Vaginal Birth and Pelvic Floor Dysfunction

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Nothing to disclose

Vaginal Birth and Pelvic Floor Dysfunction

Learning Objectives

- Prevalence of pelvic floor dysfunction
- Mechanisms relevant to support, urinary and fecal continence
- Challenges posed by vaginal birth
- Five things we do know...that you can use

Risk Factors for Pelvic Organ Prolapse and Urinary Incontinence

Obstetrical Injury
Obesity
Aging
Menopause
Smoking
Caucasian race
United States Population: Over 65 Years Old

<table>
<thead>
<tr>
<th>Year</th>
<th>Prevalence</th>
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<tbody>
<tr>
<td>1900</td>
<td>4%</td>
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<tr>
<td>2000</td>
<td>12.3% (35 million)</td>
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<tr>
<td>2040</td>
<td>22% (67 million)</td>
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Fecal Incontinence: Prevalence

Community dwelling, 18-65 yo

- 28.4%


After childbirth

- Flatus/stool: 29%
- Stool: 13%


Fecal Incontinence and Parturition

Anal sphincter defects occur at first delivery

- Primips: Before 0% After 35%
- Multips: Before 40% After 44%

Incontinence associated with defect: p=0.0003

- 23% with defects had postpartum incontinence

Sultan et al. NEJM 325:1905;1993

Sphincter tear: RR 2.3

Vaginal Parity and Relative Risk of Incontinence and Prolapse

Nulliparous: Intact Connective Tissue
Intact Muscular and Neurologic Function

Multiparous: Damaged Connective Tissue
Damaged Muscular and Neurologic Function

Apical support

Uterosacral ligament tethering

Vaginal Surgery, Nichols and Randall

Courtesy John DeLancey, MD
Levator ani support

Urinary continence

Sphincteric function
Fascial support
Levator muscle action

Fecal continence

Normal Inhibition

Squeeze

10 cm
2 cm
5 cm
9 cm
Levator Ani Muscle Defects After Vaginal Delivery with MRI

80 continent nulliparas
80 continent primiparas
80 primiparas with stress incontinence

- No levator defects in nulliparas
- 20% of primiparas had defects
- Of those with defects, 71% had SUI

Peripheral Nerve Stretch Damage

Mechanical and ischemic damage
- 8% stretch stops venous flow
- 15% stretch stops arterial flow

Pudendal nerve: 9 cm from ischial spine to perineum
~1.3 cm stretch stops blood flow

Vaginal Birth and Pelvic Floor Nerve Damage

- Prolonged terminal motor latencies
- Denervation injury by needle EMG

Snooks et al. Lancet 1984

Nulliparous: Intact Connective Tissue, Intact Muscular and Neurologic Function

Multiparous: Damaged Connective Tissue, Damaged Muscular and Neurologic Function

So, Should Everyone Have a C/S?

Adjusted odds of increase with VD versus C/S:
- Prolapse 1.82
- SUI 1.81
- AI 1.72

Number-needed-to-treat analysis:
7 women “C/S only” to prevent one woman from having a pelvic floor disorder

Parity, Mode of Delivery and Pelvic Floor Disorders
Obstet Gynecol 107:1253;2006

Five things we do know...
...that you can use
1. Anal sphincter rupture is highly associated with fecal incontinence

2. Midline episiotomy is highly associated with anal sphincter rupture

   Risk with versus without midline episiotomy
   - 4 studies, n=8,675
   - RR 2.4 - 7.8

   Sphincter rupture rate:
   - No episiotomy: 0 - 6.4%
   - Episiotomy: 0 - 23.9%

3. We can decrease sphincter ruptures by reducing use of midline episiotomy

   Six trials, n = 4,850
   - Restrictive: 27.6% episiotomy rate
   - Liberal: 72.7% episiotomy rate

   Restrictive group had fewer 3rd and 4th degree lacerations: RR .78

4. Operative delivery is associated with sphincter rupture

   Sphincteric Rupture
<table>
<thead>
<tr>
<th>Procedure</th>
<th>Odds Ratio (p value)</th>
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<tbody>
<tr>
<td>Forceps delivery</td>
<td>6.7 (p&lt;0.001)</td>
</tr>
<tr>
<td>Episiotomy</td>
<td>3.3 (p&lt;0.001)</td>
</tr>
<tr>
<td>OP position</td>
<td>2.4 (p=0.002)</td>
</tr>
<tr>
<td>Vacuum delivery</td>
<td>2.3 (p=0.001)</td>
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</tbody>
</table>

5. Forceps are more highly associated with anal sphincter rupture than vacuum

   RCT (n = 637) Forceps: 29%, Vacuum: 12%
   Am J Obstet Gynecol 175:1325;1996

   7 other RCTs - lower rupture rate with vacuum versus forceps: RR .41
   Obstet Gynecol 95:464;2000

Sphincter rupture rate:
“An ounce of prevention...”