

SPINE SECTION

Original Research Article

Pain Relief due to Transsacrococcygeal Ganglion Impar Block in Chronic Coccygodynia: A Pilot Study

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Abstract

Objective. Coccygodynia is a distressing condition that presents with pain around the coccyx. Impar (Walther) ganglion is a sympathetic ganglion located at the end of lumbosacral sympathetic chain. The objective of this study is to share our results and follow up of 34 ganglion impar blocks in 22 patients.

Design. Retrospective pilot study.

Setting. Interventional Pain Clinic in the Department of Physical Medicine and Rehabilitation in a university hospital.

Subjects. Twenty-two patients with coccygodynia who did not respond to conservative treatment and then presented to interventional pain clinic of a PM&R department in a university hospital

Methods. Pain was evaluated via 10-cm visual analog scale (VAS). VAS values were obtained before, 1 hour and 3 weeks after injection and during this study was conducted.

Results. For achieving at least 50% relief of pain, the success rate of a first injection was 82%, but accounted for three technical failures. In patients with a successful outcome, relief lasted for a median duration of 6 months. Relief was reinstated for a median period of 17 months by a second injection in nine patients who presented for repeat treatment. No relief was achieved in two of these patients when they presented for a third treatment.

Conclusions. Ganglion impar block appears to be effective in patients who have coccygodynia resistant to conservative therapy, with high success rates and prolonged duration of effect. Controlled studies are required to reveal the mechanism of this effect.

Key Words. Coccygodynia; Ganglion Walther; Ganglion Impar; Ganglion Impar Block

Introduction

Coccygodynia is a condition essentially defined by pain in the region of the sacrococcygeal joint. It accounts for less than 1% of nontraumatic problems of vertebral column [1] and is believed to be caused by hypermobility or subluxation of coccyx, with an associated, chronic inflammatory response [2]. The mean age of

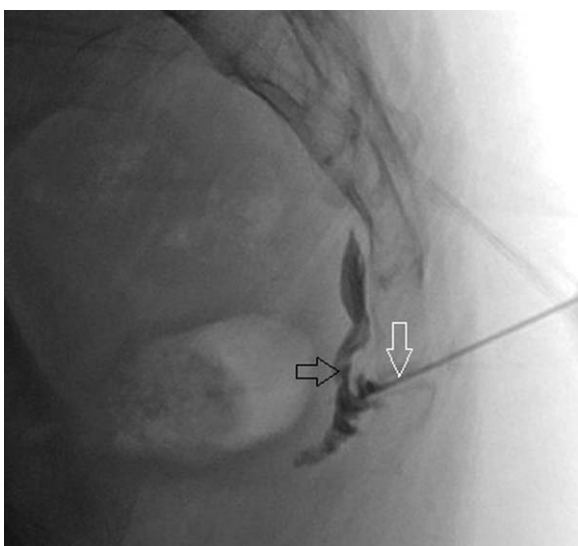


Figure 1 Lateral fluoroscopy view of injection of contrast medium around the ganglion impar. The white arrow indicates the needle and the black arrow shows the distribution of contrast medium around the front of the ganglion.

onset has been shown to be 40 years; and the prevalence is five times greater in women than in men [3]. It is more common in women with a body mass index (BMI) greater than 27.4, and in men with a BMI greater than 29.4 [4]. Coccygial cushions, nonsteroidal anti-inflammatory drugs, local analgesics, levator ani relaxation exercises, and transcutaneous electrical nerve stimulation have been used in conservative treatment, but in cases that are not responsive to conservative treatment, direct injections around the coccyx, caudal epidural blocks, or ganglion impar blocks can be applied [5].

Ganglion impar, otherwise known as the Walther ganglion, is a sympathetic ganglion that is situated behind the rectum around the sacrococcygeal joint or directly in front of the coccyx. It is the end point of paravertebral sympathetic chain, subtends the nociception and sympathetic innervation of the perineal region [6]. Ganglion impar block can be performed with fluoroscopy, using either a transsacrococcygeal [7] or Plancarte technique [8], or under computerized tomography or ultrasound guidance [8,9]. To our knowledge, there are no data that show one technique to be more effective than another. The choice of technique is influenced by the preference of the physician and the availability of adequate equipment.

Data on the outcomes of ganglion impar blocks are limited to case reports or small case series [8–10]. The present study was undertaken to extend this database by determining the success rate and duration of relief of

Table 1 Pain changes after each injection in patients

Patient Number	Pain Score (0–10)			
	Baseline	After Treatment		
		1st	2nd	3rd
22	10	0	5	10
21	8	3	0	8
20	8	5	0	
19	7	0	3	
18	10	0	5	
17	10	0	0	
16	9	3	4	
15	9	Failure	0	
14	10	Failure	1	
13	10	Failure	5	
12	10	2		
11	8	3		
10	8	0		
9	6	3		
8	10	5		
7	9	4		
6	8	3		
5	9	0		
4	8	0		
3	10	0		
2	8	2		
1	8	8		
Median	9	2	2.5	9
IQR	2(8 – 10)	3(0 – 3)	5(0 – 5)	

fluoroscopy-guided transsacrococcygeal ganglion impar block in patients with coccydynia.

Materials and Methods

Selected for study were patients with coccydynia who had not responded to conservative treatment, and then presented to the interventional pain clinic of Marmara University Physical Medicine and Rehabilitation Clinic between January 2011 and January 2014. Inclusion criteria were: intractable pain over the coccyx, despite conservative treatment for at least 6 months; and no abnormalities on laboratory findings or imaging that explained the pain. Exclusion criteria were presence of local infection, bleeding diathesis, contrast allergy, and previous surgery to lumbar region. The study was approved by the ethics committee of Marmara University Medical Faculty.

Twenty-two patients who satisfied these criteria underwent fluoroscopy-guided transsacrococcygeal ganglion impar block. With the patient lying prone, the sacrococcygeal joint was visualized via fluoroscopy. A 22-gauge

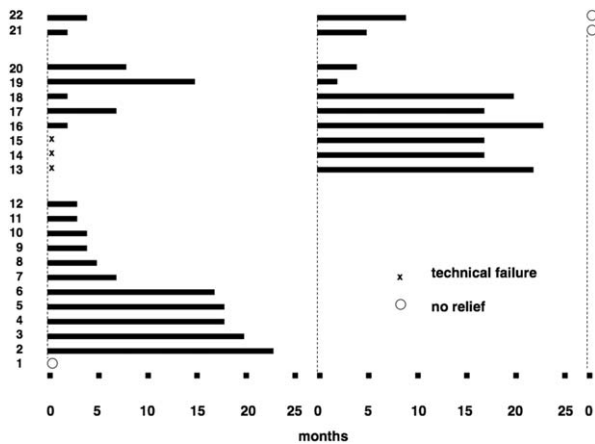


Figure 2 Duration of at least 50% relief of pain in 22 patients with coccygodynia treated with ganglion impar blocks. Each bar indicates the duration of relief for the patient numbered. Across the figure, additional bars indicate the duration of relief from a second and a third injection in the same patient. A circle indicates no relief. X indicates a technical failure.

spinal needle was used to reach the ganglion impar. After injection of contrast material and confirming the position of needle, 2 mL of 0.5% bupivacaine, 2 mL saline, and 1 mL (40 mg) of methylprednisolone were injected in the area (Figure 1).

Intensity of pain was measured using a 10-cm visual analog scale (VAS) before the injection, at 1 hour after the injection, and 3 weeks after the injection. For the present study, these data were harvested from the patients' records, and patients were interviewed to determine the duration of relief that ensued following treatment. Success was defined as at least a 50% reduction in pain. Success rates were calculated, along with the median duration over which that success was sustained.

Results

Two of the patients (9.1%) were male while 20 patients (90.9%) were female, with a mean (\pm sd) age of 41 ± 9 years and BMI of 29.7 ± 5.3 kg/m². Eleven patients (50%) had a history of trauma (mostly defined as falling on coccyx region) before the onset of pain. Median pain intensity (VAS) before treatment was 9 with an interquartile range of 2 [8–10] (Table 1).

On the occasion of the first injection, technical failures were encountered in three patients, in that vascular uptake of contrast medium was observed. The procedure was, therefore, abandoned, but repeated on a later occasion. Following the 19 technically successful

injections, one patient had no relief, but 18 had at least 50% relief (Table 1), which, on worst-case analysis, constituted a success rate of 82%, with 95% confidence intervals of 66% to 98%. This relief persisted for various periods (Figure 2), with a median duration (interquartile range) of 6 (7 – 21) months.

A second injection was performed in the three patients who suffered a technical failure during the first injection, and in five patients whose relief from the first injection had ceased. In all cases, at least 50% relief was achieved (Table 1), which persisted for a median duration of 17 (7 – 21) months (Figure 2).

Two patients returned for a third treatment when relief from the second treatment ceased. In neither patient was relief reinstated (Figure 2).

During the injections, one patient developed vasovagal symptoms and flushing after the procedure. No other side-effects or complications were encountered.

Discussion

With respect to age and gender, the patients in the present study were comparable to those described in the literature [3]. The prevalence of a history of trauma was also comparable [2,4]. Thus, the results of the present study should reasonably be applicable to the treatment of coccygodynia in general.

The technique used is somewhat unusual, but the transdiscal approach has been reported as safe [11], and has been used as routine practice in our clinic without misadventure. It is considered appropriate for nociceptive pain as well as sympathetic pain [10], whereas other techniques may be more appropriate for sympathetic pain [12].

For a condition that is otherwise very difficult to treat, our experience with ganglion impar blocks as a treatment is encouraging. These blocks are not curative, but appear to have worthwhile palliative effects. The success rate for achieving substantial relief of pain is high, and many patients enjoy sustained relief. If relief ceases, it can be reinstated by a second injection, with a high likelihood of success. The present data are insufficient to conclude on the effectiveness of third injections, but they warn that repeat treatment may not be effective.

As for any injection therapy, the results of the present study must be interpreted with reservations. Although the data show that the treatment can be effective, they do not show why it is effective. Controlled studies are required to determine if the effect is nonspecific, or due to the steroid used, or simply an effect of temporarily anesthetizing the ganglion. As well, the benefit achieved needs to be assessed beyond just relief of pain to encompass restoration of function and use of other health care. In this regard, the results of the present study should be viewed not as conclusive, but

contributory. The high success rates indicate that conclusive, controlled studies could be achieved with relatively small sample sizes.

References

- 1 Patijn J, Janssen M, Hayek S, et al. Coccygodynia. *Pain Pract* 2010;10(6):554–9.
- 2 Patel R, Appannagari A, Whang PG. Coccydynia. *Curr Rev Musculoskelet Med* 2008;1:223–6.
- 3 Fogel G, Cunningham P, Esses S. Coccygodynia: Evaluation and management. *J Am Acad Orthop Surg* 2004;12:49–54.
- 4 Maigne JY, Doursounian L, Chatellier G. Causes and mechanisms of common coccydynia: Role of body mass index and coccygeal trauma. *Spine* 2000;25:3072–9.
- 5 Lirette LS, Chaiban G, Tolba R, Eissa H. Coccydynia: An overview of the anatomy, etiology, and treatment of coccyx pain. *Ochsner J* 2014;14:84–7.
- 6 Oh CS, Chung IH, Ji HJ, Yoon DM. Clinical implications of topographic anatomy on the ganglion impar. *Anesthesiology* 2004;101(1):249–50.
- 7 Plancarte R, Amescua C, Patt RB, Allende S. Pre-sacral blockade of the ganglion of Walthers (ganglion impar). *Anesthesiology* 1990;73:A751.
- 8 Datir A, Connell D. CT-guided injection for ganglion impar blockade: A radiological approach to the management of coccydynia. *Clin Radiol* 2010;65(1):21–5.
- 9 Foye PM, Buttaci CJ, Stitik TP, Yonclas PP. Successful Injection for Coccyx Pain. *Am J Phys Med Rehabil* 2006;85(9):783–4.
- 10 Toshniwal GR, Dureja GP, Prashanth SM. Trans-sacrococcygeal approach to ganglion impar block for management of chronic perineal pain: A prospective observational study. *Pain Phys* 2007;10:661–6.
- 11 Wemm K Jr, Saberski L. Modified approach to block the ganglion impar (ganglion of Walthers). *Reg Anesth* 1995;20:544–5.
- 12 Plancarte-Sanchez R, Guajardo-Rosas J, Guillen-Nunez R. Superior hypogastric plexus block and ganglion impar (Walthers). *Tech Reg Anesth Pain Manage* 2005;9:86–90.