

Transcoccygeal neurolytic ganglion impar block for perineal pain: A case series

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Abstract

Background and Aims: Chronic perineal pain (CPP) is a poorly localized pain. Its etiology may be benign or malignant. The ganglion impar is a solitary retroperitoneal structure at sacrococcygeal junction. It provides the nociceptive and sympathetic supply to the perineal structures. CPP has been effectively managed by ganglion impar block. Here, we describe a case series of neurolytic ganglion impar block by transcoccygeal approach, analyzing its safety and efficacy.

Material and Methods: In this study, five consecutive patients who were given ganglion impar block for CPP using a transcoccygeal approach were followed up for 2 months. The visual analog scale (VAS) score for pain at presentation, time required for the pain to reduce by 50% after the block, VAS during a 2-month follow-up, time required to perform the procedure, number of attempts, and any complications were noted.

Results: All the five patients had an excellent pain relief. The mean duration for decrease in VAS by 50% was 14.8 ± 3.1 min. The mean duration to perform the procedure was 10.2 ± 1.5 min. There were no complications. All the patients had clinically significant pain relief with VAS score of 2 till 2-month follow-up.

Conclusion: Transcoccygeal ganglion impar block may offer a safe and effective treatment option for CPP as compared to opioids. This approach for neurolysis of the ganglion impar may be recommended in view of the direct course, appreciable end point, and smaller volume of neurolytic requirement.

Keywords: Ganglion impar, neurolytic, perineal pain, transcoccygeal approach

Introduction

Chronic perineal pain (CPP) is very common among pelvic cancer survivors. The presentation may be acute or chronic with either a somatic or sympathetic component. Sympathetically mediated perineal pain (SMPP) is a poorly localized pain, associated with burning sensation and sense of urgency in the perineal region.^[1]

The ganglion of impar (ganglion of Walther) is a solitary retroperitoneal structure located with some anatomical

variability between the sacrococcygeal junction and the lower segment of the first coccyx.^[2] It is formed by the terminal fusion of the two paravertebral sympathetic chains. It provides nociceptive and sympathetic supply to the perineal structures and distal pelvic structures.^[1] Control of SMPP secondary to malignancy is very difficult, and treatment options are limited. SMPP has been effectively managed by ganglion impar block.^[3]

In general, many patients are put on high dose of opioids for pain control. High dose of opioid consumption leads to constipation which further aggravates the anorectal pain leading to a vicious cycle. These patients would benefit by interventional methods instituted in early phase. Hence,

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blocking the ganglion impar attenuates this sympathetically mediated pain, leading to a reduction of opioid consumption, lessens constipation, and an improvement in the patients' quality of life.^[4]

Here, we present a case series of neurolytic ganglion impar block in patients with CPP by transcoccygeal approach, analyzing its safety and efficacy.

Material and Methods

Five patients with CPP of to varying etiologies [Table 1], who underwent neurolytic ganglion impar block by the transcoccygeal technique (first intracoccygeal junction), were included. Pain was excruciating, burning in nature with a visual analog scale (VAS) score of 6–7/10. Pain increased with bowel habits, which was unbearable during defecation with VAS score increasing to 9–10. Their daily life and sleep were disturbed severely. They had altered bowel habits, alternating increased frequency, and constipation.

Patients were given impar ganglion neurolytic block by transcoccygeal approach (between the first and second coccygeal segments) following written informed consent. A 20-gauge venous access was secured, and basic monitors such as electrocardiogram, noninvasive blood pressure, and saturation (SpO₂) probe were connected. Patients were put in the prone position with a pillow (approximately 10 cm) under the lower abdomen and pelvis to allow flexion of the lumbosacral spine. After cleaning and draping the sacrococcygeal area with 5% povidone-iodine, transcoccygeal junction was localized by palpating the sacral cornua and by using the fluoroscopy. After local infiltration with 2% lignocaine, under a C image intensifier, a 23-gauge, 10 cm Quincke spinal needle was inserted through the skin and advanced at the transcoccygeal junction to reach the anterior surface. The needle tip position was confirmed by injecting 1 ml of contrast dye (iohexol). The dye spread in the form of “reverse comma” in lateral view, confirming the correct placement [Figure 1]. A diagnostic block was performed using 0.25% bupivacaine 5 ml. After confirming 50% reduction in VAS score from the baseline, 5 ml of 100% absolute alcohol was given.

The time taken to perform the block was the time from inserting the Quincke needle through the skin to the correct placement. The number of attempts and any complication (visceral injury, discitis, bleeding) during the procedure were noted. These patients were followed up in the hospital for 24 h and then discharged. They were asked to report every week for 2 months and were instructed to report at any time if they had pain with a VAS score of 5 or above.

Results

Throughout the procedure, all the patients were hemodynamically stable and tolerated the procedure well. Transcoccygeal neurolytic ganglion impar block was successfully performed in all the cases. Patients with CPP due to varying etiologies are shown in Table 1. In our study, there were two males and three females [Table 1]. In three patients, the block was performed in a single attempt and in two patients in the second attempt [Table 1].

The mean age of the patients was 59 ± 14.8 years, and the mean VAS score for pain at presentation was 7.8 ± 0.8 [Table 2]. The mean duration of the procedures was 10.2 ± 1.5 min [Table 2]. None of them had any complication. All the patients had pain relief by more than 75% within 30 min, and the mean duration for the decrease in the intensity of pain to 50% of the baseline was 14.8 ± 3.1

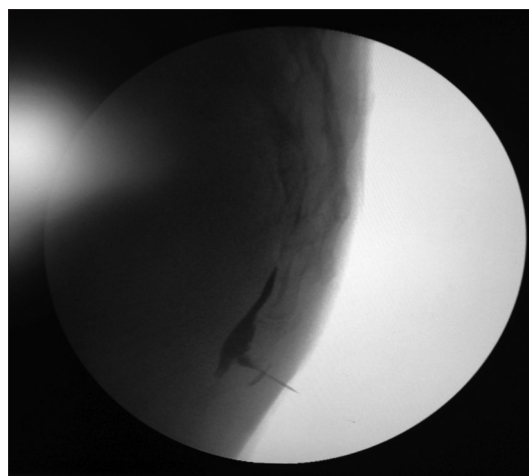


Figure 1: Fluoroscopic dye spread in transcoccygeal ganglion impar block

Table 1: Demographic data showing various etiologies of chronic perineal pain

Patient	Age	Sex	Diagnosis	Analgesics	Attempts
1	38	Male	Cancer rectum	Tramadol, paracetamol, NSAIDS	1
2	50	Female	Cancer cervix	Morphine, pregabalin, NSAIDS	1
3	67	Male	Cancer prostate	Tramadol, paracetamol, morphine	2
4	75	Male	Cancer sigmoid colon	Tramadol, transdermal fentanyl, pregabalin	2
5	65	Female	Cancer cervix	Morphine, pregabalin NSAIDS	1

NSAIDS=Nonsteroidal anti-inflammatory drugs

Table 2: Statistics for block

Block	n	Minimum	Maximum	Mean±SD
Duration of the procedure (min)	5	8	12	10.2±1.5
Time required to decrease the pain by 50% (min)	5	10	18	14.8±3.1
Age (year)	5	38	75	59±14.8
VAS at presentation	5	6	9	7.8±0.8

VAS=Visual analog scale, SD=Standard deviation

[Table 2]. All of them defined the pain as 2/10 on VAS, with no use of opioid medications at 2-month follow-up except for one patient who was lost to follow-up after 3 weeks.

Discussion

Chronic intractable perineal pain is due to damage of tissue and nerve from an expanding tumor and inflammation.^[1] Control of this pain is very difficult, and treatment options are limited. Many patients are given high dose of oral opioids, which causes constipation and further increases the anorectal pain. A ganglion impar block can be used to treat perineal pain in these patients.^[3-6]

There are various approaches to ganglion impar block. In 1990, Plancarte *et al.*^[5] first described a conventional transanococcygeal technique using a curved spinal needle. This method had many disadvantages such as technical difficulty, risk of injury to rectum and blood vessels, and a high failure rate. Followed to this, transsacrococcygeal, transcoccygeal, paramedian, and paracoccygeal cork screw techniques were described. Among these, transsacrococcygeal approach, described by Wemm and Saberski,^[6] was popular due to better technical feasibility with lesser incidence of visceral injuries as compared to the transanococcygeal technique.

Foye *et al.*^[7] and Hong and Jang^[8] described a single case in which ossification of the sacrococcygeal disc prevented them from performing the ganglion impar block through the sacrococcygeal junction. Instead, they chose to approach the ganglion impar inferiorly, through the joint space between the first and second coccygeal segments. As in these cases, there may be difficulty in placement of the needle due to ossification of the sacrococcygeal disc in older ages. The transsacrococcygeal approach to the ganglion^[3,6] is the most common technique used, which is technically feasible, easy to perform, and the conventional injection site in many previous reports. The sacrococcygeal disc, made up of glycoprotein, sometimes may later ossify leading to difficulty in placement of the needle as encountered in previous studies.^[3,7,8] In such cases, impar ganglion can be approached through the first transcoccygeal space. In both these techniques, the potential

complications after penetration of the disc are visceral injury, discitis, and bleeding,^[9] and none of these complications were seen in our patients with transcoccygeal technique.

Oh *et al.*^[2] showed that the ganglion impar is commonly located closer to the first intercoccygeal junction than the sacrococcygeal junction in cadaveric dissections. Hence, injections through the first transcoccygeal junction are closer to the ganglion impar requiring smaller volumes of injectate (important if destructive neurolytic agents were injected). There are some additional benefits with this approach as compared to transsacrococcygeal approach. First, irrespective of approach, the injectate usually flows cephalad rather than caudal. Thus, the first intracoccygeal approach^[7] results in an excellent coverage with smaller volumes of neurolytic agents compared to sacrococcygeal approach (injectate flowing too far superior to the ganglion impar). Second, in the lateral view of fluoroscopy, the bilateral cornua from the first coccygeal bone often obstruct and cause difficulty with visualizing and traversing the sacrococcygeal junction. At the first intracoccygeal junction, fluoroscopic visualization is better as these cornua are angled cephalad and the other coccygeal segments lack any cornu. The second intracoccygeal (between the second and third coccygeal bones) approach^[10] again requires a higher volume of injectate. Third, the sacrococcygeal junction is obstructed by joint fusion in 51% of patients with coccyx pain, compared with only 12% fusion at the first intercoccygeal joint.^[11]

Despite these comparisons, no single approach should be considered the best technique for all the patients. Based on the individual patient's anatomy and fluoroscopic appearance, the most appropriate approach has to be considered. There are many visualization techniques such as computed tomography^[12] and ultrasound.^[13] None of these can replace fluoroscopy since lateral fluoroscopy is still required to establish the correct site of injection and safe depth.

There are various methods for ganglion impar block: local anesthetics, steroids, neurolytics, and radiofrequency ablation.^[14] Blockage of impar ganglion with local anesthetics provides fast and good relief for coccydynia (coccyx pain),^[3] but short-living pain control in cancer cases. Repetitive local anesthetic and steroid injections lead to infection, increase in blood glucose, and suppression of immunity. Duration of pain control can be prolonged by chemical neurolysis of the ganglion. In the current published literature, there are no major complications reported. Postinterventional controls indicated decreased VAS values, need for opioids, and increased life quality.

In our study, we approached the ganglion impar through the first transcoccygeal space in all the five patients. The

transcoccygeal approach can be an alternate, technically feasible approach to transsacrococcygeal technique whenever there is difficulty with the latter approach due to ossification of the disc. One of the main advantages of the transcoccygeal approach over the sacrococcygeal approach is that, with smaller volumes of neurolytics, there is an excellent coverage of ganglion impar.

There are limitations in this study. First, the size of our case series is small, so based on this, it is difficult to make generalized recommendations. Second, a randomized control trial is required in a larger group of these patients to accurately justify that this approach is better and safer than the previous other popular approaches.

Conclusion

Fluoroscopically guided transcoccygeal ganglion impar block may offer a safe and effective treatment option for CPP secondary to malignancy as compared to opioids. This transcoccygeal approach for neurolysis of the ganglion impar may be recommended in view of the direct course, anatomic proximity, appreciable end point, and smaller volume of neurolytics requirement.

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Conflicts of interest

There are no conflicts of interest.

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