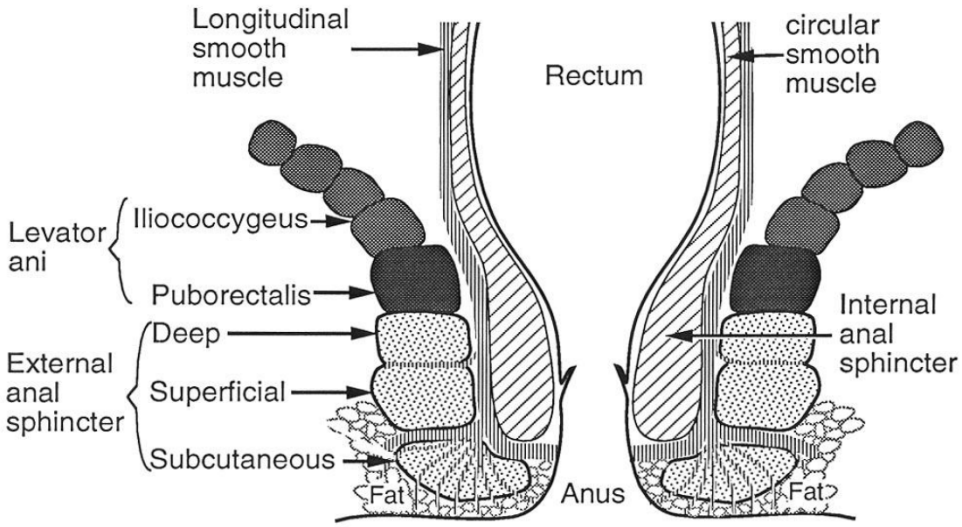
Secondo stadio
e
danno perineale

Anatomy of the anorectum

Anorectum is the most distal part of the gastrointestinal tract and consists of two parts: the anal canal and rectum

Anal canal

- measures about 3.5 cms (2.5 cm anteriorly in female)
- lies below the anorectal junction formed by the puborectalis muscle



Striated external anal sphincter (EAS)

- is made up of three parts (subcutaneous, superficial and deep)
- is inseparable from the puborectalis dorsally
- striated muscle in a state of tonic contraction
- innervated by the Pudendal nerve

- Up to 30% of resting pressure
- Most of the squeeze pressure
- Contraction maintained for < 2 minutes
- Reflex contraction with sudden increase in intra-abdominal pressure
- Relaxes during straining
- **Damage results in urge faecal incontinence**

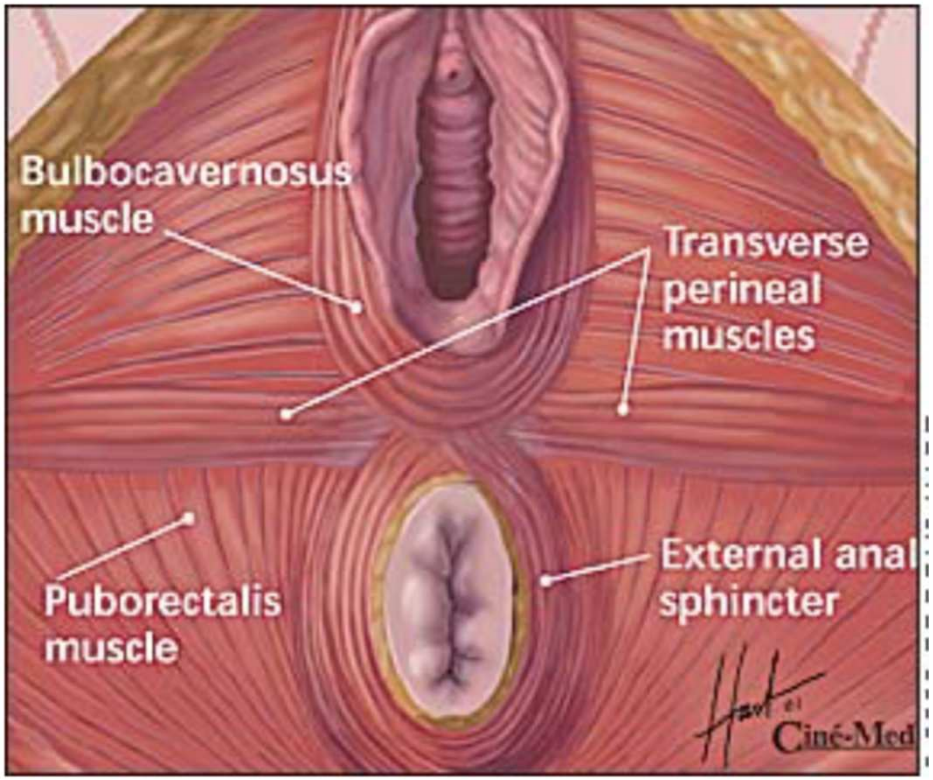
Internal anal sphincter (IAS)

- is a thickened continuation of the circular smooth muscle of the rectum
- it is separated from the EAS by the conjoint longitudinal coat which is a continuation of the longitudinal smooth muscle of the rectum
- Smooth muscle
- Autonomic control

- Contributes up to 70% of resting pressure

- **Damage results in passive soiling and flatus incontinence**

Perineal Anatomy



perineal body

- between the vagina and the rectum
  - o bulbocavernosus muscle
  - o transverse perineal muscle
  - o puborectalis muscle and external anal sphincter contribute additional muscle fibers

anal sphincter complex

- lies inferior to the perineal body
- extends for a distance of 3 to 4 cm
  - o external anal sphincter
  - o internal anal sphincter

Incidence

- Approximately 350,000 women per year in the UK need sutures for perineal injury after spontaneous vaginal delivery
- The morbidity associated with perineal injury and repair is a major health problem worldwide
- 85% women who have a vaginal birth sustain some form of perineal trauma

McCandlish 1998

- Trauma that affect the anal spincter 0.5-7%

Sultan 1999

Classification

First degree tears: perineal skin only

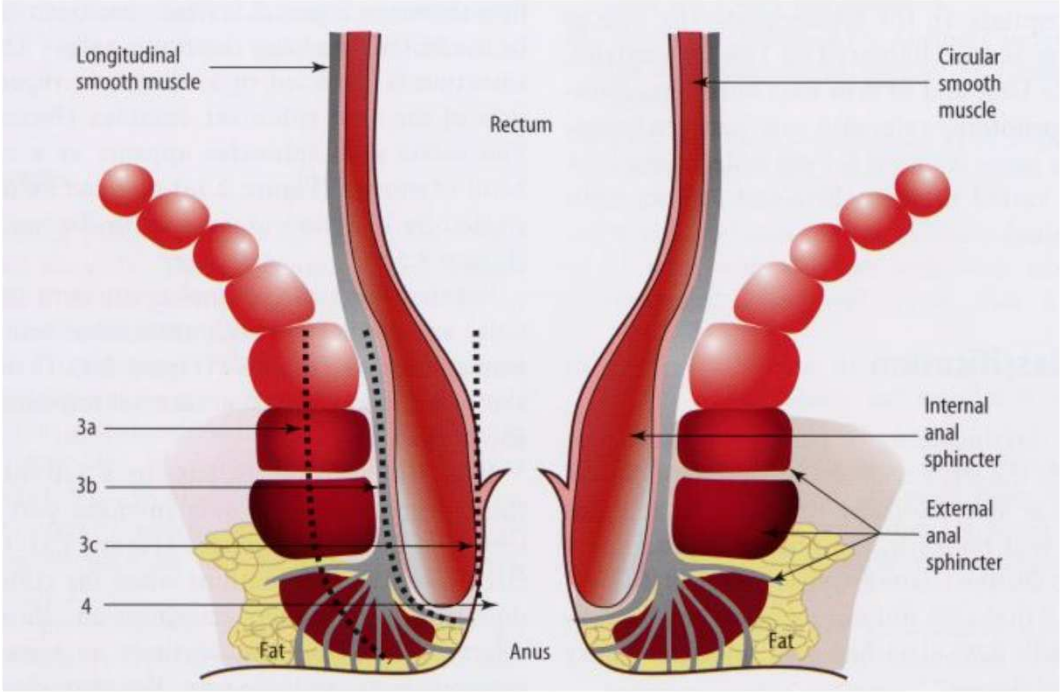
Second degree tears: perineal muscles and skin

Third degree tears: anal sphincter complex
- 3a: < 50% of the external sphincter
- 3b: > than 50% of the external sphincter
- 3c: internal and external sphincter

Fourth degree tears: anal sphincter complex and anal epithelium

Episiotomy: a surgical incision of the perineum

Fernando RJ, Williams AA, Adams EJ. The Management of Third and Fourth Degree Perineal Tears. RCOG Green top Guidelines 2007;29:11pages.
Kettle C, Tohill S. Perineal care. Clinical Evidence (online) 2008 Sep 24. [PUBMED: 19445799]



- La gravità del danno perineale non è sempre proporzionale alla lesione visibile ma a volte possono essere compresenti lesioni profonde
- Molti studi dimostrano che l'incidenza delle lesioni visibili è sottostimata

Morbidity

- Short- and long-time morbidity
  - Pain (Macarthur 2004)
  - Dyspareunia (Barrett 2000)
  - Fecal incontinence (Sultan 2002)
  - Ability to cope with the daily tasks of motherhood (Sleep 1991)

Risk Factors

- ✓**asian ethnicity** (OR 2.27, 95% CI 2.14–2.41)
- ✓**nulliparity** (relative risk [RR] 6.97, 95% CI 5.40–8.99)
- ✓**birthweight greater than 4 kg** (OR 2.27, 95% CI 2.18–2.36)
- ✓**shoulder dystocia** (OR 1.90, 95% CI 1.72–2.08)
- ✓**occipito-posterior position** (RR 2.44, 95% CI 2.07–2.89)
- ✓**prolonged second stage of labour**:
  - duration of second stage between 2 and 3 hours (RR 1.47, 95% CI 1.20–1.79)
  - duration of second stage between 3 and 4 hours (RR 1.79, 95% CI 1.43–2.22)
  - duration of second stage more than 4 hours (RR 2.02, 95% CI 1.62–2.51)
- ✓**instrumental delivery**:
  - ventouse delivery without episiotomy (OR 1.89, 95% CI 1.74–2.05)
  - ventouse delivery with episiotomy (OR 0.57, 95% CI 0.51–0.63)
  - forceps delivery without episiotomy (OR 6.53, 95% CI 5.57–7.64)
  - forceps delivery with episiotomy (OR 1.34, 95% CI 1.21–1.49)

RCOG 2015

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Perineal techniques during the second stage of labour for reducing perineal trauma (Review)

Aasheim V, Nilsen ABV, Reinar LM, Lukasse M

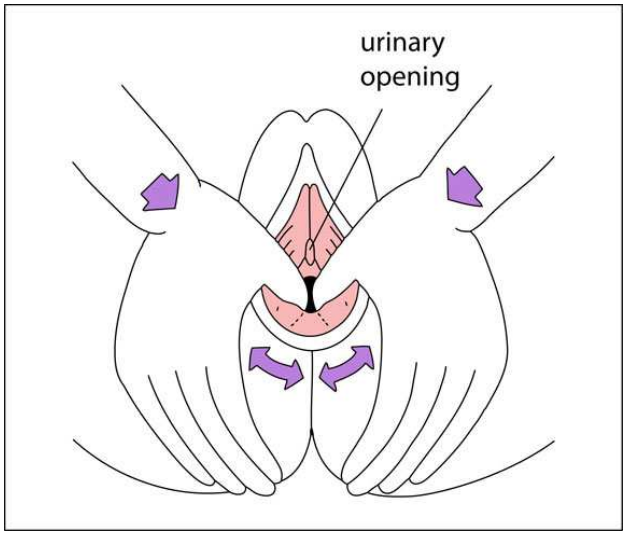
Cochrane Database of Systematic Reviews 2017

- **Perineal trauma** can occur spontaneously or result from a surgical incision (episiotomy)
- Different **perineal techniques** are being used to slow down the birth of the baby's head, and allow the perineum to stretch slowly to prevent injury
- **Massage**, **warm compresses** and different **perineal management techniques** are widely used by midwives and birth attendants
- The objective of this updated review was to assess the effect of perineal techniques during the second stage of labour on the incidence of perineal trauma

Perineal massage

- Each woman have physical differences in the way perineal muscle are stretch
- The elasticity of the perineal skin and muscles is dependent on collagen and elastin structure. Collagen decrese on ageing
- Perineal massage at 34 weeks gestation has shown to reduce the need for episiotomy in first pregnant women over 32 years of age

Beckmann & Stock 2013



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Massage versus control (hands off or routine care)

- **reduced risk of third- and fourth-degree tears**
- uncertain effect on perineal trauma requiring suturing
- uncertain effect on first-degree tears or second-degree tears
- increase in the number of women with intact perineum (interpreted with caution)
- reduction in the rate of episiotomy (considerable uncertainty)

Perineal massage in second stage of labour

- the data regarding the protective effect of perineal massage in the second stage of labour are inconclusive
- rates of intact perineums, first- and second-degree tears and episiotomies were similar in the massage and control groups
- **fewer third-degree tears in the massage group** (12 [1.7%] versus 23 [3.6%]; absolute risk 2.11, RR 0.45, 95% CI 0.23–0.93)

Warm compresses

Albers 2005

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Warm compresses versus control (hands off or no warm compress)

- **reduction in incidence of third- and fourth-degree perineal tears**
- the effect on other the incidence of perineal trauma and grades of perineal tears is uncertain
- uncertain effect on first-degree tears or second-degree tears and rates of episiotomy

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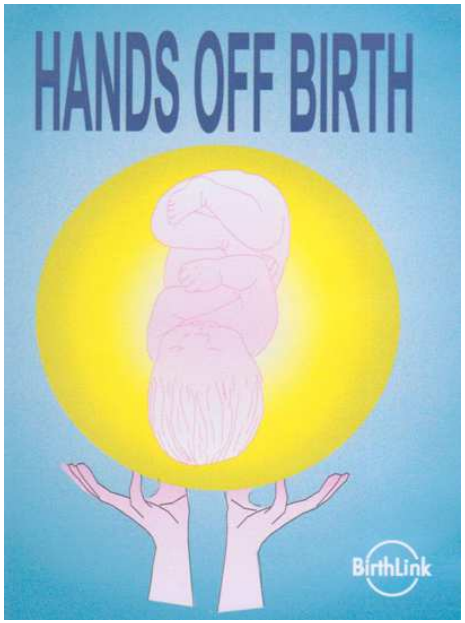
Hands off (or poised) compared to hands on

- **reduces the use of episiotomy**
- there was no increase of third- and fourth-degree tears
- not affect rates of intact perineum, perineal trauma requiring suturing, or perineal trauma rates of any degree



The Management of Third- and Fourth-Degree Perineal Tears

Green-top Guideline No. 29
June 2015

Perineal protection

The NICE *Intrapartum care* guideline[23] found no difference between 'hands poised' and 'hands on' the perineum as prevention for OASIS. However, more recently there have been interventional studies using programmes which have successfully reduced OASIS rates, all of which have described manual perineal protection/'hands on' techniques.[29,30]

These include:

1. Left hand slowing down the delivery of the head.
2. Right hand protecting the perineum.
3. Mother NOT pushing when head is crowning (communicate).
4. Think about episiotomy (risk groups and correct angle).

Evidence level 2+

The best method of perineal support/protection is unclear, with the Ritgen manoeuvre (delivering the fetal head, using one hand to pull the fetal chin from between the maternal anus and the coccyx and the other on the fetal occiput to control speed of delivery) no better than 'standard care' (not specifically defined but it included perineal protection/'hands on').[31]

Evidence level 1+

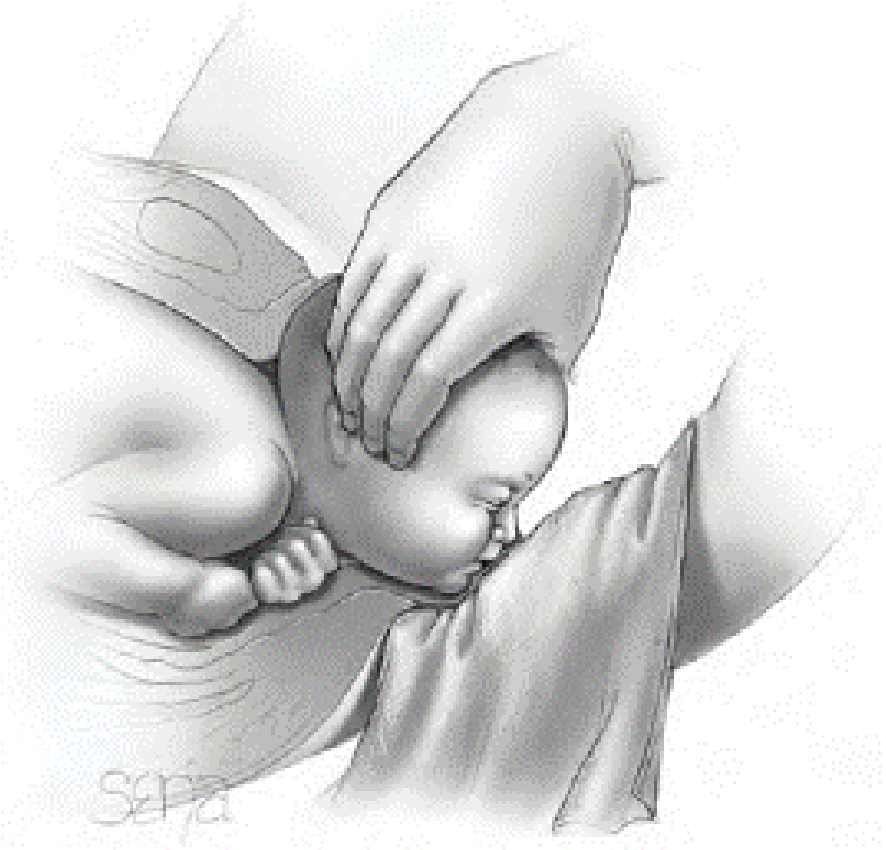
However, the positive effects of perineal support[29,30] suggest that this should be promoted, as opposed to 'hands off' or 'poised', in order to protect the perineum and reduce the incidence of OASIS.

Evidence level 2+

Ritgen’s maneuver

-the fetal chin is reached for between the anus and coccyx and pulled interiorly, while using the fingers of the other hand on the fetal occiput to control the speed of the delivery and keep the flexion of the head.

- Modified Ritgen’s maneuver



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Ritgen's manoeuvre versus standard care

- less likely to experience first-degree perineal tears
- more likely to experience second-degree perineal tears
- uncertain effect on the incidence of intact perineum
- no clear differences in the risk of third- and fourth-degree perineal tears, intact perineum, and episiotomy

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- delivery of posterior versus anterior shoulder first
- use of perineal protection device
- use of different oils/wax
- use of cold compresses

→ No effects on perineal outcomes

PRACTICE BULLETIN

CLINICAL MANAGEMENT GUIDELINES FOR OBSTETRICIAN–GYNECOLOGISTS

NUMBER 165, JULY 2016

Prevention and Management of Obstetric Lacerations at Vaginal Delivery

Birthing Position

upright or lateral birth positions compared with supine or lithotomy positions were associated with:

- **fewer episiotomies and operative deliveries**
- **higher rates of second-degree lacerations**
- *with epidural anesthesia did not show a clear benefit of any upright position compared with a lying down position*

women in the lateral position with delayed pushing were more likely to deliver with an intact perineum

BMJ. 2017; 359: j4471.
Published online 2017 Oct 18.

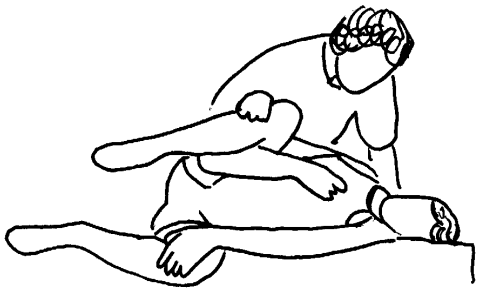
Upright versus lying down position in second stage of labour in nulliparous women with low dose epidural: BUMPES randomised controlled trial

The Epidural and Position Trial Collaborative Group

Women in labour at term with an epidural and a singleton fetus

Lying down position (left or right lateral) **compared with upright position during the second stage of labour:**

- Increases the chance of spontaneous vaginal birth
- Recuce incidence of **episiotomy** not statistically significant
- Recuce incidence of **obstetric anal sphincter injury** not statistically significant



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Position in the second stage of labour for women without epidural anaesthesia (Review)

Gupta JK, Sood A, Hofmeyr GJ, Vogel JP

benefits for upright posture in women without epidural anaesthesia

- **very small reduction in the duration of second stage of labour (mainly from the primigravid group)**
- **reduction in episiotomy rates and assisted deliveries**

- increased risk blood loss greater than 500 mL
- increased risk of second degree tears

PRACTICE BULLETIN
CLINICAL MANAGEMENT GUIDELINES FOR OBSTETRICIAN–GYNECOLOGISTS
NUMBER 165, JULY 2016

Prevention and Management of Obstetric Lacerations at Vaginal Delivery

Delayed Pushing

- delayed pushing (between 1 hour and 3 hours)
- immediate or early pushing (within 1 hour of full dilation)

no differences in rates of perineal laceration
(RR, 0.90; 95% CI, 0.7–1.17)

or use of episiotomy
(RR, 0.97; 95% CI, 0.88–1.06)

between groups

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Pushing/bearing down methods for the second stage of labour (Review)

Lemos A, Amorim MMR, Dornelas de Andrade A, de Souza AI, Cabral Filho JE, Correia JB

Timing of pushing with epidural

delayed pushing vs immediate pushing

- shortening of the actual time pushing (expense of an overall longer duration of the second stage of labour)
- increase of spontaneous vaginal delivery
- increased risk of a low umbilical cord pH (based only on one study)
- **no clear difference in serious perineal laceration and episiotomy**

Type of pushing with or without epidural

- no conclusive evidence to support or refute any specific style as part of routine clinical practice
- the woman's preference and comfort and clinical context should guide decisions

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Selective versus routine use of episiotomy for vaginal birth (Review)

Jiang H, Qian X, Carroli G, Garner P Cochrane Database of Systematic Reviews 2017, Issue 2.

- episiotomy is used as a routine care policy during births in some countries
- both tear and episiotomy need sutures, can result in severe pain, bleeding, infection, pain with sex, and can contribute to long term urinary incontinence
- harms as part of routine management of normal births remains unclear
- the question of whether to apply a policy of routine episiotomy is important for clinical practice and for the health and well-being of women and babies

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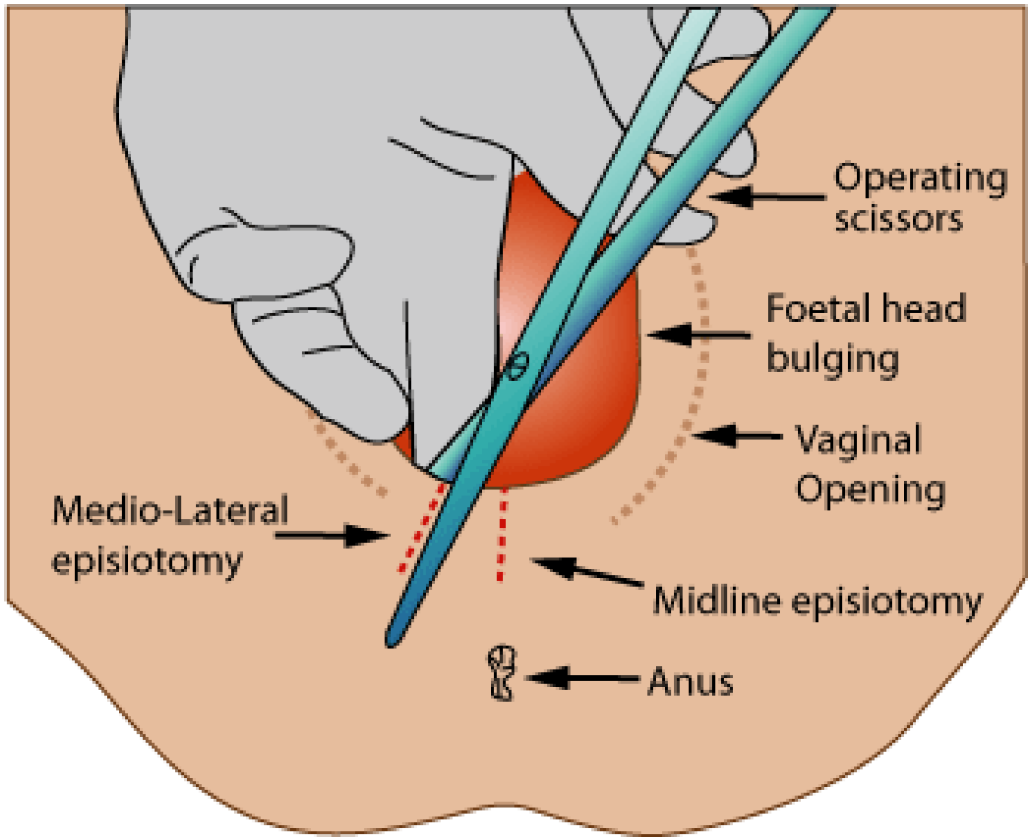
Outcomes

- **selective episiotomy compared with routine episiotomy resulted in less severe perineal/vaginal trauma, and less need for perineal suture**
- the evidence does not support a policy of routine episiotomy:
  - increased risk of severe perineal/vaginal trauma
  - no clear difference on blood loss at delivery
  - babies with newborn Apgar score less than seven at five minutes
  - perineal infection, women with moderate or severe pain
  - long-term dyspareunia
  - long-term urinary incontinence

Episiotomy and 2nd degree tears

Indications for episiotomy

- Minimise multiple & extensive tears
- Thick & inelastic perineum
- Forceps delivery
- Expedite delivery
- Suspected fetal distress
- Shoulder dystocia
- Breech



Benefits of midline episiotomy

- Decreased blood loss
- Easier to recognise OASIS
- Easier to repair
- Better anatomical result
- Reduced pain
- Decreased risk of infection
- Decreased dyspareunia

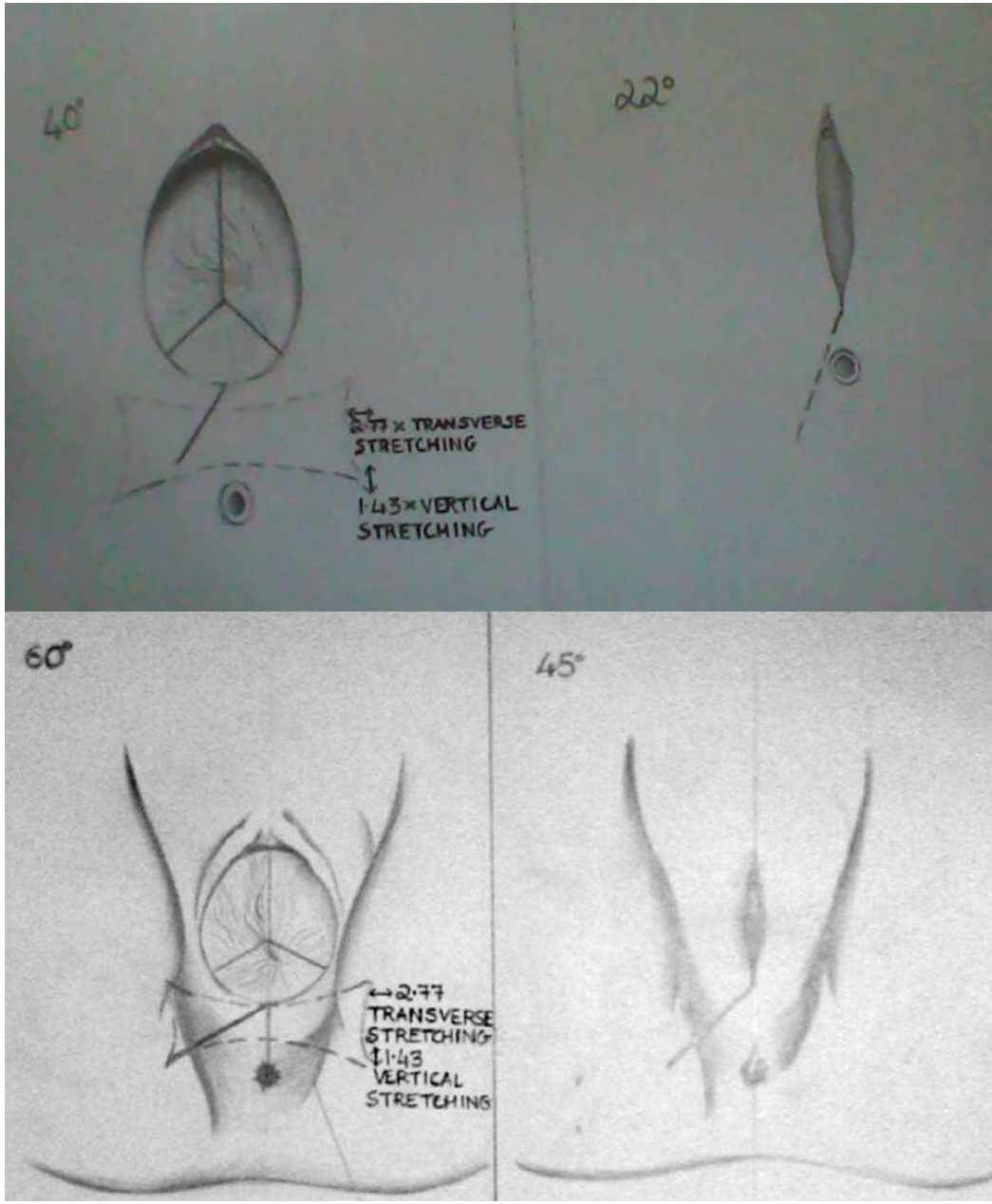
Disadvantage of midline episiotomy

- ↑ OASIS

Angle of episiotomy before and after repair

- 50 women undergoing first delivery
- Mediolateral episiotomy during crowning at 40 degrees away from midline
- Angle of scar measured after delivery = 22.5 degrees
- Should aim for 60 degrees at crowning

Kalis V et al 2008 (IJGO)



Medical Devices: Evidence and Research

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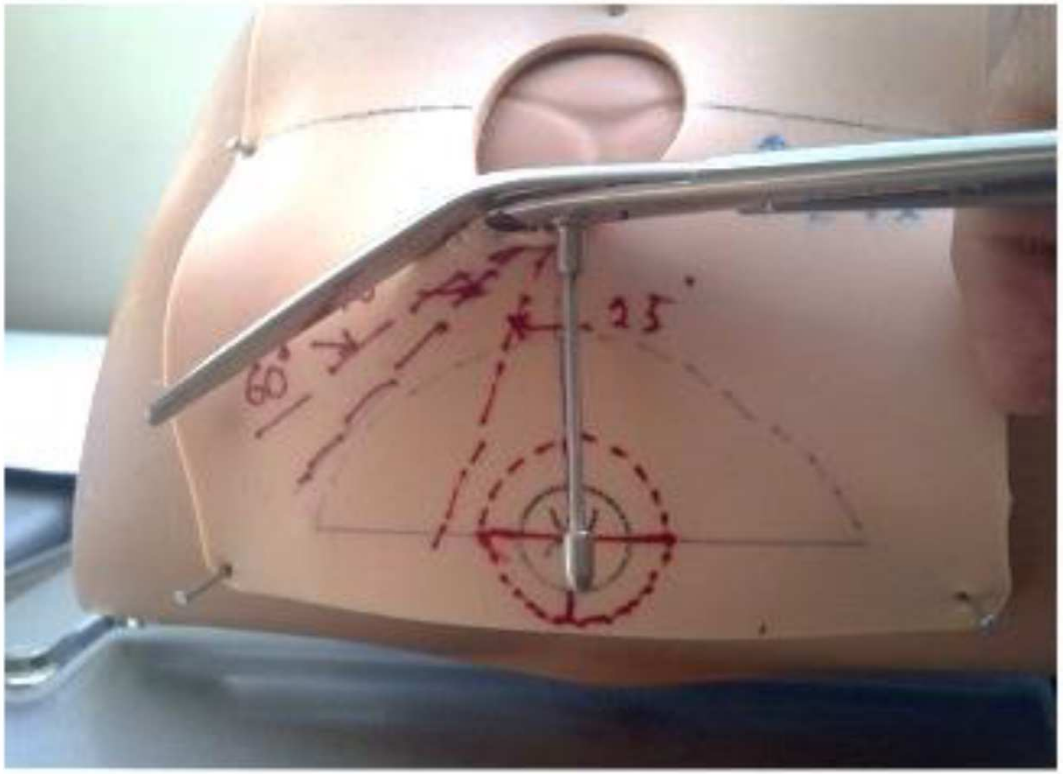
ORIGINAL RESEARCH

Cutting a mediolateral episiotomy at the correct angle: evaluation of a new device, the Episcissors-60



- No midwife and only 13 (22%) doctors performed a truly mediolateral episiotomy (between 40 to 60 degrees from the midline)
- Episiotomies angled closer to the midline significantly associated with OASIS (26 vs 37 degrees)

Andrews V et al BJOG 2004

Andrews V et al Birth 2006

- 50% risk reduction for every 6° from midline
- **The relationship of episiotomy angle with risk of OASIS was significant (p<0.001)**

Eogan et al BJOG 2006

Int Urogynecol J
DOI 10.1007/s00192-015-2625-9

ORIGINAL ARTICLE

Cutting an episiotomy at 60 degrees: how good are we?

Madhu Naidu &Dharmesh S. Kapoor &Sarah Evans &
Latha Vinayakarao &Ranee Thakar &Abdul H. Sultan

- create and validate teaching and training programmes on how to perform an appropriate angled episiotomy in order to reduce the risk of OASIs
- For maintaining the standard required angle at the time of the episiotomy:
  - mark the perineum during the first stage of labour
  - devices such as the EPISCISSORS-60
- **marking the perineum in the first stage at 60° results in an angle of 90° at crowning, but marking at 30° results in 60° at crowning**
- doctors and midwives are not accurate at predicting the angle at the time of episiotomy

A. Paper replica of the episiotomy training pad

B. An episiotomy being made at 60 degrees

Episiotomy & 2nd degree tears - Suture Materials

- 5 RCT (n = 2349 women)
- Similar rates of short and long-term pain
- Fewer women in the rapidly absorbing suture group reported the need for pain relief at 10 days
- More women in the standard suture material group required suture removal
- **Suture material**
  - Standard polyglactin 910 (Vicryl) - not totally absorbed from the wound until 60–90 days.
  - Rapid absorption polyglactin 910 (Vicryl Rapide) - completely absorbed from the tissue by 42 days

Dexon vs *Vicryl Kettle C, Dowswell T, Ismail K 2010*

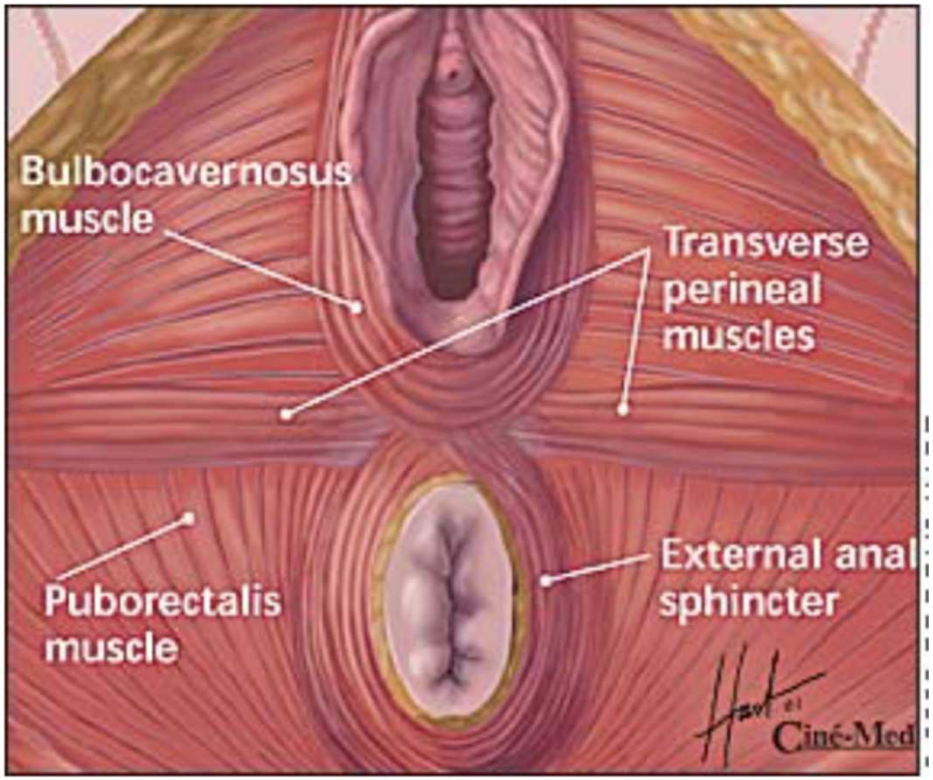
Repair Techniques - Evidence based practice

16 RCT's (n = 8184) found that continuous stitches compared to interrupted is associated with:

- Less short term pain at 10 days
- Reduction in analgesia use
- Reduction in suture removal
- No significant difference in dyspareunia
- Reduction in pain is even greater if continuous technique used for all layers compared to only skin

Kettle C, Dowswell T, Ismail K 2012 Cochrane systematic review

Perineal Anatomy

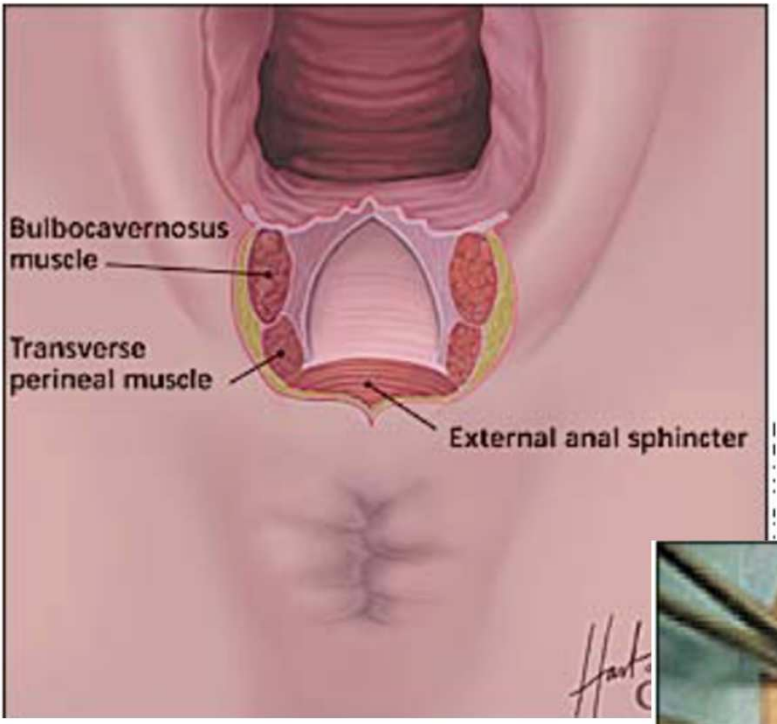


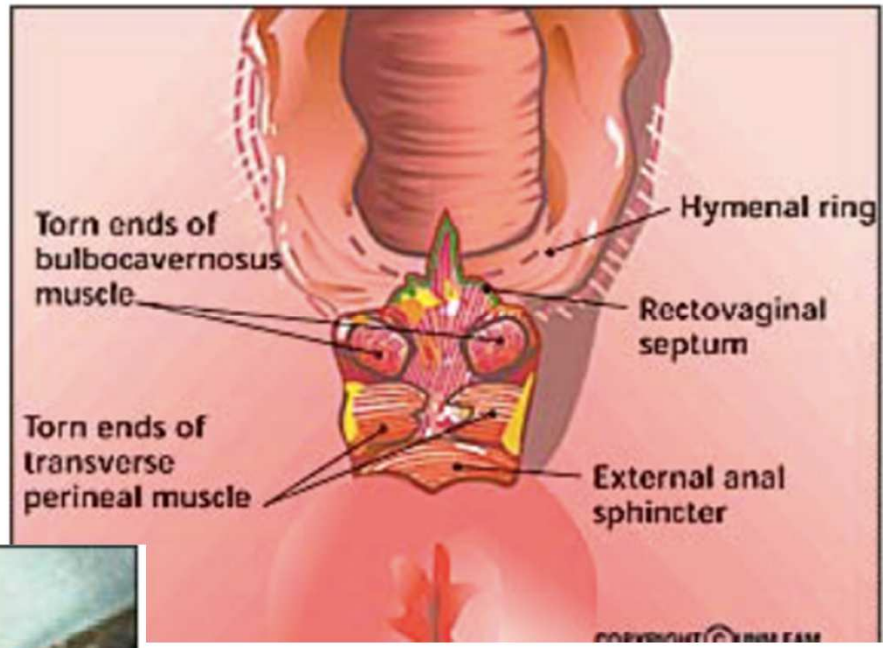
perineal body

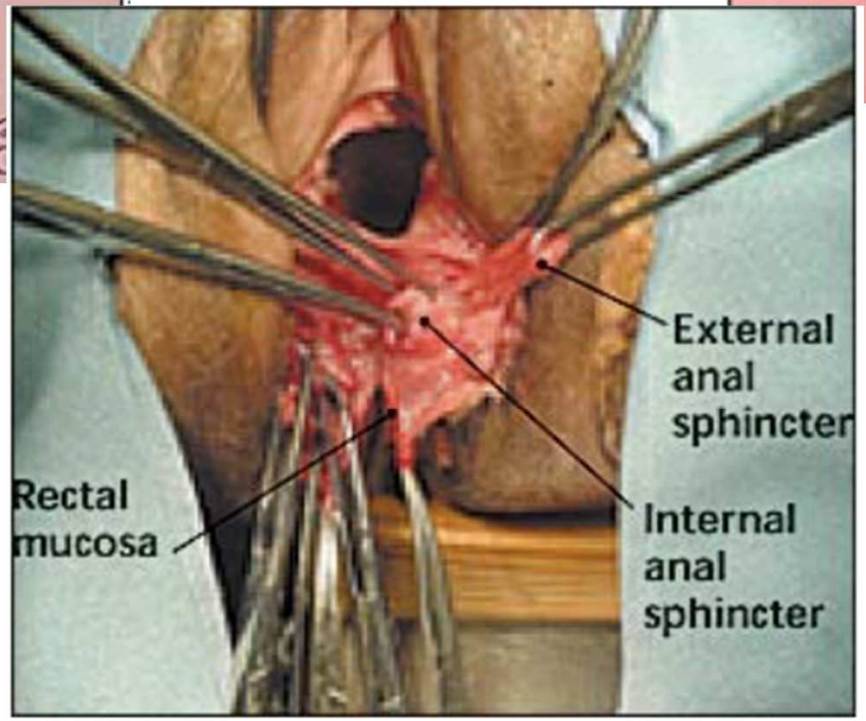
- between the vagina and the rectum
- Bulbocavernosus and transverse perineal muscles
- puborectalis muscle and external anal sphincter contribute additional muscle fibers.

anal sphincter complex

- lies inferior to the perineal body
- extends for a distance of 3 to 4 cm
- external anal sphincter
  - composed of skeletal muscle
- internal anal sphincter
  - overlaps and lies superior to the external anal sphincter
  - composed of smooth muscle and is continuous with the smooth muscle of the colon
  - provides most of the resting anal tone that is essential for maintaining continence


Bulbocavernosus muscle
Transverse perineal muscle
External anal sphincter

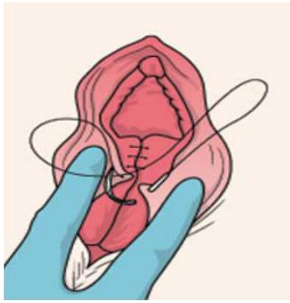

Torn ends of bulbocavernosus muscle
Hymenal ring
Rectovaginal septum
Torn ends of transverse perineal muscle
External anal sphincter

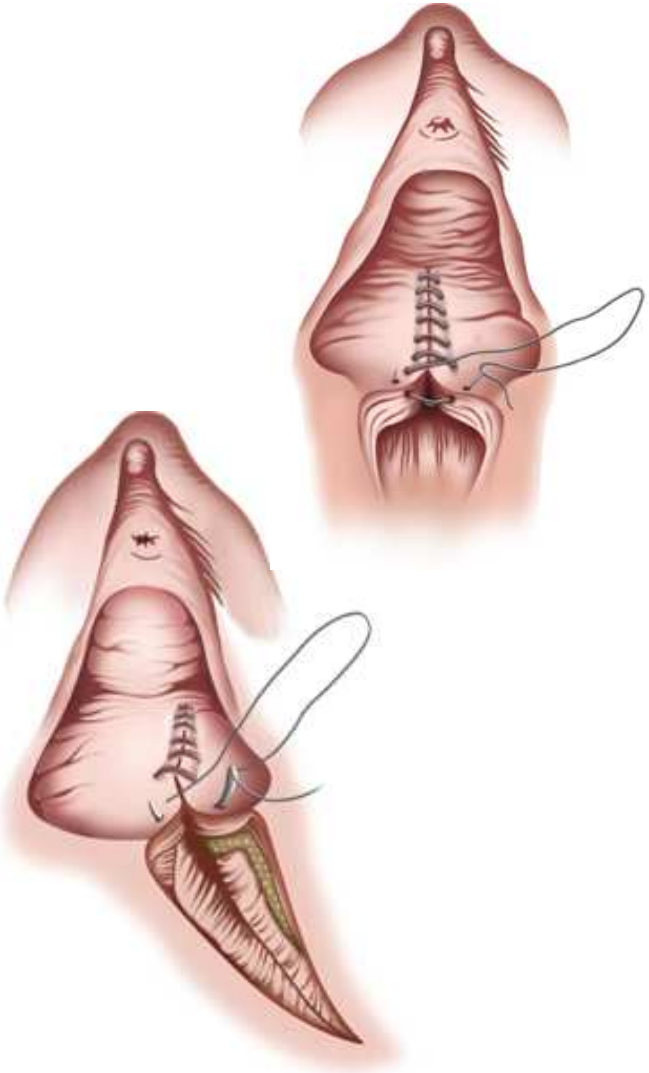

External anal sphincter
Rectal mucosa
Internal anal sphincter

Prior to commencing the repair

- Check **extent of perineal trauma** – perform per vaginal and per rectal examination
- Check **equipment** - suture pack, materials
- If needed ensure that appropriate supervision/support is available prior to commencing the repair
- Ensure that the wound is adequately **anaesthetised** (10-20mls Lignocaine 1%) - don’t inject local through the skin

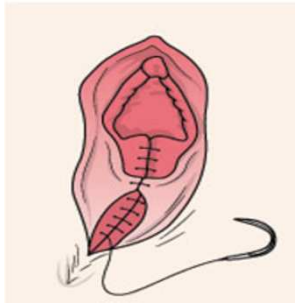
Step 1 – suturing the vaginal wall

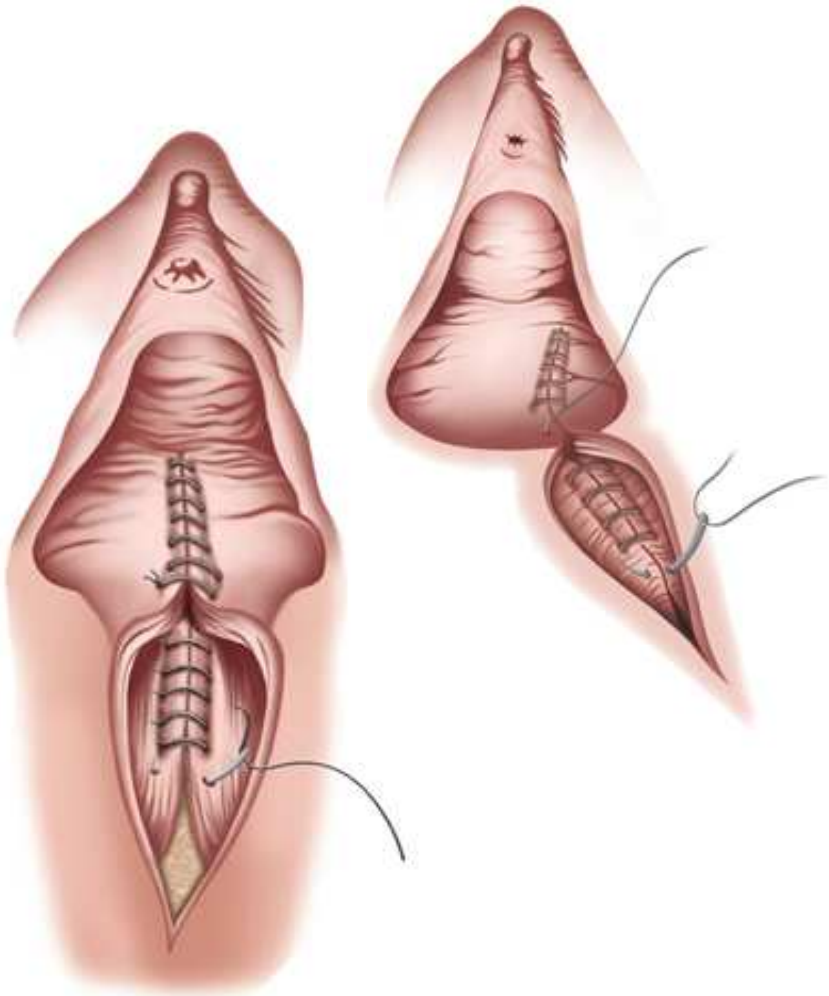




- Identify the apex of the vaginal wound
- Insert the first stitch 5-10mm above the apex to secure any bleeding points that may not be visible
- Close the vaginal trauma with a loose continuous stitch
- Each stitch should reach the trough of the wound to close any dead space
- Match each stitch on either side of the wound for depth as well as width
- Continue to suture the vagina until the hymenal remnants are reached and re-approximated
- At the fourchette insert the needle through the skin to emerge in the centre of the perineal trauma

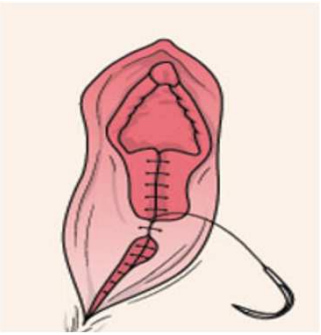
Step 2 – suturing the perineal muscle layer

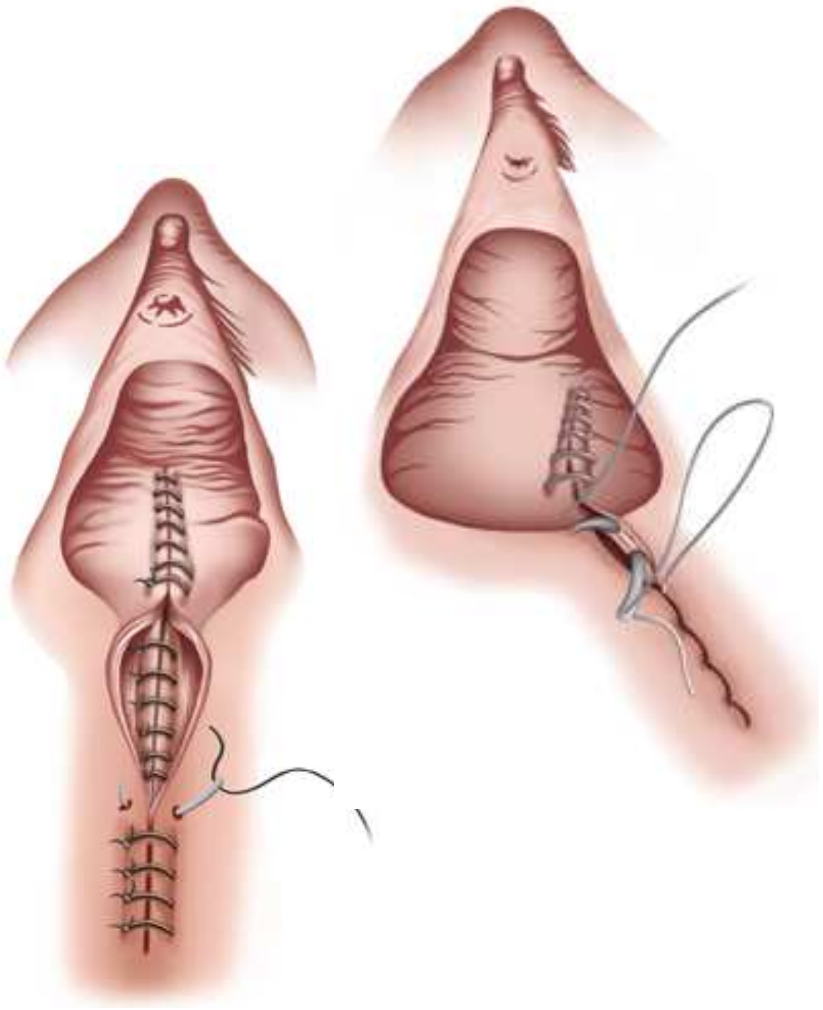




- Insert the needle at the level of the fourchette (near to the hymenal ring) to emerge deep in the centre of the muscle layer
- Check the depth of the trauma - it may be necessary to insert two layers of sutures
- Continue to close the perineal muscle with a continuous non-locking stitch - taking care not to leave any dead space

Step 3 – suturing the skin layer





- Reverse the stitching direction at the inferior aspect of the trauma
- At the inferior end of the wound bring needle out

In perineal repair, skin sutures have been shown to increase the incidence of perineal pain at three months after delivery.

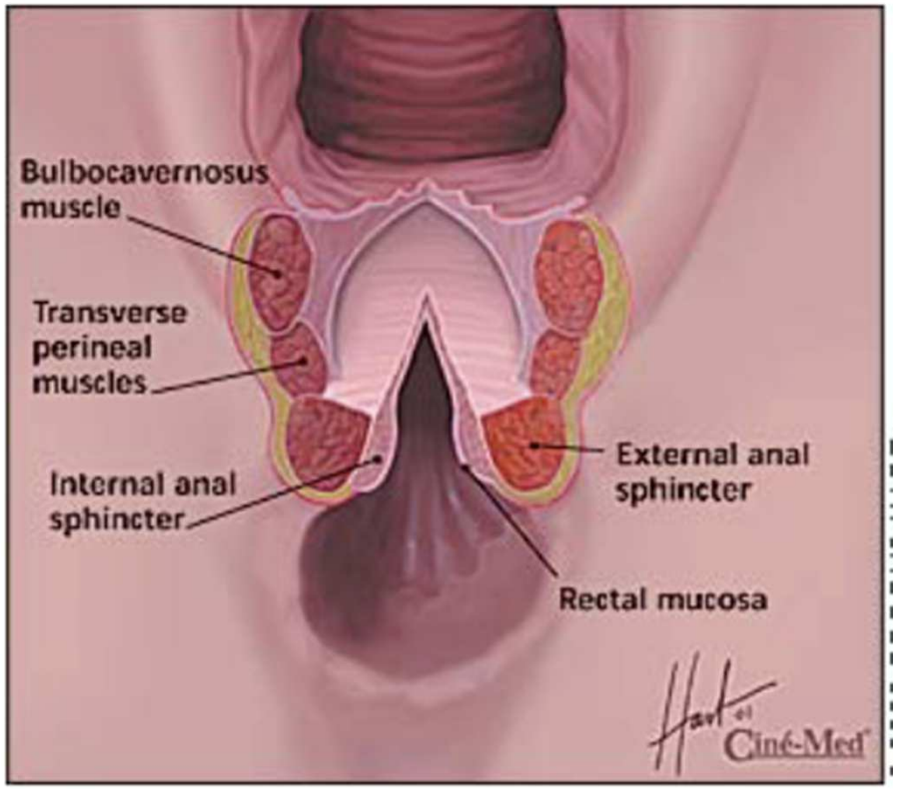
wound until the hymenal remnants are reached

- Complete the repair to the hymenal ring, swing the needle under the tissue into the vagina behind the hymenal remnants

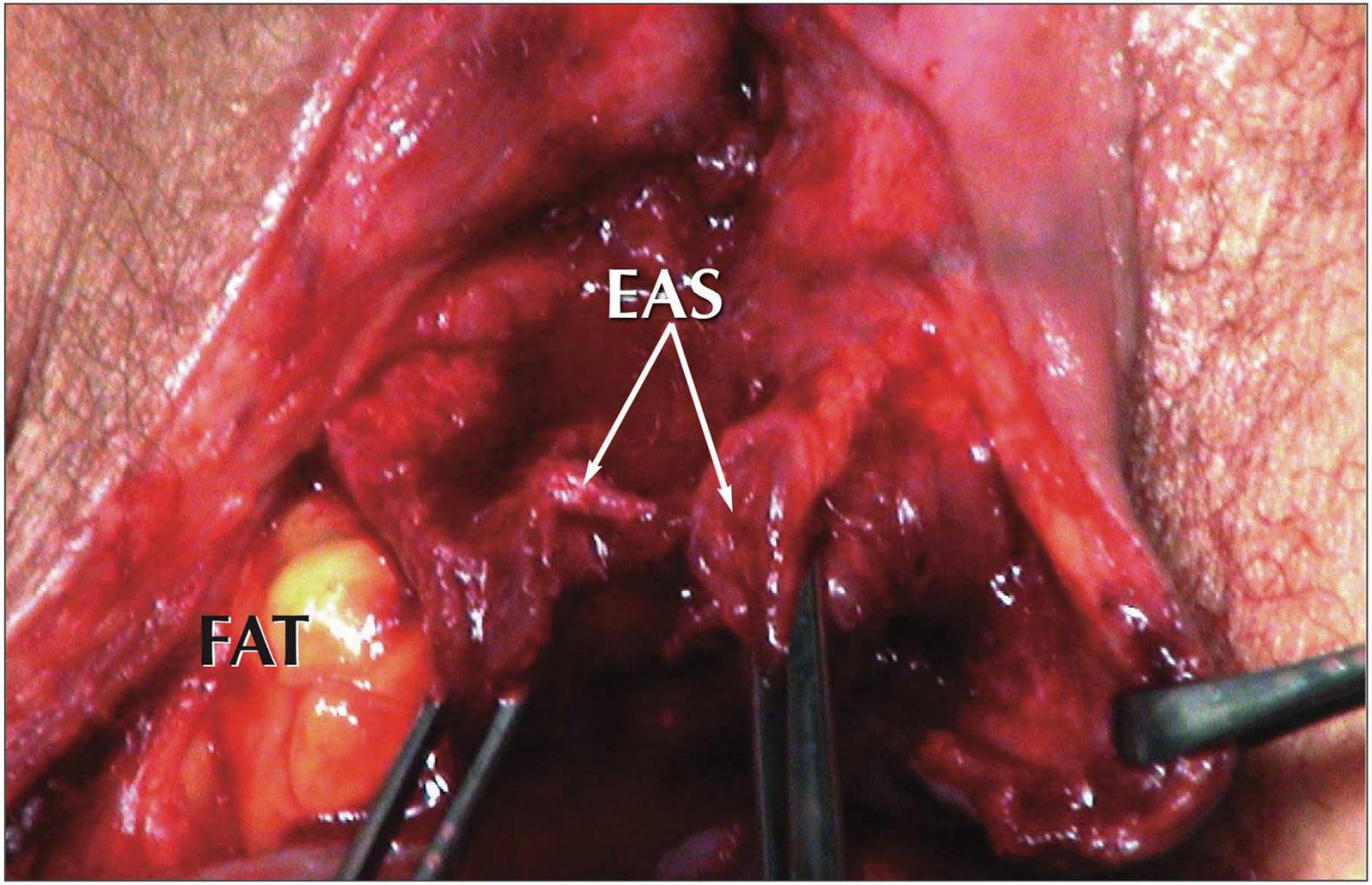
Once suturing is complete…

- **Inspect** the repaired perineal trauma to ensure it has been anatomically **aligned** correctly and that **haemostasis** has been achieved
- A *vaginal examination* should be performed ensuring that two fingers can easily be inserted into the vagina
- A rectal examination should be carried out (with consent) to confirm that no sutures have penetrated the rectal mucosa
- The woman should be given *advice* to promote self-management of her perineal trauma and general health and wellbeing
- She should also be given information about when and who to contact if there are any short- or long-term postnatal health problems

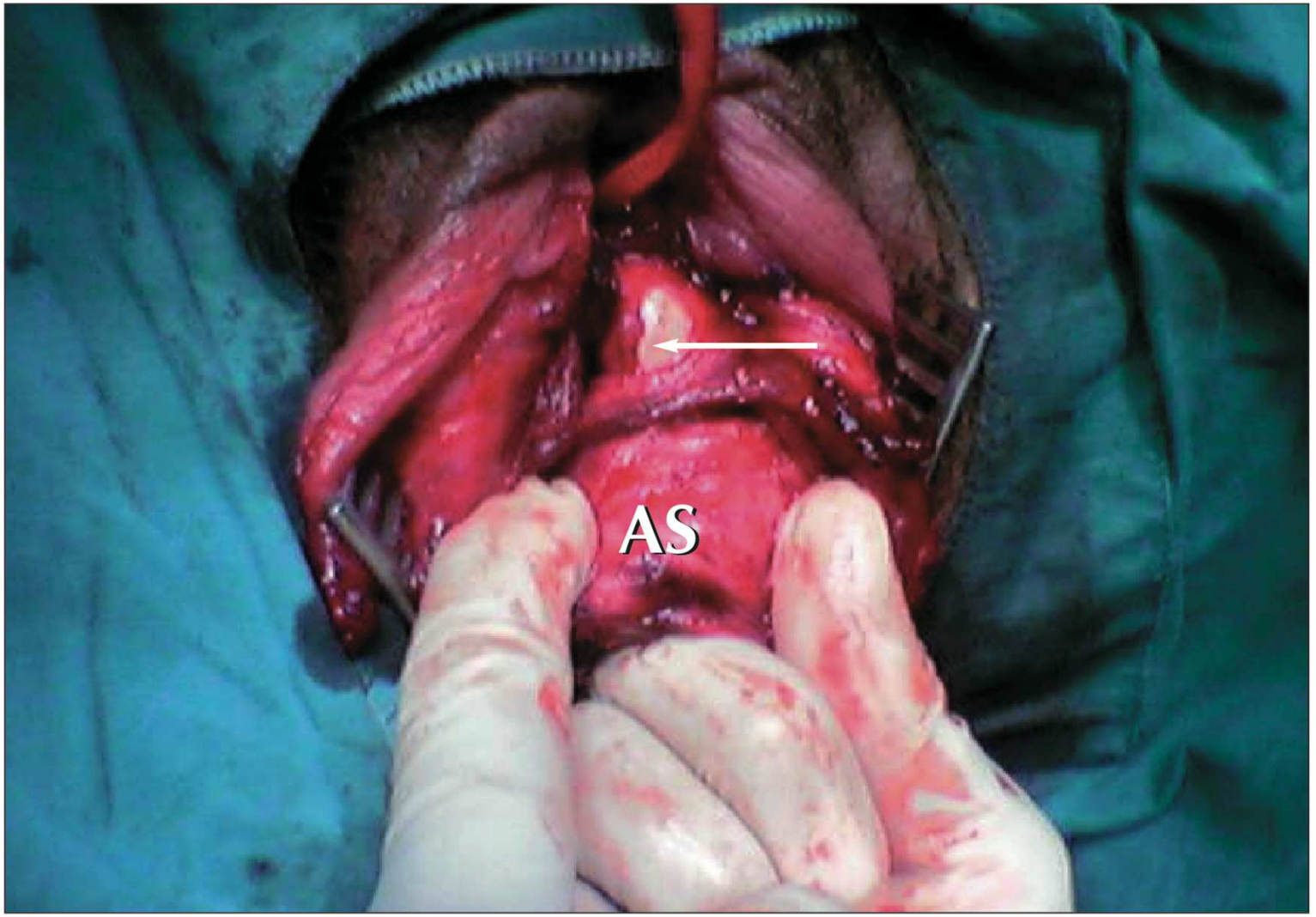
Identification of anal sphincter injury



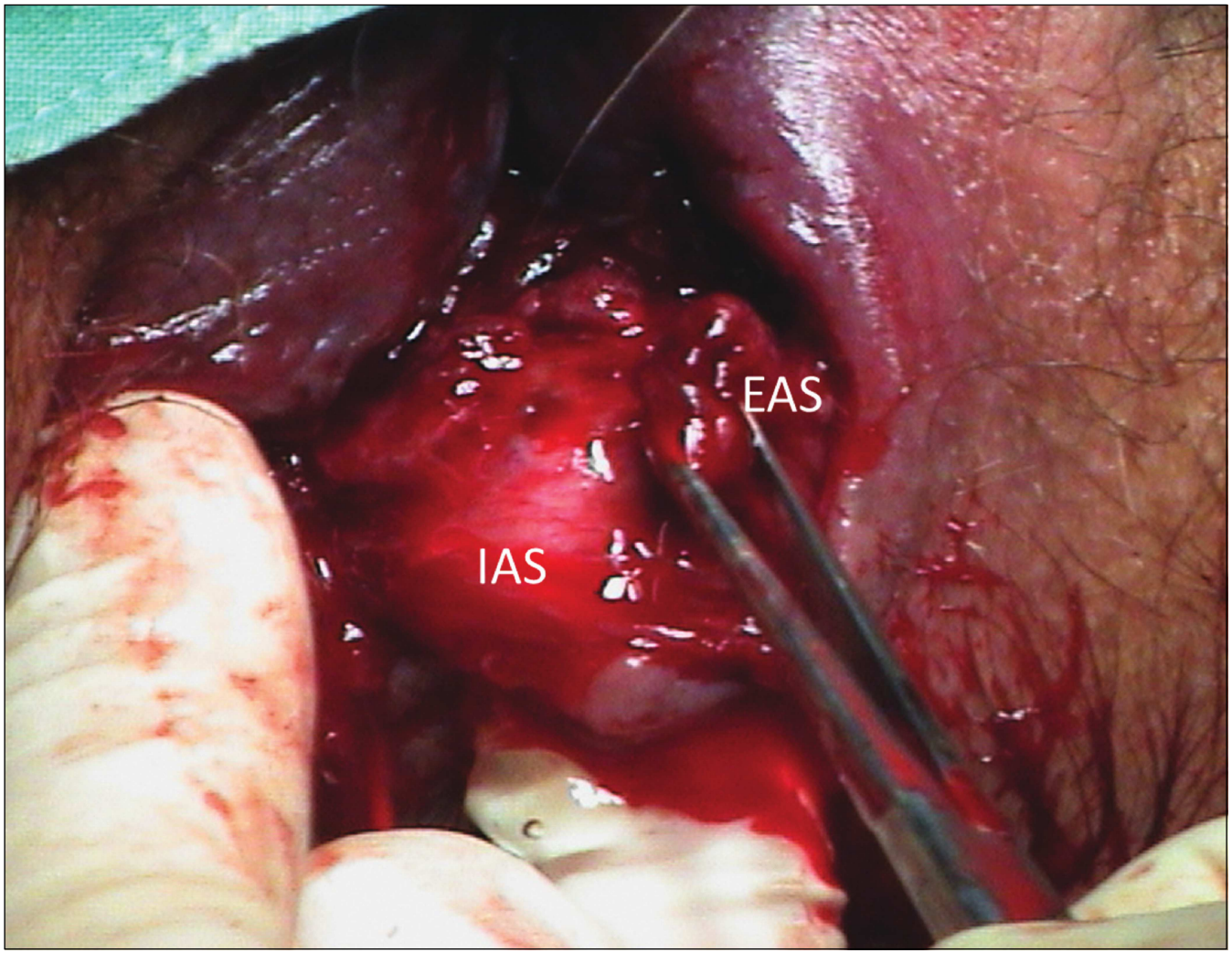
- Look for absence of ‘puckering’ around the anterior section of the anus (between 9 and 3 o'clock)
- Observe if trauma extends down to the anal margin
- Insert your index finger into the woman’s anus (with consent) and ask her to ‘squeeze’.
- If the external anal sphincter is damaged the separated ends can be observed retracting backwards towards the ischiorectal fossa
- If there is damage to the internal anal sphincter this is more difficult to detect as this is a less well defined paler muscle
- Feel the muscle bulk of the sphincter by palpating between finger and thumb



Third degree tear (Grade 3b) with the external AS (EAS) grasped by Allis forceps, the ischioanal fat is lateral to the EAS



Arrow demonstrating a buttonhole tear in the rectum with an intact AS



Third degree tear (Grade 3b) demonstrating intact IAS and torn ends of the EAS

The Management of Third- and Fourth-Degree Perineal Tears

Green-top Guideline No. 29
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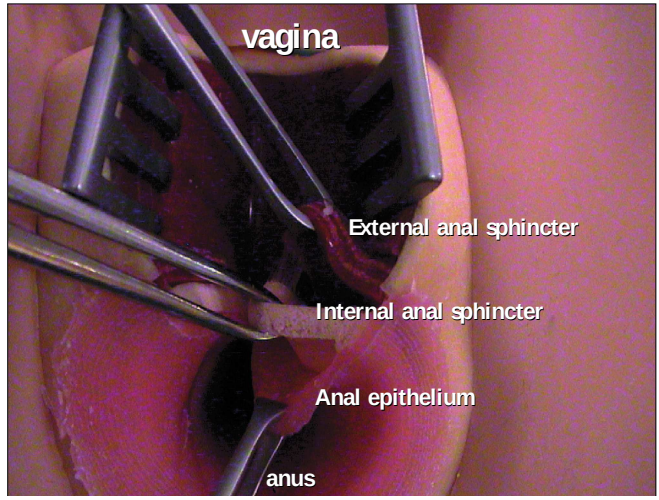


Purpose-built teaching model demonstrating AS anatomy

Suture materials

3-0 polyglactin should be used to repair the anorectal mucosa as it may cause less irritation and discomfort than polydioxanone (PDS) sutures. D

When repair of the EAS and/or IAS muscle is being performed, either monofilament sutures such as 3-0 PDS or modern braided sutures such as 2-0 polyglactin can be used with equivalent outcomes. B

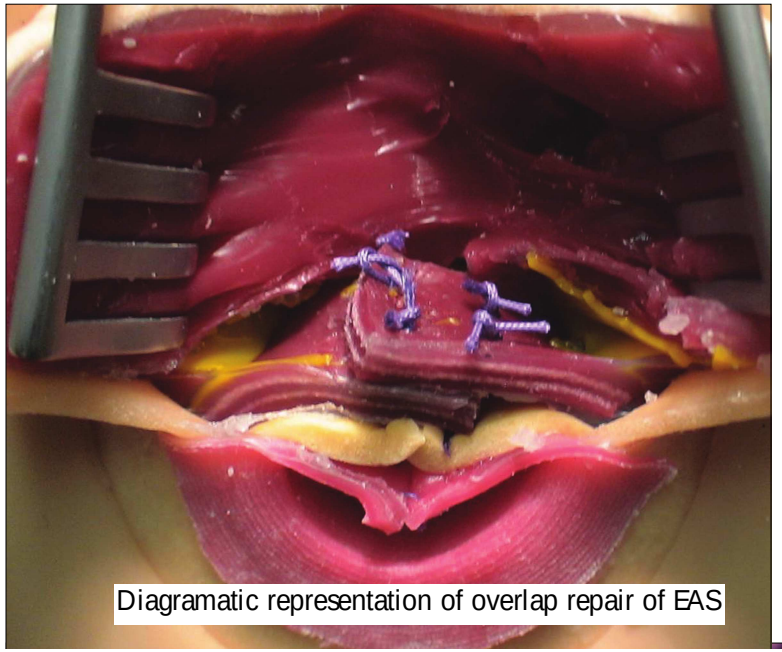
When obstetric anal sphincter repairs are being performed, the burying of surgical knots beneath the superficial perineal muscles is recommended to minimise the risk of knot and suture migration to the skin. B

The use of PDS sutures for repair of the anorectal mucosa should be avoided as they take longer to dissolve and may cause discomfort in the anal canal.[39] Evidence level 4

Methods of repair for OASIS

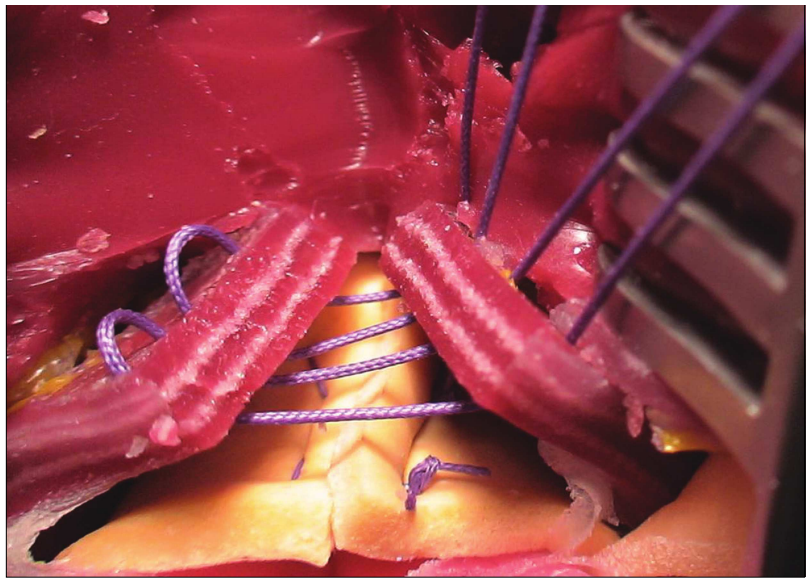
- **6 RCTs of EAS overlap vs end-to-end**
  Conclusions
  - Overlap appears to be associated with **lower risks of developing urgency and anal incontinence symptoms**
  - At 36 months there was no difference in flatus or faecal incontinence between the two techniques
  - However, since this evidence is based on only two small trials, more research evidence is needed in order to confirm or refute these findings
    Is the overlap repair more robust over time???

Fernando R et al 2013 (Cochrane Review)



Diagramatic representation of overlap repair of EAS

Diagramatic representation of end-to-end repair with figure of eight sutures



OASIS repair - recommended practice

- Experienced obstetrician
- Repair in operating theatre
- Regional or general anaesthesia
- IV antibiotics +/- oral for 3 days
- EAS
  - End-to-end for all 3a
  - End-to-end or overlap for full thickness and full length 3b
- IAS
  - End–to-end mattress
- Monofilament sutures (PDS) for the sphincter (Vicryl 2-0 can also be used)
- Rectal examination before and after repair
- Foleys catheter for 12 hours
- Lactulose 15mls bd for 7 to 10 days
- Clinic Follow up in 2 to 3 months

Sultan AH, Thakar R 2007