

## Manipulation of the Coccyx With Anesthesia for the Management of Coccydynia

Scott S. Emerson, DO  
Arthur J. Speece III, DO

**Coccydynia is pain in and around the coccyx, with trauma being the most common etiologic factor. The authors describe the case of a 60-year-old woman who was injured in an automobile accident several months before consultation. After the physician recorded the patient's history, performed a physical examination, and reviewed imaging reports, lumbar radiculopathy and somatic dysfunction of the lumbar and sacral vertebrae were diagnosed as the cause of her coccydynia. During a 6-week period, the patient underwent a series of 3 epidural steroid injections, osteopathic mobilization of the lumbar and sacral spine, and manual manipulation of the coccyx with anesthesia. After each treatment session, the patient reported a substantial improvement in radicular pain as well as a subjective increase in her lower extremity range of motion.**

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Coccydynia is a pain in and around the coccyx. This pain has also been called *coccygodynia*, *coccyxdynia*, *coccyodynia*, and a plethora of similarly awkward variations. Simply stated, coccydynia means "tailbone pain."<sup>1</sup>

The coccyx consists of 3 to 5 solid osseous segments, or vertebrae, roughly shaped into a triangle. (Coccyx derives from the Greek word for *cuckoo* because it resembles the beak of a cuckoo bird.)<sup>2,3</sup> Ligamentous and muscular structures attach to these bones, specifically the anterior sacrococcygeal ligament, the gluteus maximus muscle, the coccygeus muscle, and the levators ani muscles.<sup>4</sup> In their study, Postacchini and Massobrio<sup>5</sup> describe 4 types of coccyges, with 2 types predominating: 68% of participants had a type I coccyx (curved slightly in a forward direction), and 17% had a type II coccyx (curved markedly in a forward direction). In all types, the coccyx continued the curve of the sacrum. Men tend to have a coccyx that angles forward into the pelvic cavity and consequently is protected between the ischial bones.<sup>2</sup> Women, on the other hand, tend to have a broader pelvis and a more posteriorly displaced coccyx, owing to the mechanics of childbearing.<sup>2</sup> Pregnancy puts more stress on the coccyx, and thus women are 5 times more likely to experience coccydynia.<sup>3</sup>

Coccydynia manifests as an intense focal pain that ranges from a deep ache or pressure sensitivity to the sensation of "sitting on a knife" or "being impaled on a garden cane."<sup>6</sup> Pain can frequently radiate toward the lower genitals, as well as to the legs. Coccydynia is typically exacerbated by prolonged sitting, especially on hard surfaces, but can also be elicited by defecation, sexual intercourse, or the initial movement into a standing position.<sup>7</sup> Whereas the pain associated with the aforementioned actions will likely be acute, coccydynia can also be severe and persistent.<sup>7</sup> Secondary symptoms, such as lower extremity pain or back pain, may occur as the result of prolonged standing, sitting in awkward positions, or other actions that a person with coccydynia might take to relieve pressure on the coccyx.<sup>6</sup> Depression, exhaustion, and even plantar fasciitis are other associated symptoms that may arise with coccydynia and consequently further decrease quality of life.<sup>6,7</sup>

Coccydynia can be traced to a variety of causes, but the most common etiologic process is trauma.<sup>8</sup> Falls directly on the coccyx, repetitive straining, and prolonged sitting (especially on hard or narrow surfaces) are examples of direct

From the University of Utah Health Sciences Center in Salt Lake City (Dr Emerson) and the University of North Texas Health Science Center Texas College of Osteopathic Medicine in Fort Worth (Dr Speece).

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Address correspondence to Scott S. Emerson, DO, 131 Walnut St, Waynesville, NC 28786-3250.

E-mail: semerson2006@yahoo.com

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## CASE REPORT

trauma that can elicit coccydynia.<sup>6</sup> Pregnancy, in particular, places an enormous amount of pressure on the area as the fetus adjusts within the pelvis.<sup>9</sup> Independent of trauma, coccydynia may also result from other occurrences, such as a spur on the coccyx, a pilonidal cyst, pain emanating from adjacent body structures (eg, bursitis, scoliosis, muscle spasms), cancer, or—in the most clinically frustrating manifestation—idiopathy.<sup>9</sup> Conducting a careful recording of patient history, physical examination (specifically, reproducing pain by means of manipulation of the coccyx), and review of imaging studies will help to identify symptoms of coccydynia.<sup>1,7,10</sup> Whatever the cause of coccyx pain, it is important to consider all causes and manage all factors in an effort to eliminate the pain.

Currently, there are numerous treatment options for a patient with coccydynia.<sup>11</sup> Conservative therapies can include ice packs, cushions (either “doughnut” or “wedge”), acupuncture, oral medications (eg, nonsteroidal anti-inflammatory drugs [NSAIDs], tricyclic antidepressants, opiates, gabapentin), or simply avoiding exacerbating activities.<sup>9,11</sup> Alternatives along the treatment continuum include epidural steroid injections to the coccyx, myofascial release, acupuncture, external or internal manual manipulation, and the “last resort” option of coccygectomy.<sup>1,11</sup> Whatever the treatment, it is imperative that the patient receives a treatment that does not cause secondary pain. Borne of this basic principle, manipulation with anesthesia is an exceptionally effective treatment for patients with coccydynia because it allows complete relaxation of the patient and permits the physician to more easily release restrictions manually; thus, a physician is able to eliminate pain secondary to restoring normal coccyx placement. Herein, we report a case of coccydynia managed with manual manipulation of the coccyx with anesthesia.

### Case Report

A 60-year-old woman was injured in a motor vehicle accident several months prior to consultation. She had developed low back pain that radiated down her right leg to the knee. Initially, she was treated conservatively with ice packs and a home exercise program that included stretching and walking on a regular basis; however, when these measures resulted in only mild resolution of symptoms, the patient’s primary care physician ordered magnetic resonance imaging, electrical stimulation, and chiropractic treatment, including decompressions, for the patient. The magnetic resonance image depicted bilateral degenerative facet disease in the L3-L5 vertebrae and degenerative hypertrophy at the L4-L5 vertebrae. Neither the electrical stimulation nor the chiropractic adjustments and decompressions mitigated the pain, and the patient reported worsening pain. Consequently, she was referred to a pain specialist for consultation and continued treatment.

During the initial visit, the patient confirmed her con-

tinuing low back and right leg pain; she also reported chronic left buttocks and thigh pain for years, possibly caused by a fall she had as a child. Overall, the patient reported her back, buttocks, and leg pain to be worse in the mornings, and, on a scale ranging from 1 to 10, her average reported level of pain was 6 or 7, which often peaked at 9 on her worst pain days. She denied any anesthesia or paresthesia in these areas. The patient stated that the pain was aggravated by sitting on hard surfaces and by engaging in certain activities. Rest and oral medications provided only moderate relief. Palpation revealed bilateral reproduction of pain during straight leg-raise maneuvers (positive on the right side at 40° and positive on the left side at 50°). On the basis of the patient’s history, the results of physical examination, and evidence from imaging, we diagnosed lumbar radiculopathy and somatic dysfunction of the lumbar and sacral vertebrae as the cause of the coccydynia. Therefore, we recommended lumbar epidural steroid injections and internal manipulation of the coccyx with anesthesia. The patient agreed to the injections (a series of 3 over 6 weeks) but chose to delay manipulation because she was reluctant about such treatment.

Nine days later, the patient presented for the first steroid injection stating that the pain was worse and that she agreed to internal manipulation. After the patient was taken to the procedure room, she was administered 10 mL of propofol for sedation. The dorsal lumbar and sacral areas were prepared using povidone iodine solution and were draped in an aseptic manner. A 22-gauge epidural needle was advanced 2 in through the sacral hiatus. As soon as we confirmed (by means of ballottement) that the epidural space had been entered, 25 mL of 0.1% marcaine with 80 mg of methylprednisolone acetate suspension was injected slowly. On completion of the injection, the epidural needle was withdrawn and the area was cleansed. As the patient regained consciousness, gentle osteopathic manipulative treatment of the lumbar and sacral spine was performed to achieve greater mobilization. At this time, and by means of external palpation, we determined that the coccyx was flexed and not in its correct position. The patient, now conscious, was then taken to the recovery room.

One week later at follow-up, the patient reported a “50% to 70% improvement” with her low-back and leg pain in the first few days after the procedure. Despite the returning pain, she expressed enough confidence in the treatment that she agreed to have her coccyx manipulated under anesthesia during her next visit.

Concurrent with the epidural steroid injections—which were administered twice more at 2-week intervals, separated weekly by follow-up visits—we manually manipulated the anesthetized patient’s coccyx. This technique consisted of placing a gloved finger into the anus of the patient and gently massaging in the direction of the

fibers, thereby relaxing and releasing the soft tissue, ligaments, and muscles attached to the coccyx. The finger was then placed on the coccyx, which was then gently pushed posteriorly into its normal position. Replicating the first procedure, we performed exterior osteopathic manipulative treatment of the lumbar and sacral spine.

After this treatment session and the next, the patient reported a gradual, substantial improvement in her overall presentation, as well as increased range of motion with decreased radicular pain in her back, buttocks, and legs. At the same time, she also stated that her coccyx pain had completely resolved. The patient expressed satisfaction and was released to the care of her primary care physician and told to return if the pain recurred.

### Comment

The initial management of coccydynia typically includes conservative measures, such as the use of oral medications (NSAIDs, tricyclic antidepressants, or opiates), sitz baths, and pelvic relaxation techniques.<sup>8,11</sup> Although these therapies may work for acute pain, they may give the false impression that the coccydynia is cured. Patients should also be aware of the hazards with chronic oral medicine use; for example, NSAIDs may cause peptic ulcers and compromise kidney function, and opiates are addictive and may cause nausea or constipation. In fact, these therapies may simply prolong and aggravate the cause of the coccyx pain. For this reason, many physicians consider steroid injections to be the first-line management of coccydynia.<sup>1,12</sup>

Injection of corticosteroids have led to favorable outcomes when used in the management of coccydynia.<sup>11,13</sup> These outcomes have occurred in pilot studies, regardless of whether the injection was placed between the sacrum and the coccyx (success in 65% of patients)<sup>13</sup> or in tissues surrounding the coccyx (success in 17 of 29 patients [59%]).<sup>11</sup> In 1991, Wray et al<sup>11</sup> were the first researchers, to our knowledge, to describe the technique of manipulation of the coccyx with anesthesia. Patients in the study by Wray et al<sup>11</sup> were injected with methylprednisolone acetate in the soft tissue around the sides and tip of the coccyx. Patients with persistent coccydynia underwent internal manipulation of the coccyx with general anesthesia; 28 of 33 patients (85%) reported resolution of coccyx pain.<sup>11</sup> Patients who were not satisfied with injections or manipulation underwent coccygectomy; of these, 21 of 23 patients (91%) experienced successful resolution of pain.<sup>11</sup>

### Conclusion

These findings suggest that manipulation of the coccyx with anesthesia is an effective and appropriate treatment for patients with coccydynia. Physicians should consider it for first-line management, given its substantial success rate over corticosteroid injections alone.<sup>11,13</sup> It might also be a viable alternative for patients who want to avoid surgery. This technique affords the patient complete relaxation while facilitating release of surrounding restrictions, thereby eliminating concomitant pain through restoration of the normal coccyx placement.

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