

Original Research Article

Effectiveness of Triamcinolone with Lidocaine Injection to Ganglion Impar in Patients with Refractory Coccydynia

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Abstract: Coccydynia is a painful condition of coccyx often related to trauma, childbirth, hypo or hypermobility of sacrococcygeal joint tumours, psychological or unknown aetiology affecting mostly females leading to severe pain in coccyx often not responding to analgesics. The objective of this study was to assess the effectiveness of triamcinolone and lidocaine injection to ganglion impar in patients with refractory coccydynia. This was a hospital based prospective study conducted in Department of Physical Medicine & Rehabilitation, Regional Institute of Medical Sciences, Imphal from September 2014 to October 2015. Fifty patients (22 females & 28 males) suffering from refractory coccydynia were included in study. All the patients were treated with local injection to ganglion impar with triamcinolone acetate (40 mg) and 2 ml lidocaine (2%) under fluoroscopic guidance. The outcome was assessed using VAS score on sitting measured before injection, at 1 week and 4 weeks after injection. The mean VAS score was found to be decreased significantly from 8.13 ± 0.66 before procedure to 3.62 ± 1.02 at 1 week and further decreased to 2.31 ± 0.99 at 4 weeks ($p < 0.001$). It may be concluded from this study that in patients with refractory coccydynia not responding to conservative management including oral analgesics, injection to ganglion impar with triamcinolone acetate and lidocaine is an effective alternative treatment option with minimal complications.

Keywords: coccydynia, ganglion impar, triamcinolone acetate, lidocaine, steroid, local anaesthetic.

INTRODUCTION

Coccydynia or coccygodynia is a term referring to pain in the region of the coccyx. Simpson first introduced the term 'coccyx' in 1859 [1]. The coccyx is the inferior region of the vertebral column, consisting of three to five rudimentary vertebrae articulating with the sacrum [2]. The coccyx also has a close anatomical relationship with the sacral nerve roots and the terminal end of the sympathetic chain called the ganglion impar, which carries visceral afferents from perineum, vulva, vagina, rectum and anus [3].

The exact incidence of coccydynia has not been reported. Although this condition may affect individuals of all ages and of either gender, the mean age of onset has been shown to be 40 years and male to female affection rate is 5:1 [4].

The most common cause of coccydynia is trauma as a result of falling on the buttocks, repetitive

microtrauma or childbirth [5]. The location of the coccyx makes it particularly susceptible to injury during childbirth, especially during a difficult or instrumented delivery. Nontraumatic coccydynia can result from a number of causes including degenerative joint or disc disease, hypermobility or hypomobility of the sacrococcygeal joint, infectious etiology, and variants of coccygeal morphology. Rare causes include neoplasms, somatization disorder and other psychological disorders [6].

The diagnosis of coccydynia is based on patient history and clinical examination. Coccyx pain is typically provoked by sitting. Palpation may show coccygeal tenderness, hyper mobility, tenderness over coccyx on rectal examination. Radiological studies may also aid in making this diagnosis through examination of the shape and movement of the coccyx with lateral sacral radiographs and dynamic x-rays respectively [7, 8].

Nonsurgical strategies remain the gold standard treatment for coccydynia, consisting of medications such as nonsteroidal anti-inflammatory agents (NSAIDs) and other analgesics, reduced sitting, doughnut pillow use, postural adjustments and physical therapy. Local injections of steroid or local anaesthetic into the region of the coccyx represent another therapeutic approach for refractory coccydynia [9]. Surgery (partial or total coccygectomy) may be warranted for select individuals with continued disabling coccygeal pain despite the implementation of various nonoperative treatment strategies [10].

The objective of this study was to find the effectiveness of triamcinolone acetonide and lidocaine injection to ganglion impar region in patients with refractory coccydynia.

MATERIALS & METHODS

This study was a prospective cohort study done on fifty patients presenting to Department of Physical Medicine & Rehabilitation, Regional Institute of Medical Sciences, Imphal between September, 2014 & October, 2015 with complaints of coccydynia. Approval from Institutional Ethics Committee and written informed consent was taken from all the patients participating in study.

Those patients were included who had refractory coccydynia (not responding to conservative measures including oral analgesics & physical therapy), age between 20 and 60 years & patient with minimum

Visual Analogue Scale (VAS) score of 5 before injection.

Those patients were excluded who had uncontrolled diabetes mellitus, hypertension, signs of local or systemic infection, bleeding disorder, pregnancy and received recent steroid injection within past 3 months.

The outcome of study was assessed using Visual Analogue Scale (VAS) on sitting which was taken before injection and reassessed at 1 week and 4 weeks.

INTERVENTION

The patient was placed in lateral decubitus position with hips flexed toward the abdomen. After injecting local anesthetic to area to be injected, a 22-gauge 3.5 inch spinal needle which was bent according to curvature of coccyx was inserted at level of anococcygeal ligament, which is situated in midway between anus and tip of coccyx. The index finger was then placed in rectum to facilitate placement of needle tip at the level of sacrococcygeal junction. The needle tip was then guided to region of ganglion impar which is located 1 -2 inch from tip of coccyx and 2ml of water soluble contrast medium (Iohexol) and biplanar fluoroscopy was used to confirm needle position following which local injection of triamcinolone acetonide 40 mg and 2 ml of 2 % lidocaine was given (Fig 1).



Fig-1: Figure showing patient position and injection technique

STATISTICAL ANALYSIS

Data collected from patients were analysed using SPSS version 21. For descriptive statistics, mean, standard deviation and percentage were used. Paired t-test was used for comparing the mean VAS scores before and after intervention. For all statistical analysis p-value < 0.05 was taken as significant with a 95% confidence interval.

RESULTS & OBSERVATIONS

There were a total of 50 patients included in this study (Table 1). The mean age of the patients was 37.10 ± 7.44 years. Among the fifty patients, 22 (44%) were males and 28 (56%) were females. Thirty four among fifty (68 %) patients had history of trauma while sixteen patients (32%) had no trauma. The mean duration of illness was 3.46 ± 2.09 months. The most commonly affected age group was 31-40 years (n=25).

The mean baseline VAS score before injection was 8.13 ± 0.66 . The mean VAS score was found to be decreased significantly to 3.62 ± 1.02 at 1 week and further decreased to 2.31 ± 0.99 at 4 weeks (p value < 0.001) which was statistically significant (Fig 2).

It was also found that there was significant pain reduction (more than 50 % reduction in VAS score) in 28 patients. There was no statistically significant difference in pain improvement between traumatic and non-traumatic cases.

Table 1: Baseline characteristics of patients

VARIABLES	SUBGROUPS	FREQUENCY	PERCENTAGE(n=50)
Age (years)	20-30	12	24
	31-40	25	50
	41-50	10	20
	51-60	3	6
Sex	Male	22	44
	Female	28	56
Trauma	Absent	16	32
	Present	34	68

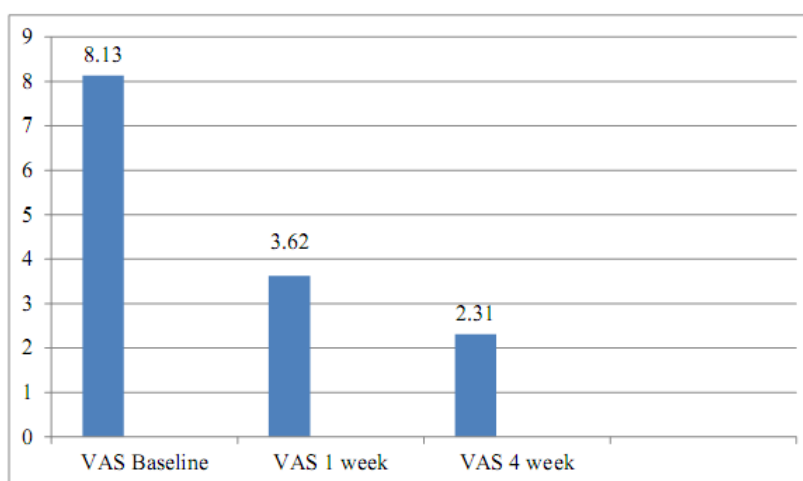


Fig-2: Graph showing mean VAS scores during follow up

DISCUSSION

Coccydynia usually responds well to conservative management such as NSAIDs, wedge or doughnutcushions, manipulation and physical therapy. Steroid and local anesthetic injections to the sacrococcygeal area and coccyx are reported to be a successful measure, especially in patients with acute pain (<6 months) [11]. Ganglion impar block is found to be effective in immediate pain relief in coccydynia and 50-75 % pain relief lasting weeks to months [12]. Patients with coccydynia show inflammatory changes in the area of the coccyx and pain syndromes and hence the rationale of using local steroid injections [13].

Previous studies showing the benefits of injection alone are limited. Wray *et al* [14] examined 62 patients randomized to local injection or manipulation with injection and found that patients receiving steroid improved slightly better when compared to post injection coccygeal manipulation. Mitra R *et al* [11] conducted a retrospective chart review on 14 patients with coccydynia who underwent fluoroscopically guided coccygeal injection of 80 mg triamcinolone

acetonide and lidocaine and found that patients with acute pain (< 6 months) responded more to coccygeal steroid injection.

In this study, steroid and local anaesthetic injection produced significant decrease in pain at 1 week and continued improvement even at 4 weeks. The combination of steroid and lidocaine may have reduced pain by two mechanisms; steroid decreased the inflammatory component in coccydynia while ganglion impar block by lidocaine blocked the visceral pain carrying afferent fibres of autonomic nervous system.

This study had many limitations like it is not a randomised controlled trial for comparing this treatment with standard treatment options, study was done on a small sample size , long term effects of steroid injection was not analysed. More randomised controlled trial with long term follow up is warranted before generalising the results.

CONCLUSION

In patients with refractory coccydynia not responding to other conservative management including oral analgesics, local injection to ganglion impar with triamcinolone acetonide and lidocaine is an effective treatment option with minimal systemic steroid absorption and hence complications. It may also be considered as an effective alternate treatment before opting for surgery.

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