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Research

Is the Treatment of Persistent Idiopathic Coccydynia a Nightmare?

İnatçı İdiyopatik Koksidininin Tedavisi Bir Kabus mu?

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ABSTRACT

Objective: This study aimed to assess the outcomes of total coccygectomy compared with steroid injection and rectal manipulation in patients with persistent idiopathic coccydynia.

Methods: This retrospective study analyzed patients who underwent either total coccygectomy or rectal manipulation with fluoroscopy-guided steroid injection between 2018 and 2021 at two medical centers. The patients were divided into two groups: Group A, consisting of 13 patients who underwent total coccygectomy, and group B, consisting of 16 patients who received rectal manipulation and fluoroscopy-guided steroid injection.

Results: There were no significant differences in visual analog scale (VAS) scores between the groups before treatment. However, 10 days after treatment, group B exhibited a significantly lower VAS score [1 (0-4)] than group A [3.7 (2-7)]. There were no significant differences in VAS scores between group A and group B at the one-month, three-month, and six-month follow-up assessments after treatment.

Conclusion: Total coccygectomy and steroid injection with rectal manipulation are effective treatment options for idiopathic coccydynia.

Keywords: Coccyx, injection, resection, manipulation, outcome

ÖZ

Amaç: Bu çalışmanın amacı, persistan idiyopatik koksidini olgularında total koksigektominin sonuçlarını steroid enjeksiyonu ve rektal manipülasyon tedavisiyle karşılaştırarak değerlendirmektir.

Gereç ve Yöntem: Bu retrospektif çalışmada, 2018 ve 2021 yılları arasında iki tıp merkezinde total koksigektomi veya floroskopi kılavuzluğunda steroid enjeksiyonu ile rektal manipülasyon uygulanan hastalar analiz edildi. Hastalar, total koksigektomi uygulanan 13 hastadan oluşan grup A ve rektal manipülasyon ile floroskopi kılavuzluğunda steroid enjeksiyonu uygulanan 16 hastadan oluşan grup B olmak üzere iki gruba ayrıldı.

Bulgular: Tedavi öncesinde gruplar arasında görsel analog skala (VAS) skorlarında istatistiksel olarak anlamlı fark yoktu. Bununla birlikte, tedaviden on gün sonra, grup B, grup A'ya [3,7 (2-7)] kıyasla önemli ölçüde daha düşük bir VAS skoru [1 (0-4)] sergiledi. Tedavi sonrası bir aylık, üç aylık ve altı aylık takip değerlendirmelerinde grup A ve grup B arasında VAS skorlarında anlamlı fark yoktu.

Sonuç: Total koksijektomi ve rektal manipülasyon ile beraber steroid enjeksiyonu, idiyopatik koksidini için etkili tedavi seçenekleridir.

Anahtar Kelimeler: Kuyruk sokumu, enjeksiyon, rezeksiyon, manipülasyon, sonuç

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INTRODUCTION

The coccyx, also known as the tailbone, is the most distal part of the vertebral column. Pain in this region is commonly referred to as coccydynia or coccygodynia (1,2). Typically occurs as a result of direct axial trauma to the tailbone, such as during a fall (3). Differential diagnoses include abnormal mobility with postural changes, difficult childbirth, chordoma or intradural tumors, pilonidal cyst, adjacent organ pathologies, and lumbar stenosis. Idiopathic coccydynia accounts for approximately one-third of all cases (4), and the cause of this condition cannot be identified. The underlying causes of coccydynia can be attributed to localized pressure on the prominent coccyx or inflammation of the ligaments attached to the coccyx (5). Although coccydynia can affect individuals of all ages, it is more commonly observed in women than men (6).

Conservative treatment is typically the initial approach for coccydynia, with non-surgical interventions being utilized in approximately 90% of cases (7). Various treatment options are available, including the use of orthopedic ring cushions, anti-inflammatory medications, hot water baths, local anesthetic or steroid injections, extracorporeal shock wave therapy (ESWT), and ganglion impar blocks. These interventions aim to alleviate symptoms and provide relief for patients with coccydynia.

Persistent coccydynia poses a challenge for clinicians because conservative methods can sometimes be ineffective. Orthopedists generally avoid surgery on the coccyx for two primary reasons. First, the area is susceptible to infection. Second, there is no consensus regarding the preferred surgical technique. However, the combined technique described by Seker et al. (8), involving rectal manipulation and fluoroscopy-guided steroid injection, has emerged as a safe and straightforward conservative treatment option.

This retrospective study included two groups of patients. The first group included individuals diagnosed with persistent idiopathic coccydynia who underwent total coccygectomy. The second group comprised patients who received treatment through rectal manipulation and fluoroscopy-guided steroid injection. This study aimed to compare the clinical outcomes between the two groups and assess the effectiveness of the two treatment methods. The hypothesis of the study was that total coccygectomy would yield clinical outcomes comparable to or better than those achieved through rectal manipulation and fluoroscopy-guided steroid injection.

METHODS

This retrospective study analyzed patients who underwent total coccygectomy or rectal manipulation with fluoroscopy-guided steroid injection between 2018 and 2021 at two medical centers. The inclusion criteria for the study were as follows; absence of known direct etiological factors for pain, such as trauma, disc disease, postpartum pain, infection, or neoplastic processes; history of chronic coccydynia lasting for more than six months, and irresponsive to conservative treatment, which included non-steroidal anti-inflammatory drugs (NSAIDs), cushion use, and ESWT. A total of 29 patients met the inclusion criteria. The study was approved Erzurum Governorship Provincial Health Directorate Erzurum Regional Training and Research Hospital Ethics Committee (decision no: 2021/04-64, date: 15.02.2021), and informed consent was obtained from patients who agreed to participate.

The patients were categorized into two groups: Group A (n=13) underwent total coccygectomy at center 1 and group B (n=16) received a combination of rectal manipulation with fluoroscopy-guided steroid injection at center 2. The total coccygectomy procedures in group A were performed by the same surgical team using the method described by Key and Missouri (9), and all patients received spinal anesthesia. The rectal manipulation and fluoroscopy-guided steroid injection procedures in group B were also conducted by the same team at center 2, with all patients receiving sedative anesthesia.

In this retrospective study, it has been conducted an evaluation and comparison of the effectiveness of the two treatment modalities. Visual analog scale (VAS) scores were recorded at various time points, including before the procedure and during post-procedure follow-up visits at the 10^{th}, 1^{st}, 3^{rd}, and 6^{th} month.

Surgical Procedure

During the procedure, the patient was positioned in the prone position. A midline longitudinal incision, approximately 5 cm in length, was made in the sacrococcygeal region. Subsequently, electrocautery was used to subperiosteally expose the distal sacrum and coccyx. The entire coccyx was surgically removed. The surgical site was thoroughly irrigated with pulsatile lavage using normal saline solution (3L). The different tissue layers were closed in anatomical order. A waterproof adhesive dressing was applied to protect the wound. Cefazolin was administered preoperatively in a prophylactic manner. Patients allergic to penicillin received clindamycin antibiotic therapy, which was

adjusted according to body weight. During surgery, patients use orthopedic ring cushions until the sutures are removed, which typically occurs 3 weeks after the surgery.

Rectal Manipulation and Fluoroscopy-guided Steroid Injection

The patients underwent the combined manipulation technique while under sedative anesthesia, positioned in the lateral decubitus position. This procedure involved several steps. First, the anterior coccygeal region of the levator ani muscle was massaged for a duration of 3 min, following the technique proposed by Thiele (10). Subsequently, the coccyx was subjected to repetitive movements for 1 min to stretch it. Finally, the coccyx was mobilized according to the method described by Maigne (11) and held in a hyperextended position for 1 min.

After manipulation, a 10-cc solution was prepared under fluoroscopic guidance. The solution consisted of 1 cc (40 mg) of methylprednisolone acetate, 3 cc (60 mg) of prilocaine hydrochloride, and 6 cc (30 mg) of bupivacaine hydrochloride. A 10% portion of the solution (1 cc) was injected into the sacrococcygeal joint, while the remaining solution was injected into the soft tissues at the back of the coccyx.

After the procedure, patients were placed on orthopedic ring cushions for a period of 3 weeks.

Statistical Analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS, Inc., Chicago, IL, USA) at a significance level of 0.05. Mean and standard deviation were used for descriptive statistics. The Shapiro-Wilk test was used to test normality. The groups were compared using the Mann-Whitney U test.

RESULTS

The sample consisted of 29 patients. Group A consisted of 13 patients (eight women and five men). Group B consisted of 16 patients (ten women and six men). Group A had a median age of 44 [minimum (min): 21-maximum (max): 67)]. Group B had a median age of 41.5 (min: 23-max: 71). The two groups were similar in terms of demographic characteristics (Table 1).

Groups A and B had mean preoperative VAS scores of 5.1 (range 3-8) and 5.1 (range 2-8), respectively. There were no significant differences in VAS scores between the groups. Group B had a significantly lower VAS score [1 (0-4)] than group A [3.7 (2-7)] 10 days after treatment (p=0.0007).

There was no significant difference in VAS scores between group A [1.9 (range 0-5)] and group B [1.3 (0-3)] one month after treatment. There was no significant difference in VAS scores between group A [0.5 (range 0-2)] and group B [0.8 (range 0-3)] three months after treatment. There was no significant difference in VAS scores between group A [0.1 (range 0-1)] and group B [0.5 (range 0-2)] six months after treatment (Table 2).

DISCUSSION

The results showed that rectal manipulation with fluoroscopy-guided steroid injection and total coccygectomy had similar clinical outcomes.

There are various conservative treatment options for coccydynia, which depend on factors such as the physician's expertise, pain severity, and duration of symptoms. These options include oral NSAIDs and different physical therapy techniques. Most patients with coccydynia are initially treated conservatively. However, if pain persists despite conservative treatment, surgical resection may be necessary. It has been reported that the success rate of coccygectomy

Table 1. Demographic characteristics

	Group A	Group B	p-value
Age median (range)	44 (21-67)	41.5 (23-71)	0.759
Gender (N)			
Male	5	6	0.958
Female	8	10	

Table 2. Comparison of visual analog scale scores

	Group A Mean (SD)	Group B Mean (SD)	p-value
Pretreatment VAS score	5.1 (1.3)	5.1 (1.6)	0.946
Posttreatment VAS score			
10th day	3.7 (1.2)	1 (1.2)	0.0007
1st month	1.9 (1.1)	1.3 (0.9)	0.2
3rd month	0.5 (0.6)	0.8 (0.8)	0.17
6th month	0.1 (0.3)	0.5 (0.8)	0.06

VAS: Visual analog scale, SD: Standard deviation

ranges from 54% to 100% (12,13). In this study, we found that total coccygectomy (group A) was a success rate of 69.2%.

Numerous post-coccygectomy complications, such as superficial tissue infections and wound healing problems (14). In this study, superficial wound infections were observed in four patients from group A (total coccygectomy). However, these complications have been effectively managed through the use of oral antibiotics and regular dressing changes. There were no infections in group B. Although coccygectomy may seem like a simple procedure, the potential complications can make orthopedic surgeons hesitate to perform surgical interventions in patients with persistent coccydynia. Furthermore, surgery is a tendency in cases of idiopathic coccydynia. As a result, there has been a growing focus on nonsurgical treatment methods among researchers in this field in recent years.

Patel et al. (3) conducted a study that highlighted the significance of spasticity on pelvic floor muscles in patients with coccydynia. They demonstrated that local massage can alleviate tonic spasm believed to be responsible for pain. Building on this concept, Seker et al. (8) combined three manual therapy methods proposed by Maigne and Chatellier (15) with steroid injection (11). They compared the clinical outcomes of this combined method with those of steroid injection alone. The results indicated that the proposed method had a more pronounced effect on reducing VAS scores. In our study, we also implemented the new combined method in group B patients.

In this study, it has been conducted that a comparison of VAS scores at various time points after treatment, including 10 days, 1 month, 3 months, and six months. It was found that 10 days after treatment, group B had significantly lower VAS scores compared to group A. In group A, there was a significant reduction in VAS scores after treatment compared with before treatment, which can be attributed to the healing of the soft tissues in the surgical area. However, one month, three months, and six months after treatment, there were no significant differences in VAS scores between groups A and B. Both treatment methods yielded satisfactory results in terms of pain reduction.

This study has several limitations that should be acknowledged. First, the study was conducted retrospectively, which may have introduced biases and limitations in data collection and analysis. Second, the sample size was small, which could have affected the generalizability of the findings. Third, the participants were recruited from only two medical centers, which might have influenced the objectivity of the study and limited the diversity of the patient population. However, considering that one-third of coccydynia cases are idiopathic, recruiting an adequate number of participants from a single center alone can be challenging. Additionally, it is worth noting that patients with persistent coccydynia and a high body mass index (BMI) have been reported to experience lower post-treatment satisfaction (16). Unfortunately, our study did not include a comparison of BMI between the two groups, which is a limitation that should be considered.

CONCLUSION

Both total coccygectomy and steroid injection with rectal manipulation are effective treatment options for idiopathic coccydynia. However, according to the current study, steroid injection using rectal manual therapy may be a better treatment option because coccygectomy carries a substantial risk of infection.

ETHICS

Ethics Committee Approval: The study was approved Erzurum Governorship Provincial Health Directorate Erzurum Regional Training and Research Hospital Ethics Committee (decision no: 2021/04-64, date: 15.02.2021).

Informed Consent: Informed consent was obtained from patients who agreed to participate.

Authorship Contributions

Surgical and Medical Practices: E.Ş., M.C.T., Concept: M.N.T., M.C.T., Design: M.N.T., E.Ş., M.C.T., Data Collection or Processing: E.Ş., M.C.T., Analysis or Interpretation: M.N.T., Literature Search: M.N.T., E.Ş., Writing: M.N.T., E.Ş.

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REFERENCES

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;98:526-33.
2. Ramieri A, Domenicucci M, Cellocco P, Miscusi M, Costanzo G. Acute traumatic instability of the coccyx: results in 28 consecutive coccygectomies. Eur Spine J. 2013;22(Suppl 6):939-44.
3. Patel R, Appannagari A, Whang PG. Coccydynia. Curr Rev Musculoskelet Med. 2008;1:223-6.
4. Maigne JY, Doursounian L, Chatellier G. Causes and mechanisms of common coccydynia: role of body mass index and coccygeal trauma. Spine (Phila Pa 1976). 2000;25:3072-9.
5. Emerson SS, Speece AJ 3rd. Manipulation of the coccyx with anesthesia for the management of coccydynia. J Am Osteopath Asso. 2012;112:805-7.
6. Fogel GR, Cunningham PY 3rd, Esses SI. Coccygodynia: evaluation and management. J Am Acad Orthop Surg. 2004;12:49-54.

7. Nathan ST, Fisher BE, Roberts CS. Coccydynia: a review of pathoanatomy, aetiology, treatment and outcome. J Bone Joint Surg Br. 2010;92:1622-7.
8. Seker A, Sarikaya IA, Korkmaz O, Yalcin S, Malkoc M, Bulbul AM. Management of persistent coccydynia with transrectal manipulation: results of a combined procedure. Eur Spine J. 2018;27:1166-71.
9. Key JA, Missouri L. Operative treatment of coocygodynia. The Journal of Bone & Joint Surgery. 1937;19:759-64.
10. Thiele GH. Coccydynia and pain in the superior gluteal region. JAMA. 1937;109:1271-5.
11. Maigne R. Diagnosis and treatment of pain of vertebral origin: a manual medicine approach. Williams and Wilkins, Baltimore;1996. p. 339-40.
12. Perkins R, Schofferman J, Reynolds J. Coccygectomy for severe refractory sacrococcygeal joint pain. J Spinal Disord Tech. 2003;16:100-3.
13. Traub S, Glaser J, Manino B. Coccygectomy for the treatment of therapy-resistant coccygodynia. J Surg Orthop Adv. 2009;18:147-9.
14. Cebesoy O, Guclu B, Kose KC, Basarir K, Guner D, Us AK. Coccygectomy for coccygodynia: do we really have to wait? Injury. 2007;38:1183-8.
15. Maigne JY, Chatellier G. Comparison of three manual coccydynia treatments: a pilot study. Spine (Phila Pa 1976). 2001;26:479-84.
16. Kodumuri P, Raghuvanshi S, Bommireddy R, Klezl Z. Coccydynia - could age, trauma and body mass index be independent prognostic factors for outcomes of intervention? Ann R Coll Surg Engl. 2018;100:12-5.