

## Case Report

# Priapism Following a Lumbar Sympathetic Nerve Block

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### Abstract

**Objective.** To understand an unusual complication of a common procedure.

**Design.** This article chronicles the side effect of a lumbar sympathetic nerve block (LSNB).

**Setting.** Loyola University Medical Center Outpatient Chronic Pain Clinic.

**Patients.** One.

**Results.** Our patient had several hours of priapism following a LSNB.

**Conclusions.** A bilateral lumbar sympathetic nerve block can lead to unopposed parasympathetic penile stimulation and cause priapism.

**Key Words.** CRPS; Lumbar Sympathetic Nerve Block; Lumbar Sympathetic Nervous System; Priapism

### Case Report

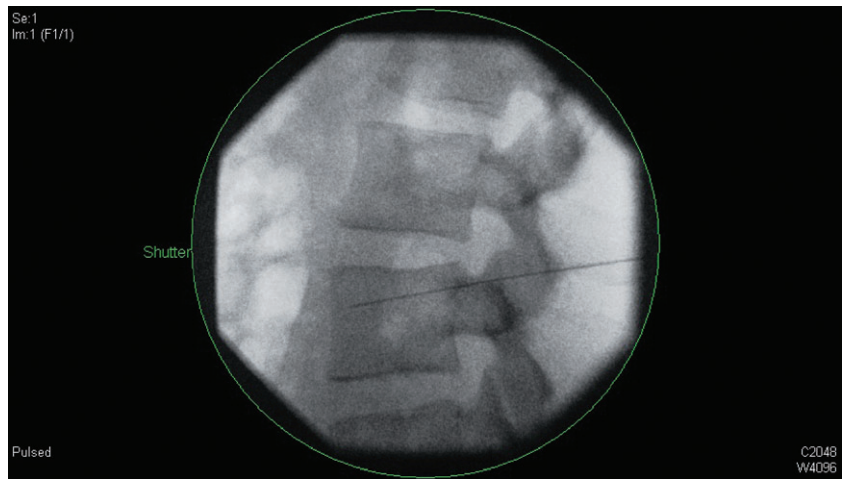
A 41-year-old presented to the outpatient Chronic Pain Clinic for continued treatment of complex regional pain syndrome type 1 (CRPS 1) in his left foot. The patient had sustained a gunshot wound to the left foot 7 years earlier. He had undergone multiple corrective surgeries to the foot. The patient's ability to walk had improved somewhat over the years, but his pain had continued to worsen. Prior

to this encounter, he had received ankle blocks on two occasions with pain relief lasting only 2 days following each injection. Over a 6-week period in 2005, our clinic performed a series of four lumbar sympathetic nerve blocks (LSNBs), with pain relief lasting 2–4 weeks after each procedure. The patient was lost to follow up for the next 5 years.

On this most recent encounter, the patient presented with the same pain complaint as he had 5 years earlier. He described his pain as sharp and constant in his entire left foot. His average pain score on a visual analog scale was 7/10. On exam, the patient was 5'9" and 220 lbs. He had allodynia throughout the entire left foot, with mild swelling of the left ankle. There was decreased dorsiflexion and plantar-flexion at the left ankle. Temperature of the left foot prior to the procedure was 32.8°C compared with 31.4°C in the right foot. He was consented for LSNB.

In the fluoroscopy suite, the patient was placed in the prone position and his back was prepared and draped sterilely. The temperatures of his feet were the same as in the exam room. We sedated the patient with a total of 2.5 mg i.v. midazolam. Using A/P and lateral fluoroscopic guidance, we placed a 22-gauge 5-in spinal needle at the antero-lateral aspect of the L-3 vertebral body (Figure 1). Radiography with contrast injection confirmed correct needle placement (Figure 2), and 15 mL of 0.25 % bupivacaine with epinephrine 1:200,000 was then slowly injected. Vital signs were stable throughout the procedure. The patient was monitored for 30 minutes after the procedure. The temperature of his left foot increased from 32.8 to 33.2°C. In his right foot, the temperature also increased from 31.4 to 33.0°C.

Within 10 minutes of the LSNB, the pain score in his left foot decreased from 7/10 to 3/10, and his range of motion improved significantly. The patient was discharged home. Three hours after the procedure, the patient called the clinic complaining of an erection that began on the car ride home, and was starting to become painful. After discussion with the Urology Service, we instructed the patient to present to the Emergency Department for evaluation. Fearing an additional embarrassing and painful intervention, the patient refused to present for evaluation. Further communication with the patient indicated that his erection had subsided over the next several hours. He was instructed to report to the Emergency Department if he had another sustained erection.

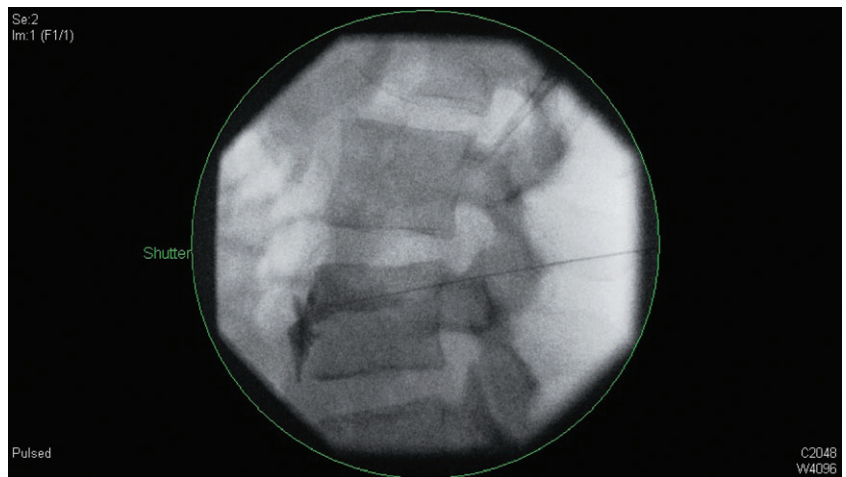


**Figure 1** The spinal needle contacting the L3 vertebral body.

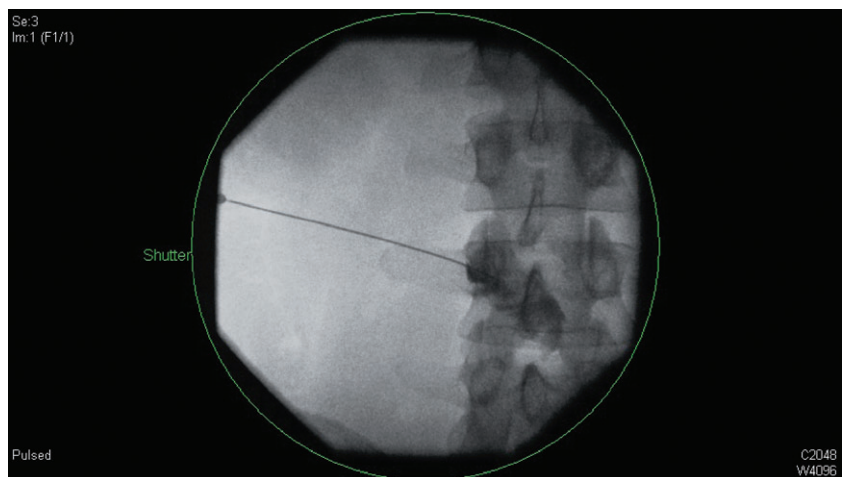
**Discussion**

The penis receives its innervation from sympathetic, parasympathetic, and pudendal nerves. Erection is a complex

mechanism involving blood flow, stimulation, and autonomic activity. The vascular component is essentially controlled by the autonomic nervous system (ANS). Within the ANS, the parasympathetic nerves cause nitric oxide



**Figure 2** Injection of 2-mL non-ionic contrast.



**Figure 3** A-P view of L3 vertebral body with contrast crossing midline.



**Figure 4** Lateral view of lumbar sympathetic nerve block performed at L2 in 2005.

release leading to vasodilation and thus engorgement and penile tumescence, while the sympathetic pathway promotes vasoconstriction leading to de-tumescence. These parasympathetic nerves originate in the 2nd and 3rd sacral nerves. The sympathetic afferents to the penis likely arise from the T12 level [1].

Upon further review of the fluoroscopic images, it is likely that we caused a bilateral sympathetic block. Figure 3 shows contrast to the right of midline. The local anesthetic likely followed a similar path and inadvertently blocked the right sympathetic chain. Further evidence is the increased temperature in both feet following the LSNB.

Our patient had not experienced this complication in the four previous LSNBs. In each of those injections, the needle was placed one vertebral level more cephalad at the caudal third of the second lumbar vertebral body (Figure 4). Additionally, in three of the four blocks, the test dose was performed with 3 mL of lidocaine 1% with epinephrine 1:200,000. This was followed by a total of 10 mL bupivacaine 0.25% with epinephrine 1:200,000. While all four of those blocks decreased pain and increased range of motion in the left foot, only two of them caused a temperature increase. None had caused an increase in the temperature of the right foot.

There are other well-known complications of an LSNB. Some of these are infection, bleeding, hematuria, hypotension, nerve injury, and epidural block [2]. We were, however, unable to find a similar case report in the literature.

### Summary

This patient presented for continued treatment of left foot CRPS. He had undergone four previous LSNBs with

lasting pain relief and no complications. However, this LSNB likely produced a bilateral sympathetic nerve block. A bilateral block could lead to unopposed sacral parasympathetic activity and cause an erection lasting the duration of the local anesthetic. In our case, the pain relief in the left foot lasted several days, while the erection lasted only a few hours. This likely indicates that only a small percentage of the bupivacaine crossed the midline to block the right-sided sympathetic chain. Other, more catastrophic complications, such as spinal cord compression from a hematoma or direct damage to the spinal cord, could also have caused a sustained erection [3]. However, if this had been the case, it would have manifested with multiple other symptoms. Needle placement for this block was straightforward and the block was successful. However, even with routine procedures, it is essential to ensure proper needle placement and contrast spread.

### References

- 1 Betts CD, Fowler CG, Clare CJ. Sexual dysfunction in neurologic disease. In: Asbury AK, McKhann GM, McDonald WI, eds. *Diseases of the Nervous System*. Philadelphia, PA: Lippincott, Williams and Wilkins; 1992:501–11.
- 2 Nader A, Benzon HT. Peripheral sympathetic blocks. In: Benzon HT, Raja N, Molloy E, Liu, Spencer S, Fishman SM, eds. *Essentials of Pain Medicine and Regional Anesthesia*, 2nd edition. Philadelphia, PA: Elsevier; 2005:690–1.
- 3 Dougherty CM, Richard AJ, Carey MJ, et al. Priapism in Emergency Medicine. Available at: <http://emedicine.medscape.com/article/777603-overview#showall>. Accessed October 1, 2010.