

# Supporting the Pregnant Pelvis: The Application of Osteopathic Manipulative Treatment in Third-Trimester Pelvic & Pubic Pain

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## INTRODUCTION

- Pregnant individuals undergo various anatomical and physiologic changes to prepare the body for birth and support the growing fetus.
- Elevated release of **relaxin & progesterone** cause increased joint laxity, pubic symphysis enlargement, and consequential pelvic girdle pain.
- While lower back pain can be considered normal, occurring in over half of pregnant individuals, **pelvic girdle pain is never considered normal** and warrants immediate intervention to prevent worsening.<sup>1</sup>
- Fear of teratogenicity leads many pregnant individuals to avoid medication use, leaving many pregnancy-related conditions, including musculoskeletal pain, untreated.<sup>2,3</sup>
- Osteopathic manipulative treatment (OMT)** is an effective complementary therapy that may be used with conventional obstetrical care to address musculoskeletal pain and somatic dysfunction within the pregnant patient.<sup>5</sup>

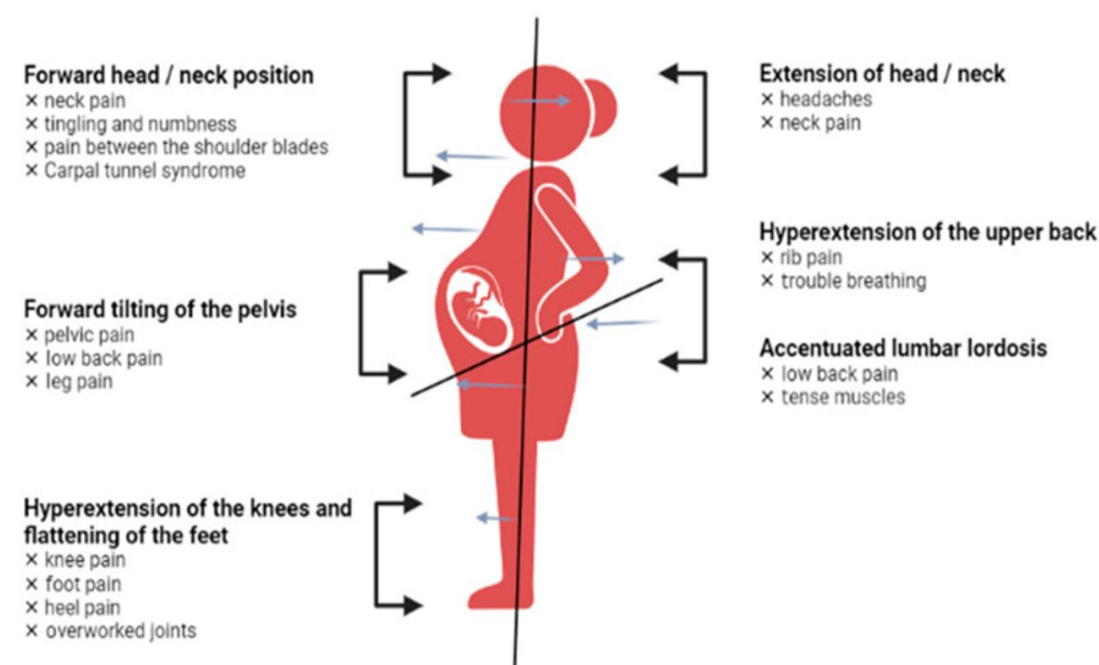


Figure 1. Postural changes of pregnancy. Reproduced from Fiat et al, Medicina (Kaunas), 2022.<sup>1</sup>

## SUBJECTIVE

**26-year-old G1P0 at 33w5d** gestation presenting with **progressive bilateral hip, low back, and pubic pain** beginning at 20 weeks and worsening at 28 weeks. Hip and low back pain were constant, sore and achy (4/10) with radiation from the right hip to the posterior thigh and gluteal area, while pubic pain was intermittent, sharp, and severe (7/10). She denied neurologic symptoms and had an otherwise uncomplicated pregnancy with routine prenatal care.

**PMH:** None, **PSH:** None, **Allergies:** None

**Meds:** Prenatal vitamin, choline supplement

**Social History:** Walks ~2 miles/day; no tobacco or drug use; social alcohol before pregnancy; full time student.

**Pertinent (+) ROS:** Headaches with blurry vision/nausea, urinary frequency, diffuse muscle pain, anxiety, dry cough.

## OSTEOPATHIC STRUCTURAL EXAM

| Body Region:      | Findings & Treatment:                                                                                                                                                   |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Head              | L torsion (CR), Temporal bone compression (CR), C2 NR <sub>R</sub> S <sub>R</sub> , C4 ES <sub>L</sub> R <sub>L</sub> , C6-7 NS <sub>L</sub> R <sub>L</sub> (FPR, HVLA) |
| Cervical          | B/L anterior scalene taut (ST), L middle scalene TP (CS)                                                                                                                |
| Thoracic & Lumbar | <b>B/L paraspinal muscles taut (ST, MFR)</b>                                                                                                                            |
| Pelvis            | <b>L posterior rotation (ART, LAS), L superior and anterior pubic bone (ART), L psoas TP (CS), Pelvic diaphragm taut (MFR)</b>                                          |
| Sacrum            | <b>R on L (ART)</b>                                                                                                                                                     |
| Upper Extremity   | L trapezius & levator scapulae TPs (CS), B/L carpal bones restricted (ART), B/L trapezius, pec minor, rhomboid, supraspinatus taut (MFR, ST)                            |
| Lower Extremity   | R anterior fibular head (ART), L externally rotated tibia (ART), B/L IT Bands Taut (DIR via percussion hammer, LAS, MFR)<br><b>+ L Broad Ligament Chapman's Point</b>   |
| Abdomen           | <b>Abdominal fascia diffusely taut (MFR)</b>                                                                                                                            |
| Ribs              | L Rib 1 inhaled (ART)                                                                                                                                                   |

### Treatment Key:

ART = articularity  
CR = cranial  
CS = counterstrain  
DIR = direct  
FPR = facilitated positional release  
HVLA = high velocity low amplitude  
LAS = ligamentous articular strain  
MFR = myofascial release  
ST = soft tissue



Figure 2. Demonstration photograph of ART of the pubic bone

## DIAGNOSIS & HYPOTHESIS

In this patient, progressive third-trimester MSK pain was attributed to pregnancy-related **biomechanical changes and somatic dysfunctions**, most significantly within the **pelvic girdle**.

Based on the tenets of osteopathy, OMT was hypothesized to relieve her symptoms by:

- Restoring **pelvic and sacral alignment** to optimize **biomechanical** function
- Reducing **fascial tension** of the pelvic and abdominal diaphragms
- Enhancing **mobility, circulation, and lymphatic flow** to support physiologic adaptation during pregnancy

Targeted treatment of these interconnected dysfunctions was expected to reduce pain, improve function, and minimize compensatory stress during the remainder of pregnancy, with outcomes measurable using the **Pelvic Girdle Questionnaire (PGQ)**.<sup>7</sup>

## METHODS

- Patient received 5 weekly serial treatments prior to her uncomplicated vaginal delivery.
- The patient completed the **Pelvic Girdle Questionnaire (PGQ)** prior to each OMT visit.<sup>7</sup>
- Most recurring and successful treatments included:
  - MFR of abdominal & pelvic diaphragms for improved respiration and circulation
  - MFR of the abdominal fascia in the quadruped position
  - Treatment of the broad ligament Chapman's point
  - ART & LAS for pelvic & pubic somatic dysfunctions
  - CS of piriformis TPs



Figure 3. Image of Percussion Hammer used on patient for OMT.<sup>6</sup>

### Pelvic Girdle Questionnaire Score & Percent Disability Index

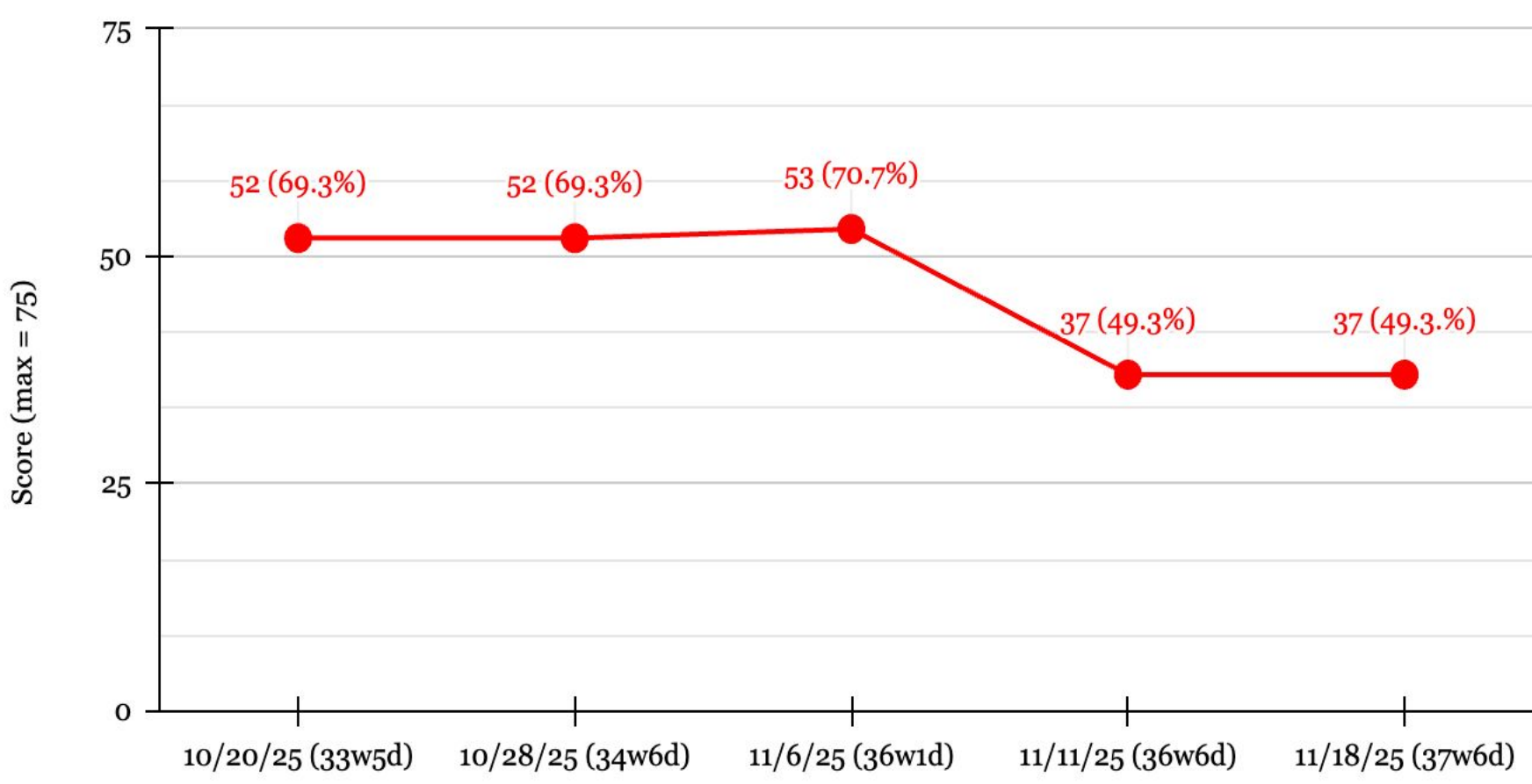


Table 1. Pelvic Girdle Questionnaire Scores & Percent Disability Index

| Pelvic Girdle Questionnaire                                                                                                                                                                                                                             |                |                       |                    |                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------|--------------------|-----------------------|
| To what extent do you find it problematic to carry out the activities listed below because of pelvic girdle pain? For each activity check ( ) the box that best describes how you are today.                                                            |                |                       |                    |                       |
| How problematic is it for you because of your pelvic girdle pain to:                                                                                                                                                                                    | Not at all (0) | To a small extent (1) | To some extent (2) | To a large extent (3) |
| 1. Drive yourself                                                                                                                                                                                                                                       |                |                       |                    |                       |
| 2. Stand for less than 10 minutes                                                                                                                                                                                                                       |                |                       |                    |                       |
| 3. Stand for more than 10 minutes                                                                                                                                                                                                                       |                |                       |                    |                       |
| 4. Bend down                                                                                                                                                                                                                                            |                |                       |                    |                       |
| 5. Sit for less than 10 minutes                                                                                                                                                                                                                         |                |                       |                    |                       |
| 6. Sit for more than 10 minutes                                                                                                                                                                                                                         |                |                       |                    |                       |
| 7. Walk for less than 10 minutes                                                                                                                                                                                                                        |                |                       |                    |                       |
| 8. Walk for more than 10 minutes                                                                                                                                                                                                                        |                |                       |                    |                       |
| 9. Climb stairs                                                                                                                                                                                                                                         |                |                       |                    |                       |
| 10. Do housework                                                                                                                                                                                                                                        |                |                       |                    |                       |
| 11. Carry light objects                                                                                                                                                                                                                                 |                |                       |                    |                       |
| 12. Carry heavy objects                                                                                                                                                                                                                                 |                |                       |                    |                       |
| 13. Get up/down                                                                                                                                                                                                                                         |                |                       |                    |                       |
| 14. Push a shopping cart                                                                                                                                                                                                                                |                |                       |                    |                       |
| 15. Run                                                                                                                                                                                                                                                 |                |                       |                    |                       |
| 16. Carry out sporting activities*                                                                                                                                                                                                                      |                |                       |                    |                       |
| 17. Lie down                                                                                                                                                                                                                                            |                |                       |                    |                       |
| 18. Roll over in bed                                                                                                                                                                                                                                    |                |                       |                    |                       |
| 19. Have a normal sex life*                                                                                                                                                                                                                             |                |                       |                    |                       |
| 20. Push something with one foot                                                                                                                                                                                                                        |                |                       |                    |                       |
| *If no applicable, write NA                                                                                                                                                                                                                             |                |                       |                    |                       |
| How much pain do you experience?                                                                                                                                                                                                                        |                |                       |                    |                       |
| 21. In the morning                                                                                                                                                                                                                                      |                |                       |                    |                       |
| 22. In the evening                                                                                                                                                                                                                                      |                |                       |                    |                       |
| How problematic is it for you because of your pelvic girdle pain to:                                                                                                                                                                                    |                |                       |                    |                       |
| 1. Drive yourself                                                                                                                                                                                                                                       |                |                       |                    |                       |
| 2. Stand for less than 10 minutes                                                                                                                                                                                                                       |                |                       |                    |                       |
| 3. Stand for more than 10 minutes                                                                                                                                                                                                                       |                |                       |                    |                       |
| Maximum Score 75<br>% Disability (total score/75 x 100)                                                                                                                                                                                                 |                |                       |                    |                       |
| Reference<br>Stage B, Garratt A, Jensen H, Grotle M. The Pelvic Girdle Questionnaire: A Condition-Specific Instrument for Assessing Activity Limitations and Symptoms in People with Pelvic Girdle Pain. Physical Therapy. July 2011; 91(7): 1066-1068. |                |                       |                    |                       |

Figure 4. Pelvic Girdle Questionnaire<sup>7</sup>

Please contact Zena Moody ([za175@mynsu.nova.edu](mailto:za175@mynsu.nova.edu)) for a complete Reference List and for any questions or concerns. We would like to thank the OPP Department at NSU-KPCOM for your insight and mentorship throughout this process.

## RESULTS

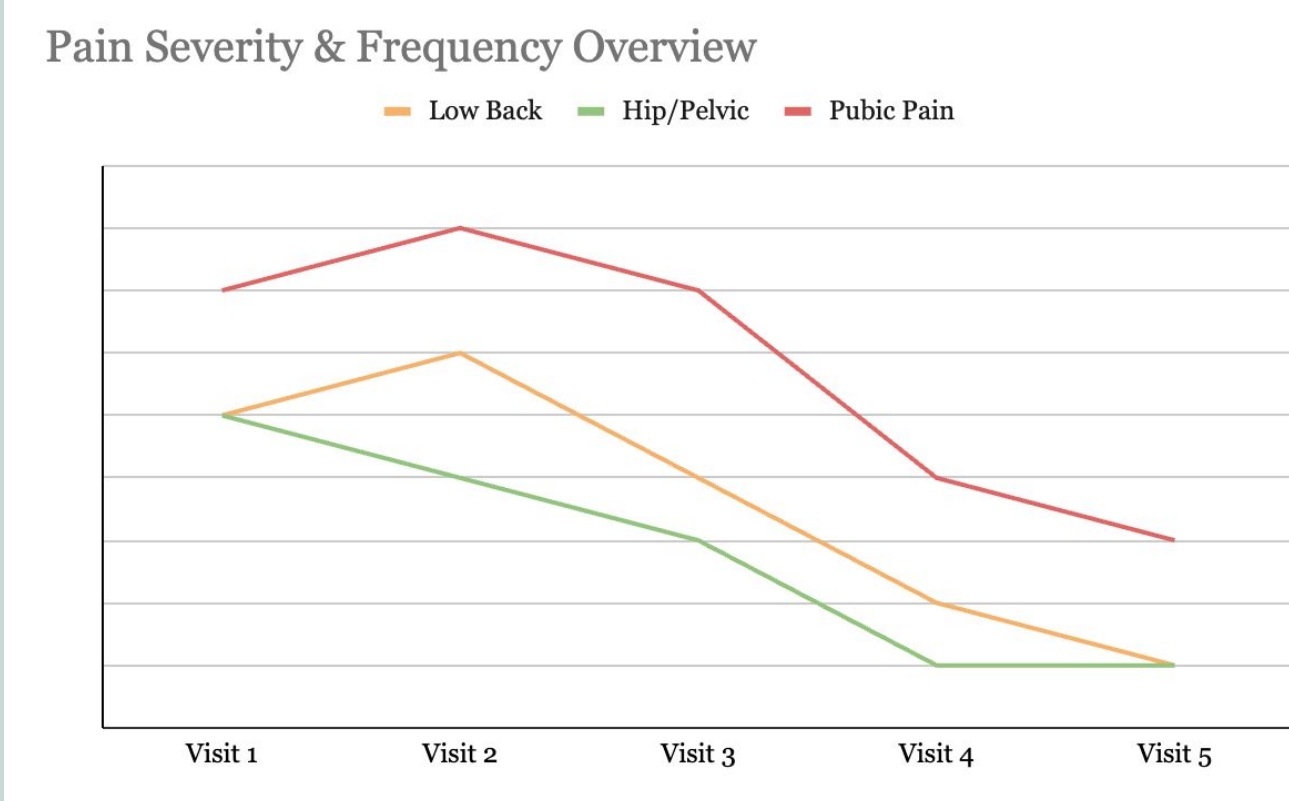


Table 2. Pain Severity & Frequency Overview

- Visit #2:
- Hip pain had improved
- Visit #3:
- Low back pain reduced from **constant to intermittent**
  - Hip pain was significantly reduced
- Visit #4:
- Low back pain frequency was further reduced
  - Pubic pain was significantly improved with **no sharp pains**
- Visit #5:
- Pain levels were very low
  - Patient reported feeling much more comfortable overall

- Pain scores **peaked at 36 weeks**, with worst pain increasing from 7→9 and average pain from 4→6, before improving thereafter.
- Following treatment after 36 weeks, **worst pain decreased by 33%** (9→6), **average pain decreased by 33%** (6→4), and least pain decreased from 5→2, consistent with overall symptom improvement.
- The Pelvic Girdle Questionnaire (PGQ) score improved from 53 to 37, representing a **30% reduction in disability score**.
- The Percent Disability Index decreased from 70.7% to 49.3%, reflecting a 21.4 percentage-point (~30% relative) reduction in functional disability.

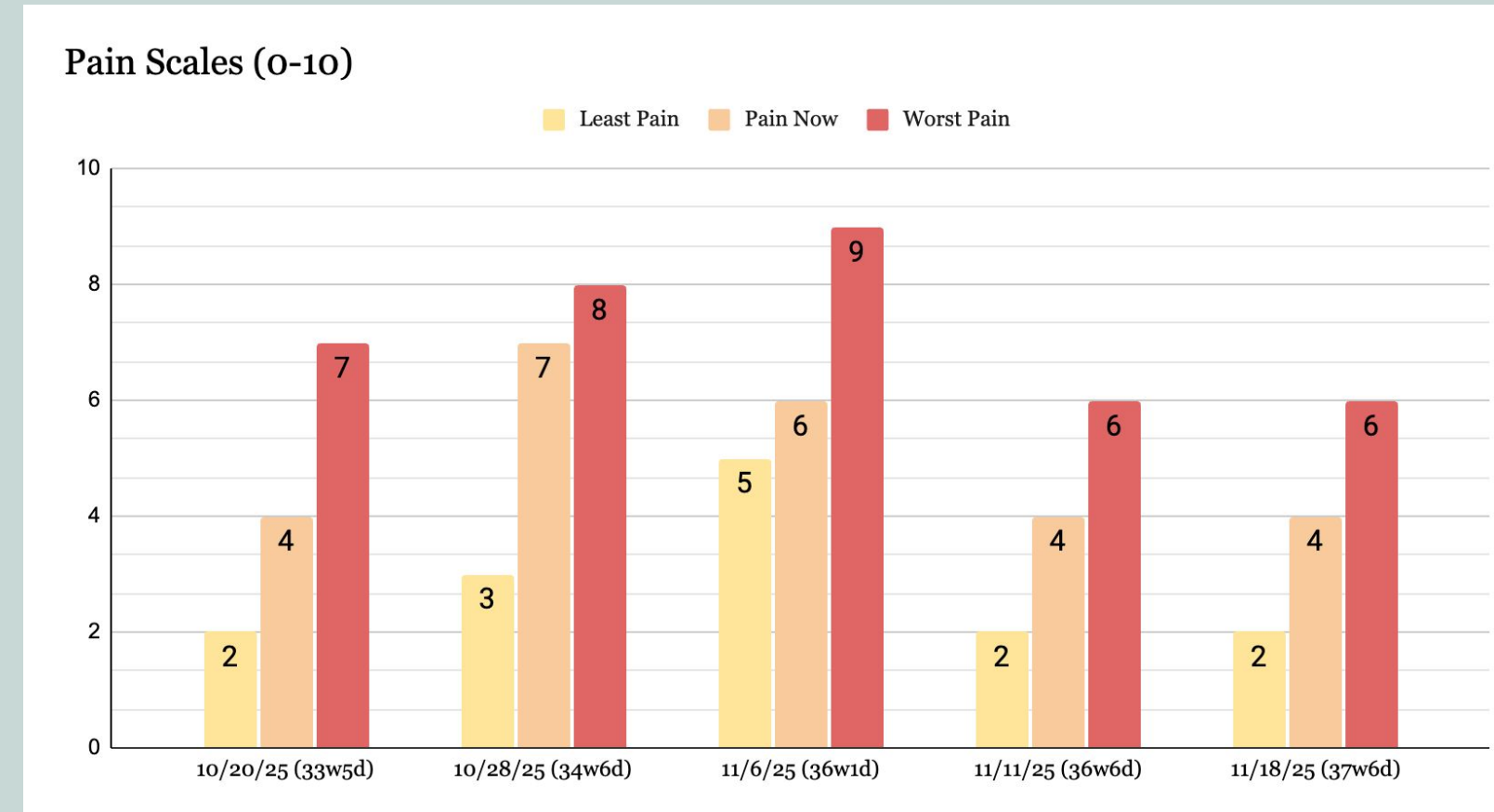


Table 3. Overall Pain Scales

## CONCLUSION

- Both pain intensity and functional disability improved after 36 weeks gestation, despite the expected peak in pain, suggesting a favorable clinical response over the treatment course.
- Serial OMT was associated with meaningful improvement in pregnancy-related pelvic girdle pain, supporting its role as a **safe, patient-centered, non-pharmacologic treatment option** during pregnancy. Findings support earlier incorporation of osteopathic evaluation and treatment rather than reserving OMT as a last-line intervention.
- The patient's **uncommon combined anterior/posterior and superior/inferior pubic dysfunctions** may have contributed to her severe pain, highlighting an under-studied area requiring further investigation.
- Limitations include the single-patient design, limited generalizability, and reliance on patient-reported outcomes; postpartum follow-up is ongoing to assess long-term outcomes.
- Future studies should include larger prospective cohorts using validated outcome measures (e.g., PGQ) and objective assessments to better characterize **pregnancy-related pelvic girdle pain and the role of OMT**.