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Paravertebral injections: techniques and indications

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ABSTRACT

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The paravertebral injections were first referred in 1989 by Dr. Cesare Verga [1], an Italian orthopedist. He used them to treat disc herniation. We call them “classical paravertebral injections”. Later on, one colleague of him, Dr. Scuccimarra [2], used longer needles to inject ozone close to the foramen, under the hypothesis of improving the results, and he succeeded. They are known as “deep paravertebral injections”. Other techniques have been developed in order to improve the results, reduce the risks and shorten the treatment.[3-9]

The classical paravertebral approach is done locating the upper part of the spinous process of the superior vertebrae involved in the disco-radicular conflict and injecting 2,5 cm to the left and right of the spinous process with a 0,8 x 40 mm needle an amount of 5-10 mL per point depending on the size of the patient. Some authors(63) have proved that using lower ozone concentration (10 µg/mL) can be as useful as standard concentration (20 µg/mL). Our advice is to use a 0,4 x 40 mm needle or thinner if available. Local, topic anesthesia or cryotherapy can be used to reduce the pain of the needle. Injection should be done slowly. Using local anesthesia in the muscle can reduce the effect of ozone injection. The “deep paravertebral injection” uses a similar procedure, but the distance from the middle line is narrower (1,5 cm for cervical and dorsal injection and 2 cm for lumbar injection) and it is necessary using longer needles (0,4 or 0,5 x 90 mm spinal needle) to be able to locate the posterior joints with the tip of the needle and inject periarticularly. The amount of ozone used is the same.

It is also possible to inject over the laminae, close to the foramen, instead of around the facet joints, but risk of accidental dura or radicular puncture is greater (although without permanent side effects); this can be done for nerve root de-inflammation. Dr Verga modified his technique for cervical and dorsal disc herniation, narrowing the distance from the spinous process to 1,5 cm left and right, using shorter needles (25 or 30 mm) and decreasing the ozone volume per point to 3-7 mL. Dorsal approach uses the same technique as for cervical paravertebral injections.

The classical paravertebral injection produce a relaxation in the muscle spasm of the lumbar spine in low back pain. The deep paravertebral injection produce an anti-inflammatory effect that can reduce inflammation on the facet joint or nerve root, depending on the point of injection.

Based on this empirical approach, and the publications that have already used them, the indications of these injections are:

- Disc herniation [1-2]
- Spondylolysis [10]
- Spondylosis [11-14]
- Lumbar spinal stenosis [7, 15]
- Symptomatic treatment of facet joint disease [7]
- Mechanical low back pain

These injections may have side effects due to the technique itself, not the ozone, but we have few reports on anecdotal cases, most of them without aftermath.

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