



Coccyx Pain Treatment & Management



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Overview Presentation DDx Workup **Treatment** Medication

Updated: Feb 20, 2015



Approach Considerations

Coccygectomy

Ganglion Impar Sympathetic Nerve Blocks

Other Injection Sites

Manipulation (Mobilization)

Show All

Multimedia Library

References

Ganglion Impar Sympathetic Nerve Blocks

The ganglion impar (ganglion of Walther) is the terminal ganglion of the paravertebral sympathetic nervous system; it is the only nonpaired sympathetic ganglion. The ganglion impar is usually located anterior to the sacrococcygeal junction, the first intracoccygeal junction, or the first coccygeal vertebra.^[23, 24, 25, 26, 27, 28, 29]

One possible mechanism for persistent coccydynia is excessive activity or sensitivity of the ganglion impar, thus creating sympathetically maintained coccyx pain.^[30]

Local injection of an anesthetic can effectively block the ganglion impar and thereby relieve coccyx pain. In a published report by Foye and colleagues, nerve blocks using local anesthetics with a fast onset (eg, lidocaine) were shown to provide substantial relief even by the time a patient sat up on the procedure table.^[30]

After the local anesthetic block wears off, some of the coccyx pain may start to return, but generally it returns at a much lower severity than existed prior to the injection. Physical medicine and rehabilitation coccydynia physicians and researchers at New Jersey Medical School refer to this new plateau of severity as "resetting the thermostat."

Published reports document that some patients with coccydynia receive complete and permanent relief via a single ganglion impar block.^[30]

In patients with less than 100% permanent relief, repeat ganglion impar blocks have been shown to provide additional benefit, further lowering the plateau level of pain. Thus, in patients without complete resolution, repeat injections are often medically necessary and clinically helpful.

Techniques

Older techniques for performing the ganglion impar block involved approaching the anterior sacrococcygeal region by using a curved needle inserted below the distal coccygeal tip. The older technique required a larger-diameter and longer-length needle (in particular, the longer length of that needle being inserted into the patient) compared with the current (transsacrococcygeal) approach, which uses a short, thin needle.

In the past, many coccygeal procedures were performed without image guidance (blind injection, such as without fluoroscopy), an omission with the potential to compromise the accuracy and safety of the injection.

The more recent transsacrococcygeal approach to the ganglion impar involves inserting a thin needle into the sacrococcygeal junction, from posterior to anterior.^[31, 32] The transsacrococcygeal approach for ganglion impar sympathetic blockade uses a lateral fluoroscopic view to visualize the sacrococcygeal junction. A small, 25-gauge spinal needle is then inserted through the junction until the needle tip is just anterior to that articulation. Radiographic contrast can be used to confirm that the needle placement is not intravascular, not too far anterior (within the rectum), and not too superficial (within the sacrococcygeal disc).^[30]

The procedure is only minimally invasive. It requires a sterile technique (particularly given the proximity to the anus and rectum) and fluoroscopic guidance to ensure safe and accurate needle placement.

The ganglion impar block (which is anterior to the coccyx) can be preceded by a separate local anesthetic block of the coccygeal nerve (a somatic, nonsympathetic nerve posterior to the coccyx) to anesthetize the posterior region prior to the impar injection and to provide more complete relief of the coccydynia. Often, it makes sense to combine these injections on the same injection date, so that both anterior and posterior relief is obtained.

A case series reported good results from the administration of 20 ganglion impar blocks by physical medicine and rehabilitation physicians at New Jersey Medical

School to patients who were suffering from persistent coccydynia despite treatment with oral medications, cushions, and other conservative therapies. The results showed that each of the 20 injections provided significant relief in these patients. The percentage of relief obtained per injection varied from 20-75%, with most patients reporting 50-75% relief obtained per injection and with the relief generally lasting weeks to months or longer. For cases in which patients had incomplete relief after a given injection, additional analgesic benefit was obtained from subsequent injections. Thus, repeat injections were often helpful.

Foye and colleagues at New Jersey Medical School also published a new, slightly more direct approach to ganglion impar injections.^[30] Specifically, they reported the option of passing the needle through the first intracoccygeal joint (the space between the first and second coccygeal segments) instead of through the sacrococcygeal joint.

An important benefit to this approach over the transsacrococcygeal one is that the first intracoccygeal joint is often easier to visualize, since it is not obstructed by the sacral or coccygeal cornua. This site is slightly closer to the location of the ganglion impar, according to cadaver dissection studies.^[26]

A study by Gopal and McCrory indicated that treatment of the ganglion impar with pulsed radiofrequency can improve pain in some patients with chronic coccydynia. In the retrospective review, 20 patients whose coccydynia did not respond to medical management underwent pulsed radiofrequency treatment, with follow-up at 6 and 12 months. In 15 patients, the mean pretreatment visual analogue scale score fell significantly, from 6.53 to 0.93. Treatment in the remaining patients was unsuccessful, with no change in the visual analogue scale score at follow-up.^[33]

Nerve ablation

Ablation injections may provide more long-lasting relief in appropriately selected patients. Ablation is the intentional destruction of human tissue for treatment purposes. For instance, ablation can be used to intentionally destroy nerve fibers at the coccyx, so that those nerves can no longer send pain signals to the brain. Thermocoagulation of the ganglion impar using radiofrequency ablation (RFA) has been reported.^[34, 35] Ablation can also be accomplished chemically (eg, by carefully injecting neurotoxic agents such as phenol and/or ethyl alcohol directly onto the targeted nerve tissues). These coccygeal ablation injections have been in clinical use for multiple decades and thus are no longer considered experimental.^[1, 1]

Ablation is typically reserved for patients whose pain has failed to be adequately relieved via oral analgesic medications, cushions, coccyx steroid injections, and coccygeal sympathetic nerve blocks (ganglion impar). The ideal specific site for ablation may depend on the individual patient's specific site of coccygeal pathology. Prior to ablation, a diagnostic injection (test injection, with local anesthetic) is generally performed to ascertain whether a specific target site is likely to provide relief if ablated. Patients who obtain substantial transient (anesthetic) relief via the diagnostic injection would be good candidates for subsequent nerve ablation at the same site where the diagnostic injection was done.

If ablation fails to provide as much relief as the anesthetic/test injection provided, the ablation may soon be repeated, to provide more complete destruction of those nerve fibers.

Even after successful relief via ablation, some patients may have eventual return of the some of their coccyx pain many months or years later, if the remaining coccygeal nerve fibers regrow collateral reinnervation to the sites denervated by the ablation. In those cases, repeat ablation may be performed.

Since ablation injections are intended to cause destructive (albeit therapeutic) changes, they should only be performed by physicians skilled and experienced in these procedures. In addition, they should be performed under image-guidance (eg, fluoroscopy, to add to the specificity of the targeted injection site) and using the smallest amount (eg, milliliters) of ablation necessary to provide the desired therapeutic relief.

Ablation injections may help some coccydynia patients avoid more invasive treatments, eg, helping them avoid surgical removal of the coccyx (coccygectomy).

[◀ Previous](#)

[Next Section: Other Injection Sites ▶](#)

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