

A Novel Approach to Blocking the Pudendal Nerve Using Neurostimulation to Increase Accuracy and Efficacy

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Introduction

- Pudendal Nerve Block is the diagnostic and therapeutic treatment of choice for chronic pelvic pain caused by pudendal nerve irritation or entrapment.
- The pudendal nerve arises from the ventral rami of the sacral spinal nerves S2-S4, and gives off three consecutive branches as it exits Alcock's canal- the inferior rectal (anal) nerve; the perineal nerve; and the dorsal nerve of the penis or clitoris.
- These nerves innervate the regions of the rectal canal, anus, perineum, and external genitalia, including the clitoris and penis, labia minora, vaginal vestibule, and the lower one-fifth of the vaginal canal, as well as the posterior aspects of the labia majora and scrotum.
- The anatomic variation of the branches of the pudendal nerve can make a uniformed approach to pudendal nerve block somewhat ineffective **if** the correct branch has not been anesthetized.
- We describe a novel approach to the pudendal nerve block using nerve stimulation guidance to precisely target the branches of the nerve that are concordant with the patient's painful area.
- We present a case series of 5 patients with varying pain locations, all innervated by the pudendal nerve, and describe the precise needle locations that produced concordant nerve stimulation and successful pudendal nerve block.

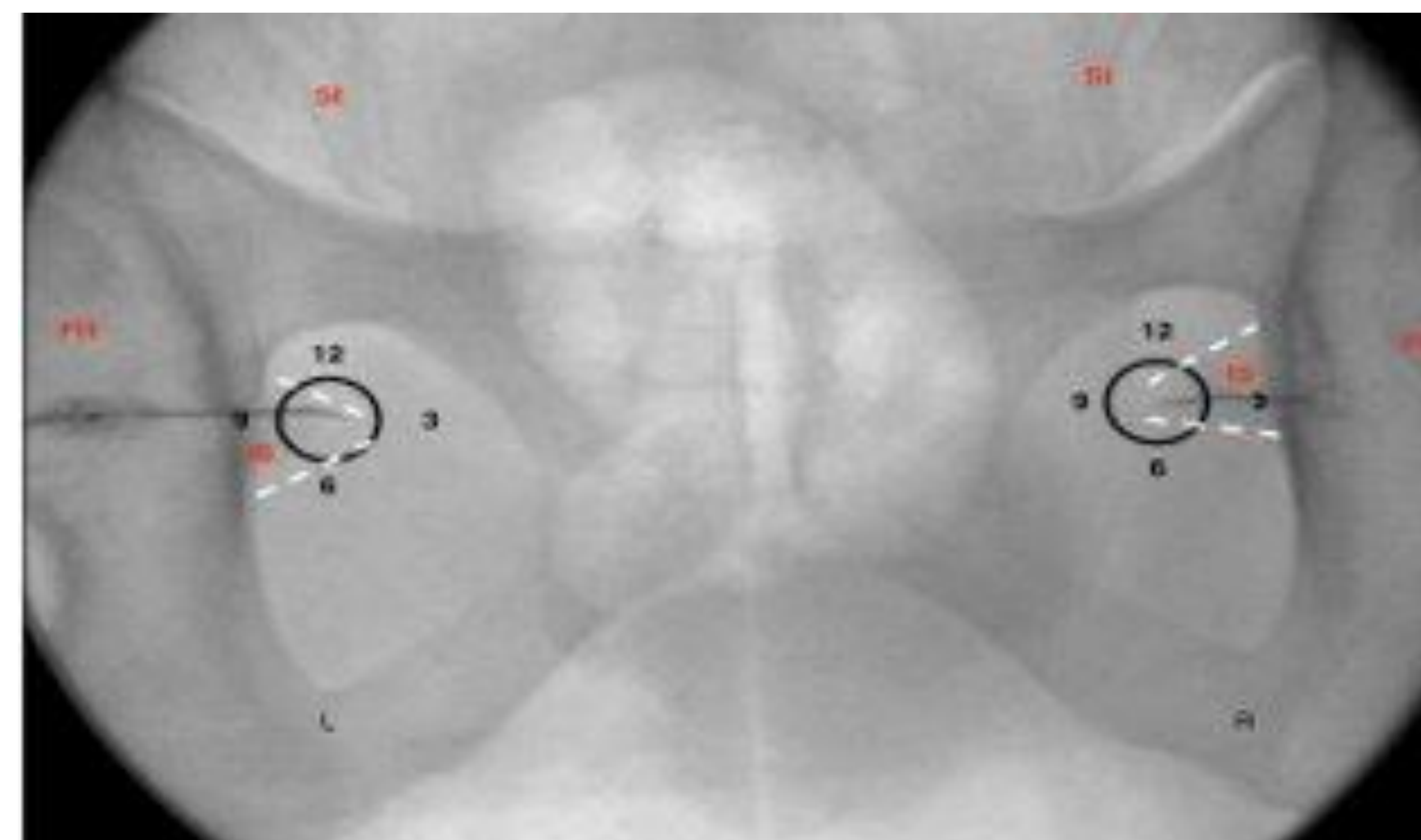
Methods and Materials

- Patients evaluated and identified in clinic as having pain in the distribution of the pudendal nerve were scheduled for fluoroscopically guided pudendal nerve block with nerve stimulation.
- Patients were positioned prone, and the gluteal region was prepped in a sterile fashion.
- Using an ipsilateral oblique approach, the ischial spine was clearly identified with fluoroscopy, and skin over the target area was anesthetized.
- Next, a 22G, 10cm, 5m active tip radiofrequency cannula was advanced coaxial to the beam until contact with the Ischial spine was made.
- A radiofrequency probe was inserted into the cannula, and the needle was walked off the ischial spine.
- Nerve stimulation at 50 Hz and 0.5 Volts was then used to elicit paresthesia.
- Once concordant paresthesia was obtained, the exact location relative to the ischial spine was documented (with 12 o'clock being directly cephalad to the ischial spine and 6 o'clock being directly caudad to the ischial spine (as you see in Figure 1).
- After negative aspiration, the needle was injected with 3ml of preservative-free 0.25% bupivacaine and 40mg of triamcinolone.

Results

Age	Gender	Procedure	Pain Location	Concordant Stim Location	% Relief	Duration of Relief
70	F	Right PNB with steroid and nerve stimulation	Right Intravaginal	8:00 Right	90%	>1 month
60	F	Right PNB with steroid and nerve stimulation	Right Superior Labia Minora and Clitoral	6:00 Right	80%	1-2 weeks
60	F	Bilateral PNB with steroid and nerve stimulation	Vaginal pain	3:00 Left; 7:00 Right	90%	>2 weeks
50	F	Bilateral PNB with steroid and nerve stimulation	Posterior Vagina and Rectum	5:00 Left; 7:00 Right	70%	1-2 weeks
38	F	Left PNB with fluoroscopy and nerve stimulation	Left Perineal and Peri-rectal	2:00 Left	80%	>4weeks

Radiograph and Needle Placement



Discussion

- Pudendal nerve block can be an effective treatment option for pelvic and perineal pain mediated by the pudendal nerve.
- These blocks are not done as frequently as other procedures, possibly due to clinician and/or patient discomfort with the technical approach to blocking the nerve, and the sometimes-inconsistent relief obtained.
- There have also been instances of pudendal nerve irritation following a medial transgluteal approach to blocking the pudendal nerve.
- We describe a modified transgluteal approach to Pudendal Nerve Blocks that has the potential to increase accuracy, decrease nerve irritation, and increase the efficacy of pudendal nerve blocks according to this series of 5 patients.
- In this case series, we noted that two patients with right-sided vulvar pain had greater than 80% relief when the pudendal nerve block was completed at the inferior aspect of the ischial spine.
- One patient with vulvar pain had bilateral pudendal nerve blocks completed at the medial tip at 3 o'clock on the left side and 7 o'clock on the right side of the ischial spine.
- One patient with vaginal and rectal pain had bilateral pudendal nerve blocks completed at 5 o'clock on the left and 7 o'clock on the right side of the ischial spine. And one patient with bony pelvic pain had a left-sided pudendal nerve block done at 2 o'clock on the left ischial spine.
- It will be interesting to see if certain needle targets for this block relative to the ischial spine are associated with specific anatomic distribution of pain.
- Further study is recommended to delineate the efficacy and accuracy of this nerve stimulation-guided approach to Pudendal Nerve Blocks.

References

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