

ANAL INCONTINENCE FOLLOWING OBSTETRIC ANAL SPHINCTER INJURIES AT BIRTH:

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1. ANAL INCONTINENCE AFTER CHILDBIRTH

Anal incontinence is defined as the involuntary loss of bowel contents or flatus (wind) through the anal canal [1].

Urgency is common after childbirth injuries and is reported in 21% [2]. Urgency is a sensation of needing a bowel movement straight away, but where defecation can only be deferred for a short time (half to two minutes) when it is necessary to access the toilet very quickly because there is little power to contain waste or wind. Urge incontinence describes those who do not reach the toilet in time. Some people may inadvertently lose some bowel content at the same time.

Flatus incontinence is the lack of control of wind. This is even more common after childbirth anal sphincter injuries reported in 36% [3]. This can be very embarrassing and distressing especially for a young, active person.

Passive faecal incontinence refers to the loss of bowel content without being aware that it is happening. Sometimes it is impossible to distinguish a bowel movement from passing wind.

Soiling is the leakage of small amounts of bowel content. 'Soiling' may cause only minor marking to underwear or it may be more frequent or involve greater loss of bowel content which may necessitate using protective pads. Soiling often occurs after having a bowel movement and is frequently associated with some impairment of evacuation of bowel contents so that repeated visits to toilet are needed especially at the beginning of the day. Soiling is a common symptom after childbirth related injuries.

Leakage of any bowel contents often results in soreness of the skin which is in effect a form of 'nappy rash.' This skin irritation can be painful and may even bleed.

When these events occur after childbirth it may be difficult, especially for women who have given birth for the first time, to know what is happening, especially as some women experience constipation for a number of days after having a baby which can be due to changes in diet, and pain killing drugs. When the bowel does begin to function again it is often erratic. Also an occasional leak of bowel movement may simply be the result of perineal bruising and perineal pain.

2. RECTOVAGINAL FISTULA

Incontinence of flatus or bowel movement may occur other than through the anus. This is uncommon in developed countries where women are attended during birth by trained healthcare professionals. Leakage of faeces can sometimes occur through a perineal wound known as an ano-perineal fistula, or more commonly through the birth canal (vagina) when it is termed a recto-vaginal fistula. Rectovaginal fistula are very distressing and can cause excoriation of the vagina, vulva and perineum. If a fistula occurs soon after giving birth, it can be difficult to distinguish normal vaginal loss the 'lochia' which includes blood, serum and some of the afterbirth expelled in the contracting uterus from small amounts of faeces.

3. THE CONSEQUENCES OF ANAL INCONTINENCE AFTER CHILDBIRTH

The consequences of having anal incontinence are graphically described by anonymised comments gathered during a focus group of women in 2015 (www.masic.org.uk). One outcome of this event was a publication describing the social, psychological and emotional outcome of anal incontinence after obstetric anal sphincter injuries in a word picture to highlight the force of the comments made by mothers about their condition, coping with it and factors helping in recovery [4]. Others have also published about the social and psychological consequences of these injuries [5-8]

3.1. LACK OF BOWEL CONTROL

Women report a loss of dignity and a feeling of being constantly 'unclean' – a feeling which dominates their life.. Most women feel very anxious that they are unable to control their bowel movement and need access to the toilet very quickly. Women described themselves as 'prisoners in their own homes' as they were afraid to go out or travel. Their role as a mother is compromised because anal incontinence is far worse with any exercise, consequently participating in parent activities when the child reaches school age may prove difficult or impossible, even going to school events and meeting other mothers can be very distressing if a mother is frightened that she may break wind or have to dash to a toilet. Those mothers who have been able to return to the workplace may struggle to cope, especially first thing in the morning when extra time may be needed in the washroom. They often struggle to juggle a career and family life.

3.2. RELATIONSHIP ISSUES

The woman's partner often does not understand what is happening. The partner may find that the woman has suddenly become 'secretive': hiding soiled linen, spending a huge amount of time in the lavatory and constantly washing or showering. When it comes to sexual intimacy, there is usually a variable time of abstinence after having a baby which may last for several months, particularly if there has been an episiotomy or a tear which is painful, but this does not usually go on for a year or years. Many partners are understanding for a while but may become less so with time. Anecdotal evidence indicates that many want to know why their life partner is 'making excuses' or shunning the loving acts which hitherto were important for their relationship. Mothers with anal incontinence rarely initiate sexual encounters. They frequently feel the need to wash or shower before and/or after so that sex is no longer spontaneous. They may also find sex painful, both physically and emotionally.

In most societies intercourse is an expected part of the relationship and when it does not occur this may fail. This may have a profound impact on the family which can have social and economic consequences [9].

Owing to the impact of this condition on the family there is an unmet need as no counselling is offered to the man in the home even if his partner is requiring emotional support because of her injury.

3.3 ISOLATION FROM AN UNSPOKEN TABOO

Social events, like meeting with friends and family at home and in public places are part of 'normal everyday life' for women. For a woman who feels 'unclean,' fearful that she may break wind or have to disappear to a toilet in a hurry can make social activities difficult and sometimes impossible.

Almost all mothers with anal incontinence symptoms following childbirth find it very difficult to talk about their condition both to family and friends and there is a general lack of public awareness of this condition.

For most women it is hard enough going to the doctor and asking advice because bowel incontinence is an unspoken taboo.

3.4. FEELING UNCLEAN

Feeling unclean is frequently expressed. The sense of being unclean can have a profound psychological impact which diminishes a women's sense of dignity. Mothers will say that they think they smell, they wear clothing that will not expose any leaks or stains. Personal hygiene becomes almost an obsession, showering is repetitive (see focus group report). Many carry their 'shopping bag' which contains a change of clothing, moist flannels in polythene bags and wet wipes with a small towel in case there is an accident. Many find the Asian practice of a hose to wash the perineum over the toilet or a bidet is helpful. Techniques to wash out the lower bowel can revolutionise a mother's quality of life if the person concerned can face the indignity of doing this every day and be psychologically strong enough to do it. The sense of being unclean can have a profound psychological impact which diminishes a woman's sense of dignity.

3.5. EMOTIONAL SEQUELAE

Depression is fairly common after childbirth and there is a national support service for women with postnatal depression [10]. Women with anal incontinence after childbirth not only suffer a high rate of depression, but they are usually very anxious, they often suffer from loss of confidence, concentration is impaired, and motivation is compromised. Apart from dignity loss, women may express a sense of having been 'mutilated' or 'disfigured.' There are fears about their relationships, and employment for those who have a job. There may be a sense of being a 'failure' as a mother. Some are angry towards their baby which has been 'responsible' for their condition or they may blame health professional and believe there have been mistakes made during the birth. There may be anger because there has been insufficient explanation that anal incontinence might happen or lack of support when it has. Mothers sometimes feel guilty about what has happened to them; feeling it is somehow their fault and have failed as a mother. Grief is an emotion expressed by some, others feel inadequate. Some say that they are in a state of disbelief about what has happened to them [4].

3.6. EMPLOYMENT COMPROMISE

Not all mothers are in employment when they have a baby. Those who are employed usually have an agreed maternity leave plan and return to their prior employment either in a full-time or part-time capacity. Employment compromise is common. Frequently it takes a long time first thing in the morning to have had a satisfactory bowel clear out and feel sufficiently confident to leave home and go to work. There may be difficulties discussing with employers why from time to time they are late for work or leave early and be near a toilet. Travel by public transport can be extremely difficult for some mothers, having to find a loo in a hurry is very degrading. Driving a car to work if the journey is any distance can be challenging too. Having meals at work

can be a problem because there are many who would rather not eat until they are home. Physical work can be difficult for some, as many find they leak when they have to lift heavy objects, run or walk quickly. The fear of passing wind in the workplace can make those with these injuries very anxious especially in occupations that are in close contact with clients. There may be psychological barriers if returning to work brings back painful memories. This is especially the case for health care personnel if the delivery was in the place of work. Jobs with a major physical component may prove impossible [11].

4. HOW COMMON IS THIS?

The incidence of anal incontinence may be underreported as many mothers may be reluctant to volunteer that they have these symptoms due to embarrassment because they assume that this is 'normal' after having a baby, because health professionals do not ask specifically if they have anal incontinence.

Anal incontinence after obstetric anal sphincter injuries affects at least one in ten mothers after a vaginal delivery [2]. A large Australian study of 1507 nulliparous mothers reported a 16.6% faecal incontinence rate 12 months after delivery but confined the definition of incontinence to leakage of solid or liquid stool (they did not include lack of control of wind) [12]. When broken down to symptoms at 12 months after childbirth the same group reported flatus incontinence in 36.2%, faecal urgency in 21.3% and faecal leakage in 6.7% [3].

The rate of bowel incontinence twelve years after childbirth even when flatus incontinence was not included was 14.0% [13]. The consequences of this is a high rate of bowel incontinence in the community [14] in which women who gave birth for the first time are most at risk [15].

5. MECHANISMS OF ANAL INCONTINENCE

5.1 VERY EARLY ANAL INCONTINENCE.

Bowel incontinence in the first few weeks of delivery may be due to normal postnatal physiological changes. One cause is bruising around the anal sphincters and pelvic floor especially after the birth of a large baby. Another is pain in the perineum from trauma where the sphincter muscle simply does not work when expected to do so. Bowel leakage may occur if a woman is severely constipated from pain killing drugs and dehydration. Accidents can occur if there is diarrhoea which is common if lactulose is prescribed to prevent impaction after a repair.

Bowel incontinence occurring or continuing after the first three to four weeks of having a baby is not normal and needs to be investigated.

5.2 CONTINUING ANAL INCONTINENCE

Bowel incontinence that continues after child birth may be due to three main causes: (1) **anal sphincter injury** occurring in 2-12% of births [16] [17], (2) **recto-vaginal fistula** occurring in about 0.2% of births [18] [19], (3) a **neuropathy** which may occur in 2-5% of births but can be transient or (4) a combination of these [20].

5.2.1 OBSTETRIC ANAL SPHINCTER INJURY

The commonest cause of persistent anal sphincter injury is a tear in the anal sphincter usually termed a third or fourth degree tear. These injuries are commonly known as **Obstetric Anal Sphincter Injuries (OASIS/ OASI)**. These injuries will often but not always cause anal incontinence (i) if the tear was missed at birth and therefore was not repaired, (ii) if the injury was repaired became infected and broke down (iii) if the repair was unsatisfactory or (iv) simply because the repair failed.

These injuries have become more frequent in the UK. They were reported in 1.8% in 2000 compared with 5.9% in 2012. The average figure in the UK is 2.9% but is as high as 6.1% after a first delivery [21].

Third and fourth degree tears may be due to extension of an episiotomy backwards. This is particularly the case if the episiotomy is near to or in the midline (normal clinical practice in the USA). In the UK it is normal practice to place the episiotomy 45-60 degrees away from the midline. Third degree tears are more common if the birth of the baby's head has been very rapid, or if baby is born facing the mother's tummy (OP position), in big babies, if birth is assisted by ventouse or forceps and if there is difficulty in delivering baby's shoulders (Shoulder Dystocia).

An anal sphincter injury can usually have been detected at birth by the pill rolling test (examining the anal sphincter using the index finger and thumb to confirm integrity and assess any defects). These injuries should be repaired soon after birth in the operating theatre by an experienced clinician who has received structured training about repairing this type of complex trauma, under antibiotic cover and medication to prevent faecal impaction to avoid breakdown of the repair. The repair should be done with the area fully anaesthetised usually by topping up the epidural or using a spinal anaesthetic.

5.2.2 RECTO-VAGINAL FISTULA

Incontinence may be due to wind and waste bypassing the normal anal sphincters and coming out through the birth canal due to a hole connecting the ano-rectum and vagina known collectively as a rectovaginal fistula.

In underdeveloped countries a fistula can occur as a result of unrelieved obstructed labour, these fistulas are large they may involve the bladder and can be difficult to repair.

In the UK the condition usually occurs if there has been a fourth degree tear which usually involves the sphincters and the lining of the lower bowel: the ano-rectum [22]. Recto-vaginal fistula occur (i) if there has been a fourth degree tear has not been repaired because it was not detected, (ii) if repaired but broke down from infection (iii) if the repair was unsatisfactory (iv) or if the repair was inadequate. Sometimes there may be a high hole between the rectum and vagina above the sphincters known as a button-hole tear which can be more difficult to repair at birth, fortunately they are uncommon. Rarely, a stitch used to repair the sphincters at birth may penetrate the lining of the back passage causing a recto-vaginal fistula (normally this avoided by performing another bimanual examination of the front and back passage after the repair), the stitch causes ischemic necrosis of the tissues within it, these cases usually present some weeks after delivery. Another less common form of recto-vaginal fistula is an ano-perineal fistula when waste appears through a broken down perineal wound.

These fistulas can often be surprisingly difficult to detect by clinical examination which may be uncomfortable so may require an examination of the area under anaesthesia or a MRI scan.

5.2.3 NEUROPATHY

Damage to the nerves issuing from the sacrum in the pelvis sometimes confined to the pudendal nerve is a recognised cause of anal incontinence and may occur even when the sphincters are intact [23].

There is often coexisting urinary incontinence or difficulty passing urine. There is usually a loss of sensory awareness in the perineum, vulva and anus. There may be a loss of feeling of a distended bladder or a loss of awareness of needing to have a bowel movement. There may be episodes of passive incontinence, urgency, loss of control of wind and difficulty evacuating the rectum.

There are no reliable tests to confirm the diagnosis consequently clinical assessment is the only reliable method of identifying neuropathy. Fortunately, there is spontaneous recovery over a variable time frame between months and years. Neuropathy may occur if there is a prolonged time of actively pushing after the cervix is fully dilated or if excessive force is needed to deliver the baby often because there is an abnormal lie.

6. CLASSIFICATION OF PERINEAL TEARS DURING CHILDBIRTH [28]

First Degree	Tear: A tear which involves the perineal skin alone.
Second Degree	Tear: A tear that involves the skin and some of the perineal muscle but not the sphincter or the anus.
Third Degree	Tear: A tear or episiotomy that extends backwards to involve some part of the anal sphincters. There are two sphincters (i): the inner: the internal anal sphincter IAS and (ii) the outer, the external anal sphincter EAS . These injuries require repair so they have been further classified as follows: 3a= less than half of the EAS is torn and the IAS is intact; 3b= more than half of the EAS is torn with the IAS still intact; 3c= tear involving both the EAS and IAS.
Fourth Degree	Tear: Any tear that involves the anal canal or rectum as well as the anal sphincters. The button-hole injuries above the sphincters now have a separate classification of their own.

7. RISK FACTORS FOR ANAL SPHINCTER INJURIES DURING CHILDBIRTH

The biggest risk factor is a first vaginal birth. These women are most at risk and having never experienced childbirth before are unaware about having a baby and what it might entail [24].

The next most important risk factor is the need for an instrumental delivery [21] and particularly when it is needed for poor progress when pushing rather than any concern about the baby's heart rate (we call foetal distress) when the cervix is fully dilated. The risk is higher for forceps delivery than the suction cap (Ventouse). The risk is also greater with bigger forceps (Neville Barnes) than small lift out forceps (Wrigley's).

There is now increasing evidence that avoidance of a precipitous delivery by actually preventing the baby's head coming out quickly will also reduce the risk of third or fourth degree tears.

Other risk factors are malposition of the baby, the most common being "OP" when the face comes out looking upwards (when the mother is lying on her back with the legs up and bent at the hips and knees) rather than the neck being bent and the back of the head appearing first with the face looking down (OA) in this position. The other malposition often associated with tears is a shoulder presentation.

The risk of anal sphincter injury is greater if the baby is large in comparison to the mother's pelvis. Big babies cannot always be predicted but they are more common if there has been gestational diabetes or the labour is post mature.

Episiotomies are only be used to protect the perineum in certain situations, for example where the attending midwife or obstetrician are concerned that the perineum is so stretched that a more severe tear may occur, or

if the baby is distressed in labour and needs to be delivered more quickly. If an episiotomy is needed and there is a big pushing force at birth then there is a risk that the episiotomy might extend and tear. If the episiotomy is incorrectly cut near the midline then there is a greater risk of third or fourth degree tears.

Tears are more common if there has been a previous vaginal delivery in which the sphincter muscles have been injured and particularly when the sphincter muscles have been injured and repaired at birth or at a later date. The reason is that there is scar tissue and under these circumstances a scar is more likely to tear if placed under pressure than normal healthy tissue. Many of these women are advised to have an elective caesarean section for all subsequent births. However, the advice about future vaginal delivery is an individual matter and depends on careful clinical assessment.

8. TREATMENT OF DETECTABLE INJURIES AT BIRTH

- If a third degree tear or a fourth degree tear occurs at childbirth it is repaired at the earliest convenient opportunity [25].
- Mothers are taken to the operating theatre.
- The epidural if there is one sited is topped up. If there is no epidural or if it not working well a spinal anaesthetic is generally given.
- If this is a third degree tear a senior member of the obstetric team who has been on a specific training course will repair the tear (Details of the repair technique can be found elsewhere [25]).
- If this is a fourth degree tear the consultant on call will repair or supervise the repair (Details of the repair technique can be found elsewhere [25]).
- Antibiotic cover is given for about 5 days, laxatives are also prescribed (usually lactulose) to prevent the bowel becoming impacted from unrelieved constipation which could have a detrimental effect on the success of a repair.
- An appointment is generally arranged with the physiotherapists to reinforce pelvic floor exercises.
- Follow up is arranged in a pelvic floor clinic after discharge from hospital.

9. OUTCOME OF REPAIR OF ANAL SPHINCTER TEARS AT BIRTH

Quite a lot is known about the outcome of immediate tears at birth but most studies give information for only a short time usually up to three years. The problem with longer term studies is that women may be difficult to contact again as they may have changed address. Another deficiency in the literature is that not all tears are rigorously classified into 3a, 3b, 3c anal sphincter tears.

The majority of women who have repairs at the time of birth, performed by specifically trained clinicians do well. Most women having had a repair at birth do not develop anal incontinence in the short to medium term [26 - 28] If it is uncertain how many of these women develop some impairment of continence as they reach menopause or in their later years. .

The reported prevalence of anal incontinence after immediate repair of third and fourth degree tears ranges from 15-61% (average 39%). The wide range is because different classifications have been used and many studies were before training for the repair of these injuries was started [29]. When the information was subdivided according to the type of repair and was based solely on studies conducted after 2000, the rate of anal incontinence after repair of 3a tears was 21% in one study and 44% in another, for 3b tears the rates of anal incontinence after repair were 3.6%, 11.5%, 28%, 31% and 44% (average 22%). The data on 3c tears is more

difficult to find but one study [28] reported that 43% had anal incontinence after immediate repair. Thus it does appear that the risk of not being fully continent after a repair at birth depends on the severity of the injury.

The information on the success of repairing fourth degree tears in terms of preventing a rectovaginal fistula is generally high being 70-80% depending on the type of fourth degree tear. The Average figure for anal incontinence after immediate repair at birth is 48% (range: 25-64%). The risk of anal incontinence after repair also depends on the type of injury being non-existent for button-hole tears (not considered a 4th degree tear) and about the same as in 3c tears for the injuries that involve the anal sphincters so that 40-50% may have imperfect bowel control. The key message is that injuries are best avoided but if they do occur the best time to treat them by repair is at birth.

10. PREVENTION OF INJURIES (WORK IN PROGRESS)

There is a national study known as the OASI Care Bundle project [30] undertaken in collaboration between the Royal colleges of Obstetrics and Gynaecology and Midwives set up to reverse the trend towards an increasing rate of third and fourth degree tears. The main components of the scheme are to provide expectant mothers with more and better information so as to raise awareness of methods of preventing injuries. The practical step is to ensure that the birth of the head is slow and controlled. This is achieved by involving more than one person in the delivery so as to hold back the process of delivery by a hands on approach. Some involved with this initiative have used the acronym PEACHES (Position, Extra pair of hands at birth, Assess the perineum (throughout), Communication, Hands on technique, Episiotomy (if required), Slowly) to assist this educational and practical programme [31]. Only the results of a pilot study are available but this suggests that this policy is effective in reducing the incidence of third and fourth degree tears. The results of this project will be unknown for another two years at least.

11. DETECTION OF INJURIES

Detection of anal sphincter injury is optimally made immediately after the baby is born when all women who have had a vaginal birth will have the perineum systematically assessed to detect possible genital trauma from a spontaneous tear or the extent of trauma if an episiotomy was performed. This assessment should also check for anal sphincter injury (NICE 2014) [32].

The midwife or obstetrician will ensure that the mother is comfortable. She can hold her baby or put her baby to the breast during the assessment. The purpose of the assessment is explained. There must be an appropriate level of pain relief prior to the examination. A good level of lighting is an essential requirement to undertake the examination which is undertaken gently. The perineum is assessed visually for signs of trauma, then after parting the labia the posterior vagina is examined. A combined digital examination of the anus and vagina is then undertaken so as to exclude an anal sphincter injury using the pill rolling test. If the clinician is unsure of the extent of trauma referral should be made to a more experienced clinician.

If suturing of the perineal trauma is required, the rectal and vaginal examination is repeated before and after completing the repair to ensure no suture material has inadvertently been inserted into the anal mucosa. The extent and location of trauma should be documented preferably pictorially in the woman's maternity records, together with details of the repair and the extent of injury explained. If anal sphincter trauma is identified prompt referral to a clinician with expertise in the repair of this injury is made. Information is available for women who have anal sphincter injury on the postnatal management of this injury and other aspects of their recovery (RCOG 2015) [33].

12. MISSED INJURIES

Some women are discovered as having a 'missed' anal sphincter injury which is a cause of great concern for women and for care providers. Detection of injury may be based on women reporting problems with the control of their bowels with confirmation of anal sphincter injury by clinical assessment and investigation. All women should be sensitively asked at routine postnatal contacts by their midwives, health visitors and family doctors about bowel habit in the weeks following birth, to ensure that any possible anal sphincter injury is quickly identified and appropriate referral made, preferably to a dedicated multidisciplinary perineal clinic.

A mother is likely to suffer anal incontinence if a third degree tear is missed and has not been repaired at birth. Likewise recto-vaginal fistula will develop if a fourth degree tear has not been detected and repaired at birth. Discovery of either condition after having a baby when it was never expected is very distressing. If a mother reports symptoms of either anal incontinence or a rectovaginal fistula to her family doctor, it is possible that the doctor may be unfamiliar with these outcomes of childbirth. Soon after having a baby many mothers, especially if it is her first baby, do not know what is happening to them and if anally incontinence will hope that this will just go away. Many struggle to pluck up courage to arrange to see their doctor. If the symptoms are of passing wind or waste in the birth canal a general practitioner will recognise the need for an urgent assessment by the obstetrician. By contrast in women who have imperfect bowel control may find that their family doctor think they are suffering from irritable bowel syndrome. If this is the case medication may be tried and it may be months before referral to a colorectal surgeon takes place.

13. REFERRAL FOR MOTHERS WHO LACK BOWEL CONTROL AFTER CHILDBIRTH

At the moment there is no structured process of assessment and care pathway for women who discover that they have anal incontinence after childbirth. The best plan is to show the MASIC Card to their general practitioner and request a referral to the **colorectal nurse practitioner who runs a functional disease clinic** or an obstetric perineal clinic as someone who might have an obstetric anal sphincter injury.

<p>THE MASIC CARD:</p> <p>DO YOU HAVE A PROBLEM? At least 10% of mothers do! Shhhhhh!</p> <p>Since the birth of your baby have you ever experienced any of these for the first time?</p> <p style="padding-left: 40px;">Having to dash to the loo to poo?</p> <p style="padding-left: 40px;">No control over wind?</p> <p style="padding-left: 40px;">Staining your undies with brown marks?</p> <p style="padding-left: 40px;">Leakage of waste that you cannot stop?</p> <p>Or have you:</p> <p style="padding-left: 40px;">Passed wind or waste through the birth canal?</p>
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If you have any of the Symptoms on The MASIC Card contact your GP and ask for an appointment with the Colorectal nurse who runs the functional bowel disease clinic to exclude OASI (obstetric anal sphincter injury syndrome) and visit www.masic.org.uk

Once assessed the likelihood is you will see: (i) a colorectal nurse who will advise about diet, toileting regimes, personal hygiene measures, access to disabled toilets, medication if the bowel is loose, barrier creams and skin

care and other self-help advice (nurse led coping advice:[34] www.masic.org.uk), (ii) given an appointment to see a physiotherapist to reinforce pelvic floor exercises and possibly bio-feedback, (iii) you will probably have some investigations, (iv) you will have an appointment to see a colorectal surgeon, (v) there is a high chance you will go back to the colorectal nurse for neuromodulation and (vi) on the way you will meet others who have a similar problem with whom you can share stories.

14. INVESTIGATION OF OBSTETRIC ANAL SPHINCTER INJURIES

Anorectal manometry are tests designed to investigate the functioning of the anal canal and rectum through the measurement of anal sphincter pressures, rectal sensation and anorectal reflexes.

The test involves insertion of a thin balloon tipped catheter into the rectum which is usually fitted with a number of pressure sensors to measure anal and rectal pressure. We test anal canal resting pressure (mainly generated by the internal anal sphincter), voluntary anal squeeze pressure (mainly generated by the external anal sphincter), the involuntary anal squeeze pressure (generated by coughing) and sensory awareness of rectal distension.

Endoanal ultrasound is a way of imaging the anal muscles and other tissue layers surrounding the anal canal. The test involves inserting a narrow ultrasound probe a short distance into the anal canal which rotates to image the internal and external anal sphincter muscle which can detect any defects or scarring from previous injury or as a result of obstetric trauma.

15. TREATMENT OF ANAL INCONTINENCE

If there is a persistent defect in the anal sphincter muscle there are two methods of treatment which may be complementary. They are Sacral Nerve Stimulation and / or Sphincter repair.

15.1 SACRAL NERVE STIMULATION

SNS is a relatively new treatment, it has been about for about 10 years. It involves placing a pacemaker electrical current onto one of the sacral nerve roots. We do not fully understand how it works but it modulates the nervous control of the sphincters and pelvic floor, ano-rectum and the bladder. The first part of treatment is by use of a test pacemaker called temporary SNS, this simply involves observing what impact temporary electrical pacing may have on symptoms. In about 70% of mothers temporary SNS has an immediate and profound benefit with less urgency and leakage. If there is a good response to temporary SNS the clinician will offer a permanent implantable device containing a battery with electrical leads to the sacral nerve root. The battery operated device is usually placed in the fat of the buttock but there are choices of site which can be discussed with the surgeon. The device is implanted as a day case or overnight stay procedure. With an external control mechanism you are able to change settings which alters the amount of current that flows and you can turn it off when you do not need it on, as may be the case at night. The equipment is expensive so will not be offered unless there is a good prospect of benefit. From time to time batteries may need to be replaced or leads adjusted and if this should be needed this will be done as a day case as it is a minor procedure. SNS is usually very good at improving urgency, preventing urge incontinence and treating passive incontinence (so it is often suitable if there is a neuropathy). It is not always successful in controlling wind (flatus incontinence) but it may help if there is incomplete rectal emptying. It may be contraindicated if there is persistent perineal pain. Many do not offer this until mothers have completed their family. There is at least a 50% improvement in at least 70% but there can be some deterioration after the first five years. The amount of deterioration varies enormously from person to person [35].

15.2 SECONDARY SPHINCTER REPAIR

This is a surgical operation to repair the defect in the sphincter cylinder usually in combination with a pelvic floor repair (levatorplasty). This involves either an overnight stay or two days in hospital. There is a 10% risk of an infection and a 5% risk of faecal impaction. Either may in about 5% result in breakdown of the repair so that symptoms are either no better or worse. In 70% there is considerable improvement especially in the symptoms of urgency and the prevention of urge incontinence. There is often some reduction in the risk of poor flatus control and improvement in faecal leakage but impaired rectal emptying may be made worse. There may be some deterioration in the quality of continence after five years but most remain substantially improved with a better quality of life [36].

There are a variety of newer treatments that have not yet been fully tested. These include (i) an implantable magnetic ring to augment the sphincter and (ii) injection of stem cells or other materials such as collagen.

There are other operations that may be used but their long term results have been disappointing such as neuro-modulated graciloplasty, and an implantable inflatable device.

16. IMPACT OF AGING ON OUTCOMES

There are a group of women that present to the doctor usually around the time of the menopause, which can be very variable in its onset, with impaired bowel control for the first time. If they are referred for investigation they will often have evidence of a previous sphincter injury from childbirth that gave rise to no symptoms at all for about 20 years. Sometimes there is some impairment in bladder control with stress urinary incontinence and there may be some gynaecological prolapse indicating that the symptoms are not exclusively from a sphincter injury but from a failure of the pelvic floor as well. These mothers often need advice both from the colorectal team as well as from an urogynaecologist [37].

Treatment strategies amongst mothers who by now may be grandmothers differs and will be individualised according to the symptoms, general health and clinical findings. Further detail of pelvic floor repairs, laparoscopic prolapse procedures, slings, and even sphincter / pelvic floor repairs at this age are outside the scope of the MASIC Foundation which is focused on the recent mother but there is information about assessments and treatment on the Pelvic Floor Website [38].

17. ADVICE ABOUT FUTURE BIRTHS

All women with previous obstetric anal sphincter injury should be fully counselled about having another baby. The advice will depend on previous birth history, current pregnancy, past and current bowel function/symptoms and options for subsequent birth. Even though the risk of anal incontinence is increased after previous anal sphincter injury many women have no bowel problems [3]. For asymptomatic women and in the absence of an obvious sphincter defect on ultrasound, the Royal College of Obstetricians and Gynaecologists' (RCOG), recommendation to pursue a subsequent vaginal birth seems reasonable. Indeed, data show that over 60% of women with a previous obstetric anal sphincter injury prefer another vaginal birth [39].

However, a recent systematic review has shown that due to differences in study design and quality it is currently not possible to determine the optimal mode of subsequent births for women with previous obstetric anal sphincter injury and therefore better data are needed [40]. In the absence of higher quality evidence the systematic review and meta-analysis supports the current recommendation of another vaginal birth for women

with a previous anal sphincter injury but without anal incontinence or a sphincter defect. Evidence is urgently needed to support or refute the practice of recommending elective caesarean section for symptomatic women or those with ultrasonographic anal sphincter abnormalities which supports the RCOG guideline for a randomised controlled trial (RCT) to assess the impact of mode of subsequent birth following OASI on both anal incontinence and quality of life (QoL) [41]. A more immediate option would be an appropriately sized prospective cohort study of women with previous obstetric anal sphincter injury undergoing subsequent birth, with the objective of assessing anal function, QoL and sphincter anatomy both before and after the intervention.

For women with known anal sphincter defects and/or symptoms of anal incontinence the option of an elective caesarean section should be considered. This will not prevent age or hormonal deterioration of the pelvic floor over time. However, this will prevent further physical damage to an already compromised sphincter muscle complex which could prevent/delay the onset of more severe bowel symptoms.

18. THE MASIC FOUNDATION, ASPIRATIONS TO HELP MOTHERS WHO HAVE SUFFERED OBSTETRIC ANAL SPHINCTER INJURIES DURING CHILDBIRTH?

1. Support mothers who have sustained injuries resulting in anal incontinence after childbirth.

2. Prevent the risk of developing these injuries by a change in the birthing plan
3. Improve the detection rate of these injuries when they do occur so that they can be repaired at birth because a repair at birth gives the best prospect of avoiding anal incontinence
4. Help women identify the symptoms that should be assessed so as to consider entry into a care pathway
5. Construct a nationally agreed Care Pathway that can be rolled out throughout the country and which starts with a nurse lead assessment. If an obstetric anal sphincter injury is the cause of anal incontinence then there should be a facility to provide advice, investigation and treatment at a local level and specialist therapy if needed.
6. Improve public awareness
7. Improve professional awareness.
8. Undertake research that will help to achieve these objectives.

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