

Coccygectomy for Intractable Coccygodynia

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Abstract

Background: Coccygectomy is an uncommon procedure that many surgeons are reluctant to perform due to its proximity to the anus and the risk of rectal perforation and infection.

Objectives: To evaluate the diagnostic accuracy and outcome of coccygectomy.

Methods: We retrospectively reviewed the operative results in nine patients (seven females and two males) who underwent coccygectomy for coccygodynia in the last 5 years following failure of conservative treatment.

Results: The outcome of the procedure was excellent in five patients, good in one patient and poor in two patients.

Conclusions: It is mandatory to perform bone scanning in every patient with coccygodynia and before coccygectomy in order to rule out the presence of malignancy. Coccygectomy is recommended for patients with isolated coccygodynia.

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Coccygodynia was first defined by Simpson in 1859 as pain in the coccygeal region [1]. Since then published reports have proposed many etiologies for pain around the coccyx. These include psychological disorders such as neurotic personality [2] or depressive state, disk prolapse [3], trauma, local inflammation of ligaments [4], spasm of the levator ani due to anorectal infection [5], tumors such as chordoma [6], perineal cyst, giant cell tumor [7], intra-osseous lipoma [8], and glomus tumor. The existence of the latter neoplasm was first postulated in the early 1980s by Ho and Pak [9] and Pambakian and Smith [4], and a few years later, studies of the region in normal subjects [7] demonstrated that “glomus tumor-like” structures are a normal finding in this area.

The therapeutic options for coccygodynia are conservative or surgical treatment [10]. In this retrospective study we present our experience with coccygectomy and assess the efficacy of the procedure. Coccygectomy may be appropriate for as many as 20% of patients with coccygodynia [11].

Patients and Methods

We studied all the patients with coccygodynia referred to our hospital in the last 5 years after failure of conservative treatment. Surgery was performed in nine patients after a full diagnostic workup. All patients underwent clinical examination, blood tests, plain radiographs of the lumbosacral region, pelvis and coccyx, as well as isotope bone scan with Technetium MDP-99. The study group comprised seven women and two men. The average age of

the women was 56 years (range 49–62), and of the men 21 and 62 years. The average duration of pain prior to surgery was 14 months (range 4 months to 2 years). One woman had suffered for 20 years but experienced an exacerbation in the 2 years prior to surgery. None of the men had a history of direct trauma, while two of the women reported a history of antecedent trauma. Among the women, one had no children and one had one child; the other five had more than three children (range three to five children). In one male patient (the youngest), pain followed cycling. The woman who had a history of a fall 2 years prior to surgery had metastatic carcinoma of the coccyx and subsequently died due to metastatic disease 6 months following coccygectomy. The shortest follow-up was 1 year.

Diagnostic workup

Plain radiography. The radiographs were classified according to the method described by Postacchini and Massobrio [3]. Of the nine coccyx radiographs, seven were normal and two showed subluxation of the last two vertebra of the coccyx, type IV according to Postacchini and Massobrio [3].

Blood tests. All patients underwent routine laboratory blood tests (complete blood count, erythrocyte sedimentation rate, electrolytes, kidney and liver function tests); the tests were normal except for ESR. In eight patients the range of ESR was 2–28/hour; one patient had 28, and the rest were below 16. One woman had elevated ESR (55/hour).

Radioisotope scans. Of the nine isotope scans performed, seven yielded no focal finding in the coccyx; among them were two with lumbar spondyloarthritis, one with lower thoracic spondyloarthritis and one with cervical spondyloarthritis. Two had focal uptake in the coccyx: one was the young man with repetitive trauma, and the other was a woman with uptake at the coccyx and a history of antecedent trauma 2 years prior to surgery.

Computed tomography/magnetic resonance imaging. Seven patients were evaluated by lumbar spine CT. Bulging of disks at the L4-L5 level was demonstrated in two patients, and at the L5-S1 level in three patients – none had significant pressure on the dura. In one patient (the young male) an osteolytic defect at the S5 level was shown on the CT (the MRI test was negative). MRI was performed in two patients: one was normal and the other showed degenerative disk changes at L4-L5, L5-S1 levels without significant pressure.

ESR = erythrocyte sedimentation rate

Surgical technique

The patients were all positioned in the knee-chest position. The approach was via a longitudinal midline incision. The mobile part of the coccyx was excised with minimal damage to the rest of the coccyx. The sub-cutis was sutured in two layers with absorbable interrupted suture, and the skin was closed with metal staples.

Histology

At surgery, gross morphology showed free fragments of the coccyx in six patients, which were excised. In two cases there was a stable prominent coccyx, and this part was excised. In one patient there was erosion of the bone and a protruding soft tissue mass, which histology showed to be poorly differentiated. In the other cases, histology of the coccyx showed normal bone and hyalin cartilage, and in only one case was a glomus coccyxigenous tumor seen.

Results

Eight patients were available for follow-up (one having expired during this time). All patients completed a simple questionnaire expressing their opinions on the procedure:

1. Did surgery alleviate the pain?
2. Compare the pain before and after surgery on a scale from 1 to 10 (1 being least painful and 10 being very painful, according to the VAS guidelines).
3. Was the location of the pain the same as before surgery or has it changed?
4. Would you recommend this operation to other people?

The results showed that five patients felt very well; they had no pain and would recommend the operation to others. One woman felt satisfied with the operation; she scored her postoperative pain at level 2 compared to 7 before surgery and stated she would recommend the surgery to others. Another woman was not completely satisfied; her pain was at level 7 compared to 8 before the operation, and she would not recommend the surgery.

One patient, who suffered from ulcerative colitis, still had pain, and we conducted a new evaluation. On physical examination there was still severe tenderness elicited by pressure on the coccyx, as well as tenderness on the buttock near the midline. The X-ray showed a prominent coccyx; the bone scan was negative. Following revision coccygectomy the bone histology was normal but there was an inflammatory process in the subcutaneous fat. The patient felt much better after the second procedure.

Overall, 75% of the patients were satisfied with the operation and would recommend the procedure to others. Three patients were not satisfied. One underwent revision surgery, and it seems that the reason for the pain was not coccygodynia but inflammatory bowel disease, which caused inflammation of the subcutaneous fat.

Discussion

In the early literature on coccygodynia it was postulated that a personality disorder is the basis of patients' complaints. The theory was proposed that patients with coccygodynia suffer from anxiety, neurosis and hysteria [12,13]. Some authors believe that coccygo-

dynia is a referred pain due to disk prolapse at the lumbosacral level [6]. Wray et al. [14] associated the coincidental appearance of coccygodynia with back pain, and noted that patients whose condition failed to improve after coccygectomy felt no pain after diskectomy [14]. The same was postulated by Bayne [15]. Others go even further, suggesting that myelography should be performed before every proposed coccygectomy surgery [16].

Low back pain syndrome is very common in the general population, and it is said that 80–90% of the general population will suffer at some time from back pain. With this prevalence, it is feasible that the two conditions may coexist. However, the clinical presentation and the physical examination are quite different, and we do not see any difficulty in distinguishing between a patient who suffers from coccygodynia and a patient who suffers from low back pain.

The "glomus tumor" theory was postulated in the early 1980s by Ho and Pak [9] and Pambakian and Smith [4]. A few years later, a study in normal subjects [7,17] demonstrated that "glomus tumor-like" structures is a normal finding in this area. Key [13] believed the cause is inflammation of the ligaments around the coccyx. Although the exact cause of coccygodynia has not yet been established, there is a clear preponderance of female patients – both in our series and in others [14]. Most of the women are multipara; we therefore postulate that the main cause of area pain in this group is local pressure to the coccyx during delivery. Maigne and Tamalet [18], reporting a group of patients with hypermobile and luxated coccyx, believe that local trauma was a contributing factor to their patients' coccygodynia.

Even if the main cause is trauma, a thorough examination is essential to distinguish this cause from much rarer conditions. One of our patients with coccygodynia as a presenting symptom was found to have metastatic disease. She later underwent a complete workup for the primary tumor but the origin of the carcinoma was not found. We believe that isotope bone scanning, which several authors claim has no value in this disorder [11], is mandatory. There were no other significant parameters in our series.

All patients who suffer from coccygodynia are usually treated conservatively and most are cured by such means as non-steroidal anti-inflammatory drugs, physiotherapy or local injection of steroids. Manipulation and local injection have been reported to lead to a good outcome [14], with a success rate of 85%. Borgia [19] contends that manipulation restores pain-free motion at the coccyx by stretching its ligaments. Others have also reported good experience with manipulation [20]. Thiele [10] believes that the cause of coccygodynia is a spasm of the levator ani and therefore recommends massage of the pelvic floor muscles.

We believe that for patients who do not show improvement after conservative measures, including NSAIDs, a course of physiotherapy or local infiltration with lidocaine and steroids should be evaluated for possible excision of the coccyx. We have achieved good results with simple excision of the coccyx, and most of the patients were very satisfied. We recommend this procedure as a curative treatment for this subgroup of patients in whom

NSAID = non-steroidal anti-inflammatory drug.

conservative treatment failed, and prior evaluation should include isotope bone scan for every patient.

Finally, physicians must be cognizant of patients with inflammatory bowel disease whose inflammatory process may mimic coccygodynia, and who will not benefit from coccygectomy.

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