# Sympathetic Blocks: Superior Hypogastric Block and Neurolysis

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Pete C. Schmidt

## Introduction

- Visceral pain located **below the umbilicus** generally responds to superior hypogastric plexus block.
- The superior hypogastric plexus is located in the retro-peritoneum and extends from the **anterior aspect of L5 and sacrum**. It mediates most of the nociceptive afferents from the pelvic organs (**uterus, ovaries, prostate, bladder, distal colon, vulva, penis, upper rectum)**.
- The plexus contains coalescence of sympathetic postganglionic fibers formed from pelvic sympathetic fibers of the aortic plexus and **L2 and L3 splanchnic nerves**.
- As these fibers descend, at a level of L5, they begin to divide into the **hypogastric nerves.** From the plexus, the right and left hypogastric nerves follow in close proximity to the iliac vessels and pass into the pelvic plexuses, which are situated on either side of the rectum, seminal vesicles, bladder, and prostate. Afferent fibers from the pelvic viscera pass through the plexus.
- Neurolytic blocks should be reserved for **cancer-related pain** or debilitating non-malignant pain due to the risk of complications

## Anatomy

- The superior hypogastric plexus is located in the retroperitoneum
- The plexus is located anterolaterally on the vertebral bodies and provides visceral innervation to most of the pelvic organs (excluding ovaries and fallopian tubes) (Fig. 55.1)
- The block is traditionally performed using bilateral needles directed towards the anterior portion of L5, with needle tips eventually **anterolateral to the L5/S1 disc** [1]
- This block is technically difficult due to the iliac crests and L5 transverse processes
- Additional techniques have been described using anterior-approach ultrasound, anterior-approach fluoroscopy, intradiscal approach, and CT guidance [2].

P. C. Schmidt (✉)
Stanford University, Stanford, CA, USA
e-mail: pete.schmidt@stanford.edu


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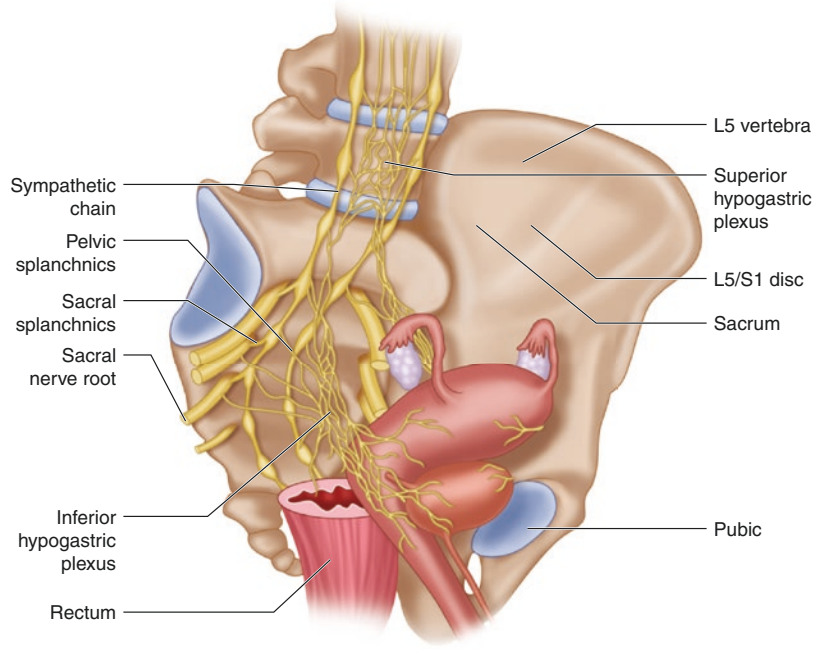
**Fig. 55.1** Anatomy




## Indications [3, 4]

- Cancer pain affecting the pelvic organs
- Postoperative pain relief after hysterectomy
- Chronic post-prostatectomy pain
- Gynecologic pain from endometriosis, adhesion, and chronic inflammation
- Interstitial cystitis
- Penile pain

## Contraindications

- Anticoagulation
- Poorly-controlled diabetes (if steroid is to be used)
- Severe scoliosis or spondylosis
- Heart disease that would not tolerate hypotension

## Types of Block

### Diagnostic (Temporary) Blocks

- Performed as detailed above but with medications limited to local anesthetic, with or without steroid or clonidine
- Contrast dye injection should always be used to confirm needle tip location prior to injection
- If the patient has constant baseline pain in the block target area, it is logical to minimize analgesia immediately prior to the procedure to maximize diagnostic sensitivity
- If the diagnostic block is positive (patient has a meaningful reduction in pain), the practitioner may opt to proceed the neurolytic block immediately

### Therapeutic Blocks

- Identical to diagnostic blocks but injection of local anesthetic is followed by the injection of either phenol (10–15%) or pure ethyl alcohol
- Both neurolytic agents work by denaturing neural proteins, leading to Wallerian degeneration (See chapter Table 21.1, Chap. 21)
- Duration of effect is widely variable but it is not uncommon to repeat neurolysis after 6–12 months if there is a return of pain (Fig. 55.2)

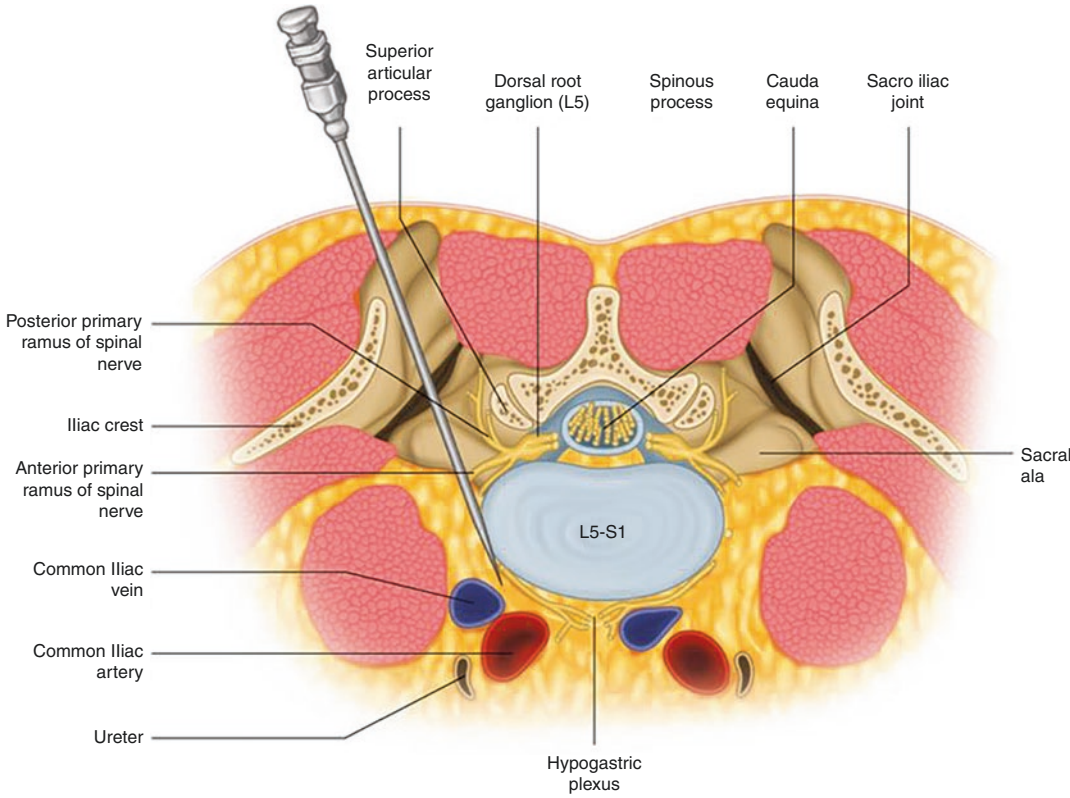



**Fig. 55.2** Needle approach

## Complications

- Minor: bleeding, bruising or pain at the injection site, transient hypotension
- Major: infection, iliac vessel damage, local anesthetic toxicity, ureter damage, nerve root damage or destruction

## Clinical Pearls

1. Superior hypogastric blocks are technically challenging and often reserved for **cancer-related pain** [5]
2. The blocks provide pain relief to organs of the pelvis
3. These blocks must be performed under fluoroscopic guidance by an experienced practitioner because of adjacent structures
4. The targeted anatomical landmark is **L5/S1**

## Questions

1. Which of the following structure is unlikely to be damaged by the superior hypogastric block?
   A. Aorta
   B. Spinal nerve roots
   C. Urinary bladder
   D. Pancreas
2. Visceral pain from which of the following organs might be responsive to a superior hypogastric block?
   A. Bladder
   B. Liver
   C. Duodenum
   D. Pancreas
3. Across which two vertebral levels is the superior hypogastric plexus located?
   A. L2/3
   B. L3/4

C. L4/5
D. L5/S1

4. Which of the following structures make superior hypogastric plexus blocks uniquely challenging?
   A. Iliac crests
   B. Spinous process of L4
   C. Diaphragm
   D. Psoas muscle

## Answers

1. D, 2. A, 3. D, 4. A

## References

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## Further Reading

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