

# Local Infiltration of Steroid In Conjunction With Coccygel Manipulation As A Treatment of Coccydynia

Nadeem Akbar Baloch, Imtiaz Hashmi, Muhammad Khalid, Madiha Hashmi

## ABSTRACT

**Objective** To assess the efficacy of local infiltration of steroid in conjunction with coccygel manipulation as a treatment of coccydynia.

**Study design** Interventional study.

**Place & Duration of study** Department of Orthopaedic Surgery, Ziauddin Hospital Karachi, from December 2000 to December 2008.

**Methodology** All selected patients who did not improve three to six months of conservative treatment, were enrolled. The patients were treated with local infiltration of steroid in conjunction with coccygel manipulation and followed for up to 2 years.

**Results** A total of 172 patients were diagnosed with coccydynia. The average age of the patients was 38.3 years. There were 138 (80.2%) males and 34 (19.8%) females. Trauma was responsible for pain in 118 (68.6%) cases. Of the total patients, 97 (56.4%) recovered with conservative management and remaining 75 (43.6%) underwent manipulation of coccyx under sedation with local infiltration of steroid. Fifty three (70.7%) patients had excellent results, 14 (18.7%) had good response and 8 (10.7%) had fair outcome on first visit. In 2 year follow up 60 (80%) patients showed good response. Second injection was given in 5 (6.7%) patients and 3<sup>rd</sup> injection was needed in one (1.3%) patient. Nine (12%) patients were lost to follow up.

**Conclusions** We recommend manipulation along with local infiltration of steroid in all patients of coccydynia. This approach is less invasive and carried out under sedation as a daycare procedure.

**Key words** Coccydynia, Coccygodynia, Pain management.

## INTRODUCTION:

Coccydynia is pain in the vicinity of coccygeal bone at the base of spine. The term coccydynia, first introduced by Simpson in the mid-nineteenth century, refers to symptom of pain in the region of the coccyx.<sup>1</sup> The word coccyx is derived from Greek word for "cuckoo" due to its resemblance to the beak of this bird. The coccyx comprises the most distal part of the vertebral column.<sup>2-4</sup> Although this condition may

affect individuals of all ages of either gender, the mean age of onset has been shown to be 40 years and the prevalence is five times greater in women than men.<sup>5,6</sup>

The majority of the cases of coccydynia occur in conjunction with either a subluxated or hypermobile coccyx, and it has been proposed that this pathologic instability may give rise to chronic inflammatory changes. Many of these patients will report a history of an antecedent traumatic event, which has been shown to be associated with coccygeal instability, particularly posterior subluxation.<sup>7,8</sup> Body mass index (BMI) appears to influence the prevalence of coccydynia. Idiopathic coccydynia has been described in the absence of any obvious pathologic changes

## Correspondence:

Dr. Muhammad Khalid  
Department of Orthopaedic Surgery  
Ziauddin University Hospital  
Karachi, Pakistan  
E-mail: drmkarain@gmail.com

involving the coccyx, although this is considered a diagnosis of exclusion. In some patients the instability may be detected on dynamic radiographs.<sup>9,10</sup> Nonsurgical management remains the gold standard treatment for coccydynia, consisting of decreased sitting, seat cushioning, coccygeal massage and postural adjustments. Local injection of steroid into the area has been reported to be beneficial for patients who do not respond to conservative treatment.<sup>11,12</sup>

We hypothesize that manipulation of coccyx for disruption of fibrous bands due to chronic inflammation followed by local infiltration of steroid is the treatment of choice for failed conservative treatment.

#### **METHODOLOGY:**

This interventional study was conducted in the Department of Orthopaedics Ziauddin Medical University Karachi from December 2000 to December 2008. All patients who were clinically and radiologically diagnosed as cases of coccydynia were included. These patients did not improve on three to six month of conservative treatment. Detailed history was taken. Clinical examination and x-rays of sacrococcygeal spine, in anterior posterior and lateral view both standing and sitting positions, were done. The coccyx was palpated externally, and the distal segment manipulated rectally to detect pain generated by the movement of the coccygeal segment. After the failed trial of conservative management (consisting of medications such as non steroidal anti-inflammatory agents (NSAIDs), reduced sitting, soft cushion use and other postural adjustments, and physical therapy for at least three months) local infiltration of steroid with manipulation of coccyx under sedation was carried out.

The manipulation was performed with the patient in the left lateral position, using the index finger per rectally and the thumb overlying the coccyx. The coccyx was repeatedly flexed and extended for approximately one minute. A mixture of steroid (40 mg methylprednisolone) and long-acting anaesthetic (10 ml of 0.25% bupivacaine) were infiltrated around the side and tip of the coccyx. If the treatment was successful initially but pain recurred, the injections and manipulations were repeated. Follow up of patients was done to document the response to the treatment in term of excellent to fair results, treatment failure and recurrence. Excellent comprised of no need of analgesia, no pain on sitting for long duration (more than 4 hours); good as above but duration of sitting was 2-4 hours and fair was less than 2 hours sitting. Treatment failure was defined as need of

analgesia and or painless sitting less than 2 hours. Minimum follow up time was two year (range 12 months to 36 months). Data were entered and analyzed into statistical packages for social sciences (SPSS version 10.0).

#### **RESULTS:**

A total of 172 patients with coccydynia were diagnosed on clinical and radiological examination. The average age of the patients was 38.3 year. Out of 172 patients, there were 138 (80.2%) males and 34 (19.8%) females with male to female ratio of 5:1. Trauma was responsible for pain in 118 (68.6%) cases. In 39 (22.7%) patients it was of idiopathic variety and in 15 (8.7%) cases it occurred after child birth.

Of total patients, 97 (56.4%) recovered with conservative management and remaining 75 (43.6%) underwent manipulation of coccyx under sedation with local infiltration of steroid. In 53(70.7%) patients excellent result was noted while 14(18.7%) showed good response. Eight (10.7%) patients had fair outcome on first visit. In 2 year follow up 60 (80%) patients showed good response. Second injection was given in 5(6.7%) patients and 3<sup>rd</sup> injection was needed in one (1.3%) patient. Nine (12%) patients were lost to follow up.

#### **DISCUSSION:**

A diverse presentation of coccydynia is seen in clinical practice. Patients with coccydynia most often present with complaints of pain in and around the coccyx without significant low back pain or pain radiation.<sup>13,14</sup> Classically, this pain is associated with sitting and is exacerbated when rising from a seated position. Many patients also feel a frequent need to defecate or pain with defecation. Others may report relief of their pain when they sit on their legs or on one buttock. Various aetiologies have been described for this coccygodynia.<sup>15,16</sup> The most common are falls resulting in direct injury to the sacrum. The trauma results in partial dislocation of the sacrococcygeal junction that causes abnormal movement of the coccyx, especially when sitting pressure is applied.<sup>7,8,15</sup> Trauma was the cause in more than 2/3<sup>rd</sup> of our patients. Another common aetiology is childbirth. At the end of the third trimester, certain hormonal changes enable the synchondrosis between the sacrum and the coccyx to soften that becomes more mobile. In this series only 15 patients developed pain after child birth. Up to one third of all cases of coccygodynia are idiopathic in nature as evidenced by results of this study as well.

Treatment for this ailment has varied from simple

medical management with analgesia, physiotherapy and manipulation to steroid injection and coccygectomy.<sup>17,18</sup> Maigne et al evaluated the efficacy of massage and sacrococcygeal joint mobilization as the initial modalities for addressing coccydynia. In their study, the 6-month success rates were 29.2% for massage, 32% with stretching, and 16% following joint mobilization; collectively, the overall success rate observed with these conservative approaches was 25.7%.<sup>5</sup> Wray et al. reported success rates of 59% with injections alone and 85% for the combination of injections and manipulation. 21% of the patients who received injections and 28% of those undergoing injections with manipulation, experienced recurrent symptoms.<sup>17</sup>

In 1996 Maigne et al, established that patients with subluxation or hypermobility were better responders to a local intradiscal corticosteroid injection than patients with normal coccyges. About two months after the injection, 50% of the patients with subluxation or hypermobility improved or healed, whereas only 27% of the patients with normal coccyges improved.<sup>19</sup>

### CONCLUSIONS

Corticosteroid injection combined with manipulation of coccyx is successful in most patients with coccydynia. This is less invasive procedure, has a good results, carried under sedation as an out door procedure with minimal procedure related morbidity.

### REFERENCES:

1. Fogel G, Cunningham P, Esses S. Coccygodynia: evaluation and management. *J Am Acad Orthop Surg* 2004;12:49-54.
2. Traycoff RB, Crayton H, Dodson R. Sacrococcygeal pain syndromes: diagnosis and treatment. *Orthopedics* 1989;12:1373-7.
3. Wald A. Functional anorectal and pelvic pain. *Digestive Diseases. Gastro Clin North Am* 2001;30:243-51.
4. Bilgic S, Kurklu M, Yurttas Y, Ozkan H, Oguz E, Sehirlioglu A. Coccygectomy with or without periosteal resection. *Int Orthop* 2010;34:537-41.
5. Maigne J, Doursounian L, Chatterlier G. Causes and mechanisms of common coccydynia: role of body mass index and coccygeal trauma. *Spine* 2000;25:3072-79.
6. Postacchini F, Massobrio M. Idiopathic coccygodynia. Analysis of fifty-one operative cases and a radiographic study of the normal

- coccyx. *J Bone Joint Surg* 1983;65:1116-24.
7. Patel R, Appannagari A, Whang PG. Coccydynia. *Curr Rev Musculoskelet Med* 2008;1:223-6.
8. Ryder I, Alexander J. Coccydynia: a woman's tail. *Midwifery* 2000;16:155-60.
9. Kim NH, Suk KS. Clinical and radiological differences between traumatic and idiopathic coccygodynia. *Yonsei Med J* 1999;40:215-20.
10. Maigne JY, Guedj S, Straus C. Idiopathic coccygodynia: lateral roentgenograms in the sitting position and coccygeal discography. *Spine* 1994;9:930-4.
11. Franzmayr C. Therapies successful on pain in the coccygeal area. [Internet] Available at: <http://www.coccyx.org> accessed on 2012.
12. Maigne JY. Treatment strategies for coccydynia. [Internet] Available at: <http://www.coccyx.org> accessed on 2012
13. Wood K, Mehbod A. Operative treatment for coccygodynia. *J Spinal Disord Tech* 2004;17:511-5.
14. Maigne J, Chatterlier G. Comparison of three manual coccydynia treatments: a pilot study. *Spine* 2001;26:E479-84.
15. Sugar O. Coccyx. The bone named for bird. *Spine* 1995;20:379-8.
16. Karalezli K, Iltar S, Irgit K, Karalezli N, Karakoc Y, Aydogan N. Coccygectomy in the treatment of coccygodynia. *Acta Orthop Bleg* 2004;70:583-5.
17. Wray C, Easom S, Hoskinson J. Coccydynia: aetiology and treatment. *J Bone Joint Surg* 1991;73:335-8.
18. Ballain B, Eisenstein M, Alo G, Darby A, Cassar-Pullicino V, Roberts S, Jaffray D. Coccygectomy for coccydynia: case series and review of literature. *Spine* 2006;31:E414-20.
19. Maigne JY, Tamalet B. Standardized radiologic protocol for the study of common coccygodynia and characteristics of the lesions observed in the sitting position. Clinical elements differentiating luxation, hypermobility, and normal mobility. *Spine* 1996;21:2588-93.