

## **Pelvic Physical Therapy Distance Journal Club**

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Laura Scheufele, PT, DPT, WCS

Defining “normal recovery” of pelvic floor function and appearance in a high-risk vaginal delivery cohort. Fairchild PS, Low LK, Kowalk KM, et al. *Int Urogynecol J.* 2020;31(3):495-504.

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### **Introduction:**

- Vaginal childbirth is one of strongest risk factors for pelvic floor disorders.
- Studies aiming to prevent PF disorders postpartum (PP) have not demonstrated consistent benefit to asymptomatic women, likely due to often a delayed onset of symptoms later in life even though trauma occurred with childbirth.
- Understanding recovery from childbirth is key to early identification of potentially clinically significant but asymptomatic injuries.
- Identifying women outside of normal recovery would help facilitate early intervention to potentially prevent/mitigate future PFD.

### **Aim/Primary Aim:**

- Identify differences in pelvic floor appearance and function following delivery.
- Identify patterns of normal recovery in women sustaining high-risk labor events.
  - Potential high-risk subgroup defined as at least one of: forceps delivery, vacuum delivery, active pushing > 150 minutes, episiotomy, and/or anal sphincter laceration.

**Study Design/Study Format:** Prospective cohort study

### **Methods:**

- Convenience sample recruited within 48 hours after delivery for 2 different cohorts
  - women who experienced first vaginal births
  - women who had first or second cesarean with no history of second stage of labor.
- Data collected at early PP exam (within 48 hours of delivery) for all variables: bulbocavernosus and anal wink spinal reflexes, PFM strength using Modified Oxford score and instrumented speculum, POP-Q points GH and PB at rest and with strain, transperineal 2D ultrasound to assess objective movement of bladder base with PFMC, then again at 6 wks and 6 months. Potential high-risk subgroup also had one to two additional exams between 2-6 weeks.
  - At 6 wk & 6 month visits only, 3D transvaginal imaging to evaluate for LA tears.

### **Results:**

- 112 women consented: 82 with “high risk” vaginal births and 30 cesarean controls.
  - High risk group: 15.9% instrumented delivery, 47.5% had anal sphincter laceration, 9.8% had episiotomy, and 57.6% had prolonged active pushing.
    - At 6 wk PP exam, 24 of the subjects noted to have LA tears reduced to 10 at 6 month exam. No tears in cesarean group.

- **POP-Q anatomic assessment: Figure 2**
  - Comparing vaginal group to cesarean groups
    - Ba and Bp points closer to hymen in vaginal group at 6 wks and 6 months.
    - Vaginal group had significantly longer mean genital hiatus (GH) at all points
    - PB only differed significantly (longer) at 6 wk PP exam
  - Cesarean within group:
    - Over time no meaningful change for point Ba, Bp, or GH (all  $p>0.05$ ).
    - PB length decreased slightly between early PP and 6 months. ( $p=0.04$ ).
  - Vaginal within group:
    - PB length significantly decreased (improved) between early PP and 6 wks, and early PP and 6 months, but no difference between 6 wks and 6 months.
    - Points Ba, Bp, and GH did not significantly change between any of the PP follow-ups. (all  $p>0.05$ )
- **Pelvic floor function: Figure 3**
  - Comparing PFM strength between vaginal and cesarean groups: Cesarean group with stronger PFM strength as measured by Oxford score at 48 hour testing, and at 6 wks as measured by Oxford and instrumented speculum
  - Comparing ability to lift bladder as assessed by US between vaginal and cesarean groups: At early PP exam, cesarean group more frequently able to demonstrate lift of bladder.
  - Comparing reflexes between vaginal and cesarean groups: Cesarean group had bilateral anal wink reflex present more often compared to vaginal group.
  - Cesarean within group: Significantly increased Oxford score between early PP and six wks ( $p=0.01$ ), but no other significant change with other time points.
  - Vaginal delivery within group: Number of women able to lift bladder observed with US and proportion with intact anal wink significantly increased between early PP and 6 months with each. Strength via Oxford and instrumented speculum significantly improved between each time points. (all  $p<0.002$ )
- **Table 2** compares the magnitude of change between the vaginal delivery group and the cesarean and identifies a moderate to strong difference at 6 wks and 6 months for the categories: Kegel force, Bp, Ba, Gh.
- **Table 3 compares the subgroups of those deemed “injured” and “uninjured” in vaginal delivery group.**
  - Operational definition of “injured” as those women in the worst 10% of the distribution for each measurement of Bp( $\leq 0$  cm), Kegel force ( $\leq 1.50$  N), or any LA tear.
    - At 6 wks PP 29/57 met “injured” criteria, reduced to 13/57 by 6 months.
- Size of GH within 48 hours predictive of injury at 6 months ( $p=0.04$ ) and lower Oxford score at 6 wks marginally predictive of injury.

#### **Discussion:**

- Proposed “potential high risk for pelvic floor injury” women who delivered vaginally for the first time were noted to have larger GH, weaker PFMs immediately after delivery when compared to women who delivered by cesarean section.

- GH size reduced (improved) over time, but by 6 months the vaginal delivery group still significantly larger than cesarean delivery group.
- PFM strength improved over time, by 6 months no significant difference between groups.
- Vaginal delivery group had lower Ba and Bp measurements when compared to cesarean group, but still within normal range of measurements. No significant improvement over time noted.
- Size of GH in early postpartum period associated with injury.
- Women with LA tear had resolution of injury from 6 weeks to 6 months in 14/24.
- Data lays foundation for early screening tools to identify women who are not recovering normally.
  - Propose early PFM strength, posterior vaginal wall support, and US evidence of LA tear potential indicators of PFM injury.
  - Strength measured with Oxford scale and GH measurement are both easily obtained on clinical exam, and they propose this as a starting point for identifying those women who would benefit from early intervention.
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#### **Strengths/weaknesses:**

- **Weaknesses:** Small sample size, no pre-pregnancy or pre-delivery data, large dropout rate of subjects by 6 months PP visit.
- **Strengths:** The prospective approach of data collection and the use of pelvic floor research experts for the data collection. Thorough pelvic floor assessment: anatomical and strength.

#### **Conclusion/Summary**

- Size of GH, PFM strength, and position of the vaginal walls may be useful to help identify those women in need of additional work up and potential treatment to support their recovery.

#### **Clinical Application:**

- Early assessment of PFM strength and genital hiatus can act as a source of education for women regarding their PFD risk, even if asymptomatic and may serve as motivation
- Identify women who may benefit from delayed return to higher impact activities and/or benefit from professional guidance.

#### **Discussion questions**

1. Does anyone regularly assess for GH size?
2. Currently what parameters do you use to identify women who are at higher risk for PFD postpartum and/or would be most appropriate for referral to PT?
3. Were you surprised by the relatively high recovery rate (60%) of the women who had been noted to have levator ani muscle tears by 6 months PP?

#### **Other References**

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