

BRIEF REPORT

RESOLUTION OF CHRONIC COCCYDYNIA AFTER
OSTEOPATHIC MANIPULATIVE TREATMENT: A CASE REPORT

Daniel Valdés, OMS-IV¹; Meagan Sherrington, OMS-IV¹;
L. Michael Waters, Jr., DO, FACOFP¹

¹Department of Osteopathic Manipulative Medicine at the Philadelphia College of Osteopathic Medicine–Georgia, Suwanee, GA

KEYWORDS

Coccydynia
OMT
Coccyx
Sacrum
Balanced
Ligamentous
Tension

ABSTRACT

Coccydynia is characterized by pain or discomfort in the coccyx region, most frequently caused by direct trauma. This condition, exacerbated by sitting on flat or hard surfaces, may cause immobility and adversely impact activities of daily living. Standard treatment options include ergonomic adaptations, manual or physical therapy, nerve blocks, and surgery. Currently, there is very little evidence supporting the use of osteopathic manipulative treatment (OMT) as a therapeutic option for patients with chronic coccydynia. The authors describe the case of a 26-year-old, previously healthy, highly active, female competitive volleyball player who developed chronic coccydynia following direct trauma to her coccyx. At first visit, her pain levels were 10/10, requiring persistent use of a donut pillow and decreasing her engagement in physical activities. Yet, after one treatment session involving intrarectal manipulation of the coccyx using OMT, pain immediately decreased posttreatment and was nonexistent by 6-month follow-up. The patient no longer required a donut pillow and returned to competing in volleyball at a high level. Given the limited treatment options for coccydynia, OMT should be further explored as a standardized therapeutic option, considering the significant impact of coccydynia on patients' quality of life and the excellent safety profile of OMT compared to current standard pharmaceutical or surgical options.

BACKGROUND

Coccydynia is characterized as pain or discomfort in the coccyx region. Direct trauma is the leading cause of coccydynia in 50% to 65% of cases. The severity of trauma may lead to additional injuries, including sprain of pelvic floor muscles or severe fracture-dislocation of the sacrococcygeal complex.¹ Risk factors for coccydynia include female sex and obesity, with a body mass index (BMI) over 27.4 kg/m² in females and 29.4 kg/m² in males.^{1,2} Patients with coccydynia typically experience sharp, shooting, or aching pain in their coccygeal or sacral region. In many, sitting exacerbates this and may hinder daily activities.^{1,2} They may also present with hypermobility or immobility.² Although static images are inconclusive in many patients with coccydynia, primary investigation indicates lateral and anterior to posterior (AP) radiographs. Computed tomography (CT) is also recommended for

a definitive diagnosis of fracture or dislocation.^{1,2} Dynamic imaging may assess angular mobility in patients with unremarkable static imaging.^{1,2}

Standard treatment options in the treatment of coccydynia include ergonomic adaptations (donut pillows, postural training, stool-softening measures), manual or physical therapy, injection and nerve blocks, and surgery. Ninety percent of patients have success with conservative treatment. First-line treatment is ergonomic adaptations with nonsteroidal anti-inflammatory drugs (NSAIDs). Manual therapy, featuring massage and manipulation, is often successfully used in treatment.^{1,2} Specifically, pelvic-floor rehabilitation is beneficial in cases of coccydynia associated with pelvic muscle spasms.³ Rectal massage of the levator ani, coccygeus, and piriformis muscles has resolved symptoms in 25% of cases.³ Second-line treatment includes steroid and anesthetic injections.¹ Surgical intervention to remove the coccyx via coccygectomy is indicated upon failure of all conservative methods and injections.¹

Use of osteopathic manipulative treatment (OMT) to treat coccydynia, while infrequently studied, has demonstrated success. Suggested techniques may include direct or indirect myofascial release, counterstrain, and balanced ligamentous tension to the sacral and pelvic region.⁴ Intrarectal treatment of chronic coccydynia has enabled symptomatic improvement in many cases. One study, performed by Jean-Yves Maigne, MD, demonstrated a success rate of 25.7% at 6 months' follow-up in subjects treated

CORRESPONDENCE:

L. Michael Waters, Jr., DO, FACOFP | michaelwa1@pcom.edu

Copyright© 2024 by the American College of Osteopathic Family Physicians. All rights reserved. Print ISSN: 1877-573X doi: 10.33181/160305

The authors have no conflicts of interest or financial disclosures

The patient in this study provided written informed consent for utilization of their case in the case report.

with intrarectal manipulation.⁵ In this study, participants received three 5-minute sessions of intrarectal manipulation over 10 days involving stretching of the levator muscle and mobilization of the coccyx. Additionally, a survey by Origo et al. demonstrated the efficacy of fascial unwinding techniques targeting abdominal and pelvic fascial tension alongside intrarectal mobilization, as performed by Maigne in reducing pain associated with coccydynia.²

CASE REPORT

The patient was a 26-year-old, female, right-hand-dominant volleyball player who presented to the clinic complaining of pain in her coccyx. The pain began approximately 6 months prior, after several incidents involving direct trauma to her coccyx. The first occurred during a game of volleyball in which she fell backward and landed in a seated position with her knees extended in front of her. She recalled feeling a tingling sensation shoot down her toes bilaterally immediately afterward but continued to play despite the injury. She experienced soreness in her sacrum and coccyx for several days following the incident. The following month, she was playing volleyball on wet grass, which led to a loss of friction with one leg during a play, causing her to go into a side split, falling backward directly onto her sacrum and coccyx. She was able to finish the rest of the game, albeit uncomfortably. However, since the second injury, she continued to have pain in the region of her coccyx. She did not utilize any over-the-counter pain relievers or topicals. She did continue to see her chiropractor, who she was seeing biweekly before the incidents, but they referred her to her primary care physician for further evaluation. Her primary physician elected to get plain radiographic imaging of the area, which showed no evidence of fracture or dislocation. The patient was subsequently prescribed celecoxib and gabapentin for conservative pain treatment, but she did not take either medication. Since then, she has continued to have pain, requiring a donut pillow when sitting, particularly on hard surfaces. At the time of her visit, she endorsed a 6/10 pain while standing that worsened to 10/10 when sitting on hard surfaces or with specific movements. Physical examination notably revealed an antalgic gait. Additionally, osteopathic structural examination revealed a right parietal strain; C3 extended, rotated left, sidebent left; C7 extended, rotated left, sidebent left; T7 neutral, rotated right, sidebent left; rib 1 right inhaled; L2 flexed, rotated right, sidebent right; right innominate anterior rotation and outflare, left innominate posterior rotation and outflare; bilateral S5 tenderpoints; coccyx anterior and rotated right; bilateral posterior fibular heads.

TREATMENT APPROACH

OMT with balanced membranous tension (BMT), Still technique, articulatory technique (ART), facilitated positional release (FPR), high-velocity-low-amplitude (HVLA), low-velocity-low-amplitude (LVLA), muscle energy, soft tissue, and ligamentous articular strain (LAS) were performed to the somatic dysfunctions mentioned previously. All treatments were performed after receiving verbal consent from the patient and with a female chaperone in the room. The patient was provided a gown for modesty. The physician

washed his hands thoroughly before putting on nitrile exam gloves. For the intrarectal treatment, the patient lay in the left lateral recumbent position. The physician lubricated the glove on his right hand before entering the rectum. The physician's left hand monitored externally at the sacrococcygeal junction. The sacrum was balanced around the transverse axis using BMT. The physician palpated several restriction points in the sacrum and the coccyx and noted the coccyx to be mildly rotated in a counterclockwise direction, with restriction in the clockwise rotation and gapping of the sacrococcygeal joint. BMT was performed on the coccyx until a spontaneous audible "pop" was felt by both the patient and the physician. Immediately, the patient endorsed a decrease in the intensity of her pain. Treatment ended after this audible release, and the physician and chaperone left the room so the patient could change back into her regular clothing.

Upon returning to the room with the patient's mother, the patient conveyed a notable decrease in pain, registering it as 0/10, and experienced an emotional release, expressing her sense of relief. She returned to the clinic for a 1-week follow-up, during which time she stated her pain was at a 4/10 resting pain, and she continued to use a donut pillow for pain relief when sitting on hard surfaces. She endorsed soreness in the sacrococcygeal region but stated it had improved every day since treatment the week prior. She was treated during the follow-up visit for temporomandibular joint pain using BMT. Her pelvis and sacrum were again assessed, and she was found to have a left anteriorly rotated innominate and left inflare, which were treated with muscle energy. She also had bilateral sacroiliac (SI) restrictions, which were treated with HVLA and BMT.

The patient was called for a 6-month follow-up, during which time she stated that her pain had entirely resolved. She endorsed 0/10 pain, sits comfortably on hard surfaces without the use of a donut pillow, and has returned to regularly playing volleyball, although she is more cautious of her intensity levels so as to not re-injure herself.

Discussion

Coccydynia can be a significant source of chronic pain and decreased quality of life. Due to its complex nature, over 20% of patients with chronic pain are ultimately prescribed opioids, contributing to our current epidemic.⁶ Ultimately, persistent cases can lead to surgical removal of the coccyx via coccygectomy, which has been shown to have a success rate of around 75% with a complication rate of 11%.⁷ One prospective study in 98 patients with chronic coccydynia who underwent coccygectomy found a 30% failure rate, with up to 6% reporting disability scores even worse than presurgery.⁸ Our patient initially presented to us 6 months after her first traumatic event with ongoing pain that greatly interfered with her quality of life as a 26-year-old who was previously highly active. Immediately after one intrarectal treatment, her pain dramatically improved, decreasing from 10/10 pain to 4/10 pain after 1 week. Pain levels were 0/10 by 6 months, and she was back to regular activities.

Emerson et al. reported similar findings with intrarectal manipulation of the coccyx in a 60-year-old female with chronic coccydynia secondary to a motor vehicle accident. In their case, they performed OMT under anesthesia as an adjunct therapy to epidural steroid injections; after 3 such treatments, the patient reported complete resolution of symptoms.⁹

Previous literature describing intrarectal manual treatments suggests that the mechanism involves relaxation of intrapelvic muscles and mobilization of a stiff coccyx, both of which may have been contributory etiologic factors.⁵ In the case presented here, the treatment was targeted at balancing the sacrum, followed by the coccyx. The fact that there was an audible “pop,” suggesting a release and restoration of normal anatomy, may indicate that there was a disturbance of the coccyx about the sacrococcygeal junction. Another possibility is that the patient was 26 years old, and individual vertebrae of the coccyx often do not completely fuse until up to age 30 years.¹⁰ Therefore, it is feasible that there was a minor disturbance between 2 of the coccygeal vertebrae rather than the entire coccyx about the sacrococcygeal junction. However, prior imaging suggested that there were no signs of either a fracture or a dislocation, which may actually indicate that intrarectal palpation of the coccyx about the sacrococcygeal joint may be sensitive to minor disturbances in the normal anatomy, which may otherwise not be noticed on plain radiographs. In the case of our patient, the physician was able to palpate a counterclockwise rotation of the coccyx. It is known that rotation of the coccyx has been related to coccydynia, especially after minor trauma.¹¹ This may suggest that future studies are indicated to explore the incorporation of intrarectal examination as part of the routine diagnostic workup for coccydynia, which is not currently the standard.

Because this case report is anecdotal, it would be inappropriate to generalize the efficacy of OMT in the treatment of chronic coccydynia. In light of the complex nature of coccydynia, its drastic impact on the affected patient’s quality of life, and the current lack of effective treatment options, it would be wise to conduct further studies to explore the efficacy of OMT in a broader population of patients with chronic coccydynia. This is especially indicated because the nature of these treatments is very gentle and associated with minimal to no adverse effects.

CONCLUSION

In conclusion, this case report highlights the potential effectiveness of OMT, including intrarectal manipulation, in the treatment of chronic coccydynia. In this case of a 26-year-old female, the pain went from a 10/10 pain at the time of presentation to almost complete resolution with 0/10 pain at the 6-month follow-up after just one treatment. The audible release and immediate pain reduction observed in this patient suggest that OMT may address subtle disturbances in coccygeal anatomy that are not always detectable through standard imaging. While this anecdotal evidence is promising, further research is warranted to evaluate the broader applicability of OMT in treating this debilitating condition. Given the limited treatment options and the significant impact of coccydynia on patients’ quality of life, exploring OMT as a therapeutic option is a valuable avenue for future investigation.

AUTHOR CONTRIBUTIONS

Daniel Valdés and Meagan Sherrington provided substantial contributions to the conception and design, acquisition of data, or analysis and interpretation of data; Daniel Valdés and Meagan Sherrington drafted the article or revised it critically for important intellectual content; L. Michael Waters gave final approval of the version of the article to be published; and all authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

- Garg B, Ahuja K. Coccydynia—a comprehensive review on etiology, radiological features and management options. *J Clin Orthop Trauma*. 2021;12(1):123–129. doi: 10.1016/j.jcot.2020.09.025
- Origo D, Tarantino AG, Nonis A, Vismara L. Osteopathic manipulative treatment in chronic coccydynia: a case series. *J Bodyw Mov Ther*. 2018;22(2):261–265. doi: 10.1016/j.jbmt.2017.06.010
- Akar E, Ogrenci A, Dalbayrak S. Coccydynia: a narrative review of pathophysiology, etiology and treatment. *Malang Neurology Journal*. 2023;9(1):33–39. doi: 10.21776/ub.mnj.2023.009.01.7
- Seffinger M. *Foundations of Osteopathic Medicine: Philosophy, Science, Clinical Applications, and Research*. 4th ed. Wolters Kluwer; 2018:1112–1114.
- Maigne J, Chatellier G, Faou ML, Archambeau M. The treatment of chronic coccydynia with intrarectal manipulation: a randomized controlled study. 2006;31(18):E621–E627. doi: 10.1097/01.brs.0000231895.72380.64
- Dahlhamer JM, Connor EM, Bose J, Lucas JL, Zelaya CE. Prescription opioid use among adults with chronic pain: United States, 2019. *Natl Health Stat Report*. 2021(162):1–9. doi: 10.15620/cdc:107641
- Karadimas EJ, Trypsiannis G, Giannoudis PV. Surgical treatment of coccygodynia: an analytic review of the literature. *Eur Spine J*. 2011;20(5):698–705. doi: 10.1007/s00586-010-1617-1
- Hanley EN, Ode G, Jackson Iii BJ, Seymour R. Coccygectomy for patients with chronic coccydynia: a prospective, observational study of 98 patients. *Bone Joint J*. 2016;98-B(4):526–533. doi: 10.1302/0301-620X.98B4.36641
- Emerson SS, Speece AJ III. Manipulation of the coccyx with anesthesia for the management of coccydynia. *J Am Osteopath Assoc*. 2012;112(12):805–807.
- Tague RG. Fusion of coccyx to sacrum in humans: prevalence, correlates, and effect on pelvic size, with obstetrical and evolutionary implications. *Am J Phys Anthropol*. 2011;145(3):426–437. doi: 10.1002/ajpa.21518
- Sagoo NS, Haider AS, Palmisciano P, et al. Coccygectomy for refractory coccygodynia: a systematic review and meta-analysis. *Eur Spine J*. 2022;31(1):176–189. doi: 10.1007/s00586-021-07041-6