

External Pelvic Floor Management and Lumbopelvic Coordination Exercises to Treat Coccydynia in a 14-Year-Old Male: A Case Report

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INTRODUCTIONS

- Persons assigned female at birth are 5 times more likely to experience coccydynia. Adults and adolescents are more affected than children.¹
- Conservative management is successful in 90% of coccydynia cases.^{1,10} This includes PT of the pelvic floor muscles (PFM) through stretching, manual manipulation, massage, and muscle energy techniques.²⁻³
- Systematic reviews of treatment efficacy for coccydynia excluded data on persons less than 16 years old and 10% of the patient field identified as male.⁵ There is a lack of evidence for using manual therapy and PT techniques as independent therapies.
- Purpose:** To determine the effectiveness and appropriateness of using therapeutic exercises, neuromuscular reeducation, and external PFM training to treat coccydynia as an alternative to internal manipulation and internal manual therapy.

CASE DESCRIPTION

- 14-year-old male patient with coccydynia for 3 months with 4.5/10 pain. Patient reported idiopathic onset. Patient experienced pain with playing tennis, sitting more than 30 minutes (greater than 5 minutes with a slumped posture), lying supine, performing sit-ups, and straining with defecation. X-ray negative for sacrococcygeal fracture and other pathology.
- PMHx: vesicoureteral reflux at 4 years old corrected by surgery. No current medications.
- Social Hx: High school student, tennis player, lives with both parents
- Currently being treated by outpatient physical therapy only. This was his first encounter with physical therapy for this issue.

METHODS

- Outcome Measures:** Modified Oswestry Disability Index (MODI)¹¹, Pain Numerical Rating Scale (PNRS)¹², Single Leg Stance (SLS)¹³, Manual Muscle Test.¹⁴
- Plan of Care*:** 12 visits over 11 weeks in 40-minute appointments to address coccygeal pain with functional positions and activity, hip strength and stability, lumbopelvic coordination, and muscle tension and imbalance.
- Intervention Approaches:** Manual therapy³⁻⁴, stretching programming^{2,5}, PFM down training⁵, trunk stability—lumbopelvic coordination, and hip strength.¹²

*patient's parent opted to continue physical therapy treatment beyond plan of care due to an interruption in care at week 4 for a 3-week vacation causing an exacerbation of symptoms.

Manual Therapy	Initial	1 month progress	End of care
Soft Tissue Mobilization	Gluteals, Quadratus Lumborum (QL), paraspinals	Gluteals, QL	Gluteals, QL
Joint Mobilization	L1-L5 and Sacroiliac Joint	Sacral mobilization: P-A glides grade II	- Sacral mobilization: P-A glides grade II - Hip internal rotation (IR) mobs
Muscle Energy	None	Correction of sacral torsion and SIJ closing restriction	Piriformis release
Stretching	Initial	1 month progress	End of care
Piriformis	FABER Lifts 20x	FABER Lifts 20x (Controlled)	Supine figure-4 stretch 2x30 sec
Hip flexors	Standing lunge 2x30 sec	Half kneeling lunge 2x30 sec	Half pigeon stretch 2x30 sec
Adductors	None	Supine butterfly stretch 2x30 sec	Sitting butterfly stretch 2x30 sec
PFM training	Initial	1 month progress	End of care
Diaphragmatic breathing	None	Supine and standing, 3-4 breaths with all stretches	Standing, 3-4 breaths with all stretches
Lengthening	Happy Baby 3x30 sec	- Happy Baby 3x30 sec - Sumo squat with blue TB - Pallof press 20x - Child's pose with hip IR 2x30 sec	- Happy Baby 3x30 sec - Sumo squat 2x30 sec - Child's pose with hip IR 2x30 sec
Lumbopelvic Coordination	Initial	1 month progress	End of care
Hip	- SLS with IR 20x - Glute bridge with adductor ball squeeze 20x	- Supine bridge with marches and posterior pelvic tilt 20x - Seated pelvic tilts on stability ball A-P/lateral 20x	- Seated pelvic tilts on stability ball A-P/lateral 20x - Seated windshield wipers 20x - Hip thrust with 10# weights 20x
Trunk	Lunge chop with blue TheraBand 20x	- Lunge chop with blue TheraBand 20x - SLS with IR and trunk rotation 20x	- Lunge chop with blue TheraBand 20x - Standing spinal rotations—leg 90-90
Hip Strengthening	Initial	1 month progress	End of care
Internal rotators	Reverse clams with green TheraBand 20x	Reverse clams with green TheraBand 20x	Reverse clams with green TheraBand 20x
Adductors	Lateral lunge with slider 20x	3-way lunge with slider 20x	- Wall sits with ball squeeze 20x - 3-way lunge with slider 20x

RESULTS

- Improved strength across bilateral hip rotators to 5/5. He maintained his strength 5/5 in all other hip muscle groups, knee flexors, and knee extensors. Hip internal rotation was the most difficult for him to achieve without compensation.
- Reported decreased worst pain from 4.5/10 to 2/10
- MODI showed no significant change from initial evaluation to end of care. Patient with low disability with greatest pain and difficulty with sitting and traveling.
- Improved tolerance to sitting on hard surfaces up to 2 hours without pain, less pain with bowel movements, and increased tolerance to sitting in a car for up to 30 minutes.

DISCUSSION

- Due to patient's age, the use of external PFM training, stretches, and spinal and pelvic mobilizations were used to target the sacrococcygeal muscles to alleviate tension and optimize mobility. These were well tolerated.
- The inclusion of lumbopelvic coordination techniques established potential benefit for coccydynia management.

Limitations:

- Lumbopelvic coordination and hip strengthening exercises could have been progressed further to be more functional.
- Delayed introduction of PFM down training as part of plan of care.
- Lack of validated coccydynia specific outcome measures to replace use of MODI.

Future research:

- Comparing indirect approaches and direct internal manipulations and their effectiveness in treating coccydynia in males and adolescents.

REFERENCES

