Obstetric Anal Sphincter Injury:

Prevention and Management of OASIS
Objectives

• Review updated classification of perineal lacerations

• Understand strategies to reduce the incidence of obstetrical anal sphincter injuries (OASIS)

• Identify best practice for perineal laceration repair
Conflict of Interests

• Nothing to disclose....
Anatomy of the Perineum
Anatomy of the anal sphincter

- Bulbocavernosus muscle
- Transverse perineal muscles
- Internal anal sphincter
- External anal sphincter
- Rectal mucosa
Anatomy of the Anal Sphincter
Physiology of the anal sphincter

• Internal Anal Sphincter
  - Under autonomic control
  - Provides ~80% of the resting pressure of the anal canal
  - Enables sensory ‘sampling’ of the anal canal

• External Anal Sphincter
  - Striated muscle under voluntary control
  - Provides squeeze pressure of anus
  - Keeps anal orifice closed
OASIS definitions

- Previous definition included 4 grades:
  - 1\textsuperscript{st} degree
    - Superficial vaginal and/or perineal skin
  - 2\textsuperscript{nd} degree
    - Perineal body
  - 3\textsuperscript{rd} degree
    - Anal sphincter involvement
  - 4\textsuperscript{th} degree
    - Rectal mucosa
OASIS definition

- **First degree:**
  - Injury to perineal skin only

- **Second degree:**
  - Injury to perineum involving perineal muscles but not involving the anal sphincter

- **Third degree:**
  - Injury to perineum involving the anal sphincter complex:
    - 3a Less than 50% of EAS thickness torn
    - 3b More than 50% of EAS thickness torn
    - 3c Both EAS and IAS torn

- **Fourth degree:**
  - Injury to perineum involving the anal sphincter complex (EAS and IAS) and anal epithelium

- **Button Hole Injury**
Epidemiology of OASIS

- ~50-80% women will experience laceration
  - Uncertain true incidence of OASIS
  - 3.3% 3rd degree
  - 1.1% 4th degree
  - Systemic reviews estimate closer to 11%
- UK
  - 6.1% in primips
  - 1.7% in multips
- Canada
  - 4-6.6%
  - 27-35% primips with endoanal US within 2 months of delivery!
Risk factors for OASIS

- **Maternal risks**
  - Primiparity, FGM, Asian Ethnicity, Diabetes, FH OASIS

- **Delivery risks**
  - OVD, Shoulder Dystocia, Midline episiotomy

- **Fetal risks**
  - Birth weight >4000gm, Persistent OP position
Complications of OASIS

• Perineal pain
  - Immediate
  - Long term dyspareunia

• Wound complications
  - Abscess formation
  - Wound breakdown
  - Fistula formation
  - Retained surgical sponges!

• Anal Incontinence

• Psychological/Financial distress
OASIS as an Obstetric Quality Care Measure

- OASIS - included in 2002 Joint Commission Pregnancy and Related Conditions Core Measure set

- National Quality Forum included OASIS as a quality measure in 2003
  - Has since been withdrawn

- Incidence did not decrease
  - Episiotomy use already restricted
  - Restricting OVD will increase CD rate
Identification of OASIS

- Formal training increases identification
- Prepare patient
  - Position, lighting, analgesia
- Inspection
  - Labia, perineum, distal vagina, anal sphincter complex
- Palpation
  - Dominant index finger in anus, thumb in vagina
  - Palpate with a “pill rolling” motion
- Rectal Exam
  - Enables identification of button hole tear
Management of OASIS

1. **Repair anorectal mucosa**
   - 3-0 vs 4-0, Vicryl vs Chromic vs PDS

2. **Repair internal anal sphincter**
   - End to end, interrupted stitches
   - 3-0 Vicryl

3. **Repair external anal sphincter**
   - End to end vs overlapping
   - 3-0 vs 2-0, Vicryl vs PDS

4. **Repair ‘second degree’**

   - **Delayed repair**
Overlapping vs End to End Repair of EAS
Immediate OASIS Aftercare

- **Prophylactic Antibiotics**
  - Single post op dose 2\textsuperscript{nd} generation cephalosporin

- **Bowel Regime**
  - Avoid constipation
    - Use stool softeners and oral laxatives
    - Counsel women on avoidance of constipation

- **Analgesia**
  - Ice packs
  - Rectal diclofenac (not if 4\textsuperscript{th} degree)

- **Urinary Retention**
  - Increased risk for retention – should be closely monitored
Prevention of OASIS

- **Head control**
  - Perineal support, Ritgen Maneuver, Flexion Maneuver, Finnish Maneuver
- **Perineal massage**
  - Perineal massage from 34wks +
  - Second stage perineal massage
- **Warm compresses**
- **Delivery position**
  - Standing vs sitting, lithotomy vs lateral
- **Episiotomy**
  - Midline vs mediolateral
- **FAVD vs VAVD**
# Head Control to prevent OASIS

<table>
<thead>
<tr>
<th>Maneuver</th>
<th>Description of technique</th>
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<tbody>
<tr>
<td>Perineal support</td>
<td>One hand is applied against the perineum and the other hand on the fetal occiput to control the expulsion of the fetal head.</td>
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<tr>
<td>Ritgen maneuver</td>
<td>“...in an interval between pains...two fingers are applied just behind the anus, and forward and upward pressure is made upon the brow through the perinaeum.” A modification is to perform the Ritgen maneuver during a contraction.</td>
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<tr>
<td>Flexion maneuver</td>
<td>Maintain flexion of the emerging fetal head by exerting pressure on the occiput toward the perineum. Attempt to prevent flexion until crowning has occurred.</td>
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<td>Finnish maneuver</td>
<td>“The speed of crowning is controlled by exerting pressure on the occiput with one hand. Simultaneously the thumb and index finger of the other hand are used to support the perineum while the flexed middle finger takes a grip on the baby's chin. When a good grip has been achieved, the woman is asked to stop pushing and to breathe rapidly, while the accoucheur slowly helps the baby's head through the vaginal introitus. When most of the head is out, the perineal ring is pushed under the baby's chin.”</td>
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*In a large randomized trial of the perineal support maneuver versus the modified Ritgen maneuver, there was no significant difference in OASIS; 4.4% versus 5.5% of vaginal deliveries, respectively.*
Long Term Care

- Disclose and arrange follow up
  - Notify and document type of laceration
  - Short term follow up
- Long term outcomes
  - 60-80% women asymptomatic at 12 months
- Risk of recurrence
  - 4-8%
- Prophylactic Episiotomy?
  - Role in future pregnancy unclear
- Elective Cesarean Delivery
  - Should be based on patient experience and symptoms
Take Home Points

- OASIS is a major complication of VD
- Interventions can decrease rates of OASIS
  - Warm compress, perineal massage
  - Mediolateral episiotomy if episiotomy indicated
- Careful exam is important to identify it
  - Evaluate for OASIS at every delivery
- Repair should be done by a trained caregiver
  - Okay to delay repair in order to find help
- Close follow up should be performed
  - Single dose antibiotic
  - Laxative use
- Most women who experience OASIS are good candidates for future VD
References

• Prevention and Management of Obstetric Lacerations at Vaginal Delivery

• The Management of Third- and Fourth- Degree Perineal Tears

• Obstetrical Anal Sphincter Injuries (OASIS): Prevention, Recognition and Repair

• Repair of Obstetric Perineal Lacerations
  - Am Fam Physician 2003;68:1585-90

• Episiotomy Procedure and Repair Techniques
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