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Case Report

Rare complication of ganglion impar blockade with the transsacrococcygeal approach: A case of rectal perforation

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ABSTRACT

Although it has been reported that caution should be exercised in terms of rectal perforation, as the ganglion impar is located just behind the rectum in the presacral space, the authors could not find any case or images of rectal perforation occurring during ganglion impar blockade in the literature. In this report, the case of a 38-year-old female with rectal perforation that developed during ganglion impar blockade, performed by the transsacrococcygeal approach under fluoroscopy guidance, is presented. Wrong needle selection and the structurally short presacral space of the patient may have influenced the development of rectal perforation in the patient. This study presents the first case and images of rectal perforation in the literature that developed during the application of ganglion impar blockade using the transsacrococcygeal technique. In ganglion impar block applications, technically appropriate needles should be used, and care should be taken in terms of rectal perforation.

Keywords: Coccygodynia, ganglion impar blockade, rectal perforation, rectum perforation, transsacrococcygeal approach.

Coccygodynia, also known as coccydynia, coccygodynia, and tailbone pain, is a condition characterized by pain in the coccyx region.[1] The first-line treatment for coccygodynia is conservative treatment methods such as nonsteroidal anti-inflammatory drugs, rest, sitting cushions, reduction of sitting time, and physical therapy.[2] There are also treatment options such as levator ani massage and stretching, local injection of local anesthetics and steroids, ganglion impar block, caudal epidural block, pulse radiofrequency, intra-rectal massage and manipulation, coccyx manipulation, and coccygectomy for patients who are unresponsive to conservative treatments.[2]

The ganglion impar, also known as the Walther ganglion, is located in front of the coccyx. It is the sympathetic ganglion that mediates the sensation of pain in the coccyx and perineal region. It has been reported that blocking this ganglion is a safe treatment method and provides long-term pain relief in chronic coccygodynia.[1,3] There are various injection techniques for ganglion impar blockade.[1,4-7] The ganglion can be accessed by one of four methods: a paramedian approach via the anococcygeal ligament, a midline approach via the anococcygeal ligament, directly via the sacrococcygeal or intercoccygeal joint spaces, or via a lateral approach. Currently, ganglion impar block performed directly via the sacrococcygeal joint space (transsacrococcygeal) is more widely preferred.[8] In this approach, under the guidance of intermittent fluoroscopic imaging, a needle is passed through the disc and advanced to the front of the sacrococcygeal junction in a controlled manner, vascularity is checked after contrast agent injection, and the correct location is determined with the appearance of a reverse comma mark, which is the typical contrast diffusion pattern.[3]

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This approach is recommended as it is relatively safe, simple, fast, effective, and well tolerated by patients.[8]

Temporary and minor complications such as increased pain at the injection site and vasovagal reactions are relatively more common in patients during ganglion impar blockade; additionally, it has been reported that severe complications such as rectum perforation, bleeding, infection, bladder incontinence, sexual dysfunction, and nerve root injury may occur, albeit rarely.[8-11] It has been demonstrated that the anococcygeal approach is riskier than other techniques in terms of rectum perforation, which is one of these complications.[10] However, to the best of our knowledge, there is no case or image of rectal perforation reported in the literature in ganglion impar blockade applications, regardless of the technical approach.

In this report, the possible causes, follow-up, and treatment process of a patient who had a rectal perforation during ganglion impar blockade with the transsacrococcygeal approach with fluoroscopy performed due to chronic coccydynia are discussed.

CASE REPORT

A 38-year-old female presented to our clinic with symptoms of coccyx pain, which had started four years ago and increased over the last six months. The symptoms of the patient, who did not describe any trauma history related to the pain, increased while sitting. The patient's body mass index was 25.19 kg/m^2. The pain level was 7/10 on the numerical rating scale (NRS). On physical examination, focal sensitivity was detected by palpation in the coccyx area. There was no known systemic disease or drug use in the patient's medical history. Ganglion impar blockade was planned for the patient, who did not respond to conservative treatment methods such as education, exercise, seat cushion, and analgesic drugs.

The patient was placed in the prone position, and the intergluteal region was sterilized. The lateral view of the sacrococcygeal junction was imaged using C-arm fluoroscopy. The procedure was performed by a physician who is a physiatrist and pain medicine specialist with nine years of physiatry and one year of pain medicine experience.

A local anesthetic (3 mL 2% prilocaine; Citanest, AstraZeneca, Istanbul, Türkiye) was administered to provide cutaneous and subcutaneous tissue blockade with a 21-G 0.8x38 mm needle (Setecoject, Set medikal, İstanbul, Türkiye). After local anesthesia, an image was taken to visualize the localization of the needle, and it was observed that the needle was inside the sacrococcygeal disc. Therefore, as the needle was close to the location of the ganglion impar, instead of removing the existing needle and starting the procedure with a 22-G 88 mm spinal needle (Spinocan®, B. Braun, Melsunger, Germany), the current needle was advanced, and the sacrococcygeal region was reached with intermittent imaging (Figure 1). After the injection of the contrast agent (2 mL iohexol 300/50 OMNIPAQUE, Opakim, Istanbul, Türkiye), it was found that there was no vascularity, and there was an appearance compatible with contrast diffusion in the rectum with the presence of a typical reversed comma sign (Figure 2). The procedure was then terminated, and no complications developed in the patient who was observed for 2 h. The patient was discharged after being informed of symptoms such as fever, abdominal pain, and change in defecation habits and instructed that they should present again if these symptoms occur. The patient was reevaluated at the one-week and four-week follow-ups, and no complications were observed. No additional treatment was provided for rectal perforation; however, as the patient's coccyx pain continued, caudal epidural steroid injection was planned for the patient under fluoroscopy at the four-week follow-up. No complications were observed during and after the procedure. The NRS score was 0 at the first hour after the procedure, 2 at the third week, and 1 at the third month.

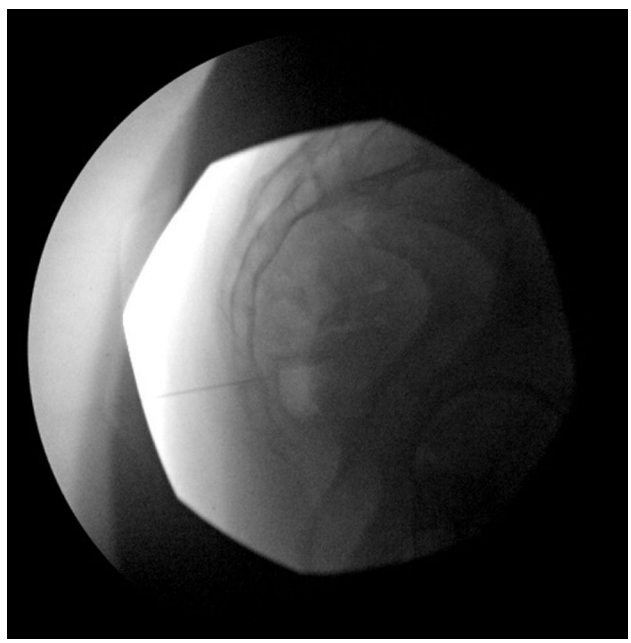

Figure 1. Fluoroscopic image before contrast agent injection.

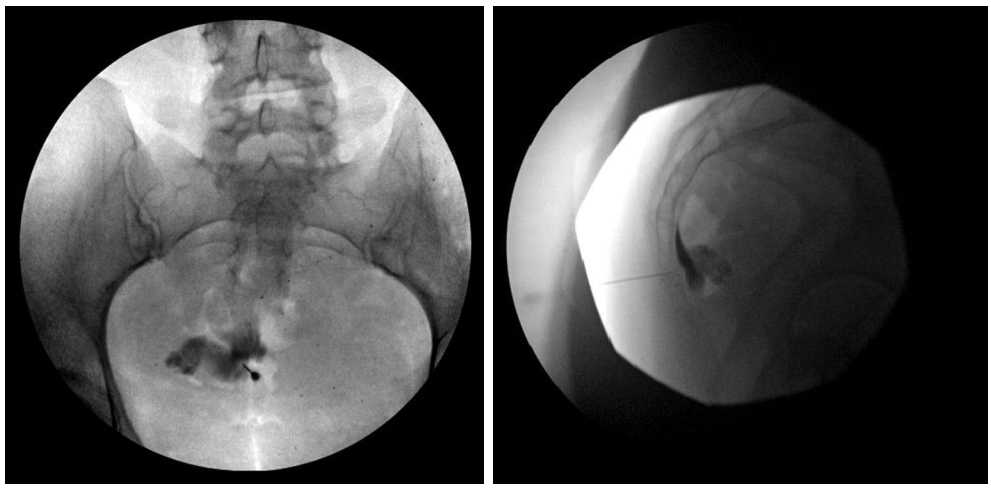

Figure 2. Fluoroscopic image after contrast agent injection.

DISCUSSION

In this case, a typical reverse comma sign, as well as intrarectal contrast dissemination consistent with rectal perforation, was observed after contrast agent injection during a ganglion impar block procedure performed for chronic coccydynia. To the best of our knowledge, this is the first report in the literature of rectal perforation during a ganglion impar procedure performed using the transsacrococcygeal approach. No complications were encountered in the follow-up of the patient, and no additional treatment was given.

There are various injection techniques for ganglion impar blockade.[1,4-7] Plancarte et al.[12] were first to report the anococcygeal approach where the tip of the needle reaches the sacrococcygeal junction retroperitoneally by inserting a bent spinal needle through the anococcygeal ligament with the guidance of fluoroscopy. Due to the risk of rectal perforation in this technique, it is often recommended that the practitioner insert the second finger of the nondominant hand into the rectum while advancing the needle. There are also other risks such as tissue trauma during the angulation of the needle, breakage of the needle, needlestick injury of the practitioner's intrarectal finger, as well as a periosteal injection.[8,10] It has been stated that this technique involves the risk of rectal and vascular injury in impar blockade and a high failure rate of 20 to 30%.[10] Consequently, this approach is not preferred anymore; instead, the transsacrococcygeal approach is recommended, which is technically simpler, less painful, causes less tissue damage, and is less likely to result in rectal damage.[8] Therefore, the authors prefer the transsacrococcygeal approach in their routine clinical practice, as in this case, in applications of ganglion impar blockade.

In the ganglion impar blockade procedure, there is a risk of perforation of the rectum since it is located in front of the presacral space. It has been reported that the distance between the sacrococcygeal ligament and rectum can range from <1 mm to 34.1 mm. If this distance is structurally short or shortened due to cancer or tumor, it increases the risk of rectal perforation.[13] This patient did not have any cancer or tumor, but the wrong needle selection may also have influenced the development of the rectal perforation in the patient. It is well known that the bevel, sharpness, and other features of the tip of each needle are designed differently according to their area of use. The procedure was performed with a 21-G 0.8×38 mm (bevel angle 11°, triple-long bevel, thin wall) needle used for local anesthesia in the patient. However, this needle was not produced for spinal procedures and ganglion blockades. A 22-G 88-mm spinal needle is recommended for ganglion impar blockade.[8] In addition, the needle was observed inside the disc and near the target point in the imaging taken after local anesthesia, which influenced our choice of this needle. The needle, which is sharper compared to a spinal needle, may cause the practitioner to unintentionally advance further. In this case, although the needle tip was just in front of the sacrococcygeal joint, the occurrence of rectum perforation may be related to the sharp needle tip causing relatively more trauma.

Clinical symptoms show a wide spectrum in rectosigmoid perforations. No clinical symptoms are observed in small extraperitoneal perforations, but

severe clinical symptoms can be noticed in large intraperitoneal perforations.[14] Additionally, the risk of discitis, one of the prominent disadvantages of the transsacrococcygeal approach, may be increased due to fecal contamination of the needle after rectal perforation. Furthermore, since the rectal perforation in this patient was probably of small size and was located extraperitoneally, this patient had no clinical symptoms during follow-up, and no additional treatment was required.

In conclusion, care should be taken with regards to rectal perforation and technically appropriate needles should be used in ganglion impar blockade applications.

Patient Consent for Publication: A written informed consent was obtained from patient.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: Idea/concept, data collection, literature review, analysis, writing the article: M.O.; Idea/concept, design, control/supervision, analysis, critical review: S.Ş.; Design, control/supervision, critical review: O.H.G.

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REFERENCES

1. Mabrouk A, Alloush A, Foye P. Coccyx Pain. StatPearls. Treasure Island (FL): StatPearls Publishing LLC.; 2020.
2. Elkhashab Y, Ng A. A review of current treatment options for coccygodynia. Curr Pain Headache Rep 2018;22:28.
3. Sencan S, Kenis-Coskun O, Demir FGU, Cuce I, Ercalık T, Gunduz OH. Ganglion Impar block improves neuropathic pain in coccygodynia: A preliminary report. Neurol Neurochir Pol 2018;52:612-7.
4. Foye PM. New approaches to ganglion impar blocks via coccygeal joints. Reg Anesth Pain Med 2007;32:269.
5. Foye PM. Ganglion impar blocks for chronic pelvic and coccyx pain. Pain Physician 2007;10:780-1.
6. Foye PM, Patel SI. Paracoccygeal corkscrew approach to ganglion impar injections for tailbone pain. Pain Pract 2009;9:317-21.
7. Plancarte R, González-Ortiz JC, Guajardo-Rosas J, Lee A. Ultrasonographic-assisted ganglion impar neurolysis. Anesth Analg 2009;108:1995.
8. Scott-Warren JT, Hill V, Rajasekaran A. Ganglion impar blockade: A review. Curr Pain Headache Rep 2013;17:306.
9. Gupta N, Garg R, Saini S, Bharti SJ, Kumar V. An unusual complication after ganglion impar block for chronic cancer pain management. AANA J 2017;85:424-6.
10. Toshniwal GR, Dureja GP, Prashanth SM. Transsacrococcygeal approach to ganglion impar block for management of chronic perineal pain: A prospective observational study. Pain Physician 2007;10:661-6.
11. Gunduz OH, Kenis-Coskun O. Ganglion blocks as a treatment of pain: Current perspectives. J Pain Res 2017;10:2815-26.
12. Plancarte R, Amescua C, Patt RB, Allende S. A751 Presacral blockade of the ganglion of Walther (ganglion impar). Anesthesiology 1990;73:NA.
13. Kwon YS, Lee N, Lee HS, Youn EJ, Lee SK, Kim Y, et al. Risk of rectal puncture due to needle entry into the presacral space: Importance of measuring the distance between the rectum and sacrococcyx, and the thickness of the sacrococcyx. Medicine (Baltimore) 2020;99:e20935.
14. Yavuz A HÇ, Akkurt G, Aydın A, Ataş H. Diagnosis and management of rectosigmoid perforations. In: Garbuzenko D, editor. Actual Problems of Emergency Abdominal Surgery. London: Intechopen; 2016. p. 63-74.