal nurse specialist and a urogynaecology nurse specialist.

Assessment

Patients who have sustained third- or fourth-degree tears are seen in the clinic three months after delivery; this gives their wounds time to heal and their immediate symptoms of incontinence time to recede. If the wounds are healing well and patients are asymptomatic, they will be discharged and seen halfway through their next pregnancy to decide on what mode of delivery would be best. If patients have problems with their wounds and need closer follow up, they are seen by the midwife on a regular basis at the clinic, with access to the consultant urogynaecologist if needed.

In the clinic, women are assessed for any ongoing symptoms, such as dyspareunia and UI and/or FI, through direct questioning, validated questionnaires and physical examination. All patients undergo anal manometry and endo-anal ultrasound so the team can objectively assess their anal sphincters.

Anorectal physiology tests are key in assessing patients with pelvic floor symptoms, as they provide a clinically
meaningful, quantitative measure of specific anorectal functions. In patients with FI, manometry complements anal endo-
sonography in defining functional weakness of one or both sphincter muscles, and it can predict the likely response to biofeed-
back training (Sultan et al, 2017). However, physiological measurements can only be correctly interpreted in light of the
patient’s symptoms, physical examination and radiological investigations.

Management
After subjective and objective patient assessment, a decision will be made about what treatment is required. Many women
will be asymptomatic and not need any treatment but they are advised that, during any following pregnancy, they will need to
discuss the mode of delivery with their obstetrician.

Some women experience perineal/anal pain. If assessment has shown that there might be a vesicovaginal fistula, patients
are referred to the MDT pelvic floor clinic, where the urogynaecology consultant, colorectal consultant and colorectal nurse
specialist will reassess them and decide what should happen next. The next step could be further assessment with mag-
netic resonance imaging, conservative treatment (‘watch and wait’), examination under anaesthetic, or surgery to treat the
fistula.

Women who have bladder symptoms only are referred to the urogynaecology nurse specialist for further assessment and
treatment, which will normally include personalised pelvic floor exercises, bladder retraining and advice on fluid intake and
other lifestyle changes.

Women who have bowel or bowel and bladder symptoms are seen by the colorectal nurse specialist. The bowel symp-
toms can range from faecal urgency to urge and/or passive FI of differing degrees. Patients are further assessed to find out
what their most burdensome symptoms are and how these are affecting their lives, taking into account what their bowel func-
tion was like before giving birth. A person-
alised treatment plan that focuses on the most burdensome symptoms is developed. It usually comprises:
● Biofeedback (to suppress the urge to dejecte);
● A tailored course of pelvic floor exercises, dietary and lifestyle changes (including how to reduce wind if flatus incontinence is a problem);
● Explanations on defecatory dynamics;
● Advice on containment products, such as pads or anal inserts.

The management plan is similar if the patient also has bladder symptoms.

Choice of delivery mode after OASI
Women who have sustained OASI during a birth are often keen to have a Caesarean section for the next birth, either because
they feel that another vaginal birth would exacerbate their symptoms or because they had such a bad experience the first
time, they do not wish to go through the same thing again.

Pregnant women and their obstetricians face a challenge when deciding what mode of delivery is best: a planned Cae-
sarean section, which avoids the risk of another anal sphincter injury but carries its own morbidity, or a vaginal birth with a
high risk of new perineal tears (Edozien et al, 2014). Boxes 2 and 3 list the risks associated with vaginal delivery and Caesarean
section, respectively.

All women who have sustained an OASI should be counselled regarding the mode of delivery and this should be clearly docu-
mented in their notes. If a woman is symptomatic or shows abnormally low ano-
rectal manometric pressures and/or endo-anal defects on ultrasound, an elec-
tive Caesarean section may be considered (Sultan and Thakar, 2002).

Scheer et al (2009) carried out a pro-

Fig 1 (page 32) shows the protocol used
to Croydon University Hospital for man-
aging pregnancies after OASI. Sympto-
matic women who have low manometric
pressures and a defect to the EAS have two
options:
● If their symptoms of FI are mild they
should have a Caesarean section to
reduce the risk of making these
symptoms worse;
● If they have severe symptoms of FI
they should have a vaginal delivery, as
their symptoms are unlikely to get
worse and later, once their family is
complete, they should have a secondary
sphincter repair.

Conclusion
Sustaining perineal trauma during child-
birth can have a significant negative impact on women physically, psychologi-
cally, emotionally and socially. It is impor-
tant that, where possible, the risk of OASI,
is reduced and that, if OASI does occur, it is
recognised and treated appropriately, as
this will reduce the incidence of burden-
some symptoms such as FI. For this to
happen there needs to be better hands-on
training of all health professionals
involved in childbirth.

Ideally, women who sustain OASI need
to be seen in a perineal clinic where they
can be assessed by experts and have access
to adequate, timely treatment and sup-
port, before their symptoms have too great
a negative effect on their quality of life.
Fig 1. Protocol for managing pregnancies after OASI

EAS = external anal sphincter. FI = faecal incontinence. MSP = maximum squeeze pressure. OASI = obstetric anal sphincter injury. USS = ultrasound.

Source: Croydon Health Services Trust.

References

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