Intraarticular spacers

To THE EDITOR: We found the article by Goel et al.2 (Goel A, Shah A, Jadhav M, et al: Distraction of facets with intraarticular spacers as treatment for lumbar canal stenosis: report on a preliminary experience with 21 cases. Clinical article. J Neurosurg Spine [epub ahead of print September 16, 2011. DOI: 10.3171/2011.8.SPINE11249]) very interesting. The study described a preliminary experience with 21 patients with lumbar stenosis symptoms who underwent 1- or 2-level distraction of the facet joints with an indirect widening of the spinal canal and intervertebral root dimensions. The authors reported that there was a decrease in patients’ symptoms, as assessed using the Oswestry Disability Index and the visual analog scale at 6 months of follow-up.

Although the authors advocated that this new surgical technique is valid and safe, some questions should be raised. In the modern era of spinal surgery, clinical outcome is associated with an adequate restoration of the sagittal balance.1,3 Distraction of the facet joints in the lumbar spine would result in segmental kyphosis, adversely affecting the sagittal balance and consequently the long-term outcome. Another important fact is that a new medical procedure should be at least as efficient as the available therapeutic modalities. This new technique is very restrictive with respect to surgical indications (patients without clear instability, without anterior compression due to disc herniation, and with just 1 or 2 levels of stenosis). It also requires 8 weeks of bed rest/limited activities versus early ambulation obtained with the traditional decompressive procedures.3 Long-term bed rest is associated with complications such as deep venous thrombosis, pneumonia, and muscular atrophy, in addition to its economical and psychological impact in very active patients. The indirect decompression of the nerve roots can also be temporary, with early new stenosis. Moreover, the patients who met the inclusion criteria could have been treated with standard laminectomy or foraminotomy, without the need for the use of spacers, which increases surgery costs.

In light of all these points, new studies comparing the safety and efficacy of the distraction of lumbar facet joints with conventional surgical decompressive procedures are necessary before we include this surgical technique in the armamentarium to treat lumbar spine stenosis.

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Disclosure

The author reports no conflict of interest.

References


RESPONSE: We appreciate Dr. Joaquim’s interest in our article and in the proposed technique of facet distraction. Facet distraction using spacers is an attempt to reverse the telescoping or vertical instability that occurs secondary to age-related spinal degeneration or to spinal degeneration related to muscle disuse or abuse. Our study on the subject concludes that facet articulation is a primary site of spinal degeneration and that overriding of facets is an initial pathological phenomenon that ultimately results in spinal canal stenosis.1-4 Ligament hypertrophy, disc space reduction, osteophyte formation, and similar conditions that lead to reduction in the circumferential diameter of the spinal and neural canals are secondary to the primary vertical instability of the facet joint and are potentially reversible. The angulation of the facets and their articulation are architecturally unique for each spinal level and are designed to provide for stability and mobility. Distraction of facets is an attempt to restore the height and lordosis of the spinal segment and maintain the sagittal balance. The procedure assists in strengthening or restoring the sagittal balance rather than adversely affecting it. Although, in our article on distraction for single- or multilevel cervical spondylisis, we mentioned that preoperative kyphosis of the spinal segment may preclude surgery, we now feel that even such cases can be appropriate for the procedure of distraction.4 In the presence of preoperative manifest or demonstrable instability of the spinal segment, it appears that spacers by themselves may not be able to provide the necessary stabilization, and in such cases additional instrumented fixation appears mandatory. Our technique aims at arthrodesis of the spinal segment. Once arthrodesis occurs, restenosis of the spinal segment may only be a remote possibility, akin to restenosis after corpectomy and bone graft–fusion surgery.

We are convinced that our technique of facet distraction has a promising future in the treatment of lumbar canal stenosis. The simplicity of the technique can permit even percutaneous surgery. Avoidance of the need for removal of any bone, ligament, and disc are also positive
features. The procedure can be conducted for a single- or multilevel canal stenosis. Laminectomy or foraminotomy can be done in a relatively straightforward manner in cases of failure of distraction arthrodasis of facets. In general, our policy is that whenever fusion of the spinal segment is contemplated, postoperative rest for a period of 8 weeks is advocated for provision of an optimum environment for bone fusion. We feel that such a period of rest can be avoided if a rigid external arthrosis can be used.

Surgeons have been successfully resorting to laminectomy and laminotomy for decades. The principal of facet distraction as proposed in our article is essentially similar to that involved in the currently popular methods of inter-spineous process and inter-laminar distraction. Bone- and soft tissue-saving techniques can certainly be considered in the treatment of degenerative canal stenosis.

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To The Editor: We read with interest the article by Goel et al.10 (Goel A, Shah A, Jadhav M, Nama S: Distraction of facets with intraarticular spacers as treatment for lumbar canal stenosis: report on a preliminary experience with 21 cases. Clinical article. J Neurosurg Spine [epub ahead of print September 16, 2011; DOI: 10.3171/2011.8.SPINE11249]).

In Greek mythology, Panacea (Πανάκεια, named after the goddess of the “universal remedy”) was supposed to be an unknown miraculous substance that would be able to cure all diseases. It was one of the great quests of medieval alchemists together with the “elixir of life” (a magic potion that would grant eternal life and everlasting youth) and the “philosopher’s stone” (a mythical substance that would enable the transmutation of common metals into gold).

Although contemporary medicine is generally thought to have been freed from mystical approaches, the intriguing phenomenon of searching for a universal and perfectly efficient therapeutic tool (which is probably related to an unconscious and deep primitive human urge to find the ever-desired antidote against mankind’s greatest enemies, illness and death) manifests itself as a recurrent pattern in the medical literature. In fact, the most common reaction to any new therapeutic alternative (both in medicine and surgery) that presents a real advance to a specific field usually follows a very characteristic pattern: First, the new alternative is considered worthless and the product of a vain and unnecessary search for novelty; then its value is clearly overestimated and it is considered the possible “universal remedy” for a broad range of otherwise unrelated pathologies (a phase which in surgery has been described by the well-known humorous hammer/nail analogy); ultimately, after being both passionately rejected and excitedly accepted, when the long-term outcomes of the new treatment become more clear (usually several years later), its real value is finally appreciated and its proper role in the therapeutic armamentarium becomes well established.

In relation to the scientific basis of therapeutics, clinical medicine is classically understood as having been built upon the solid ground of a “pathophysiology-based” pharmacetics. In a similar fashion, modern surgery has been founded on a clear and objective understanding of healthy and pathological anatomy. Although in recent decades the advances of evidence-based medicine have shown us that logical predictions (based upon our best knowledge about the pathophysiology of a certain disease) are not sufficient to prove the efficacy of a specific treatment, this does not mean that pathophysiology and anatomy have no role in providing the basic scientific support for new medical therapies and surgical techniques. Pathophysiology and anatomy may, in fact, not be sufficient to prove the efficacy of a new treatment, but they should certainly be necessary for their proposal. In other words, the statistical significance of the outcome measures of a new treatment that is not grounded in a solid anatomical and pathophysiological understanding of the disease for which it has been proposed should be rather interpreted as a result of a myriad of biases that may affect data collection, statistical analysis, and outcome measurements rather than as a proof of efficacy of the treatment.20

We believe such remarks are very relevant for those who read the interesting study in which Goel et al.10 describe the results of their new surgical technique for the treatment of lumbar canal stenosis.

In this paper, the authors present a series of 21 patients with lumbar canal stenosis who were treated with an alternative surgical technique (the so-called Goel’s intra-articular spacers), which basically consists of a posterior approach to the lumbar spine with wide opening of the inter-articular joints, denuding of the articular capsules, distraction of the facets, and forced impaction of intra-articular spacers (Goel’s cages) in an attempt to achieve, at the same time, fusion as well as distraction and opening of the neural foramina. The clinical results presented by the authors demonstrate an improvement in the visual analog scale (VAS) for back pain and in the Oswestry Disability Index (ODI) scores at a mean follow-up of 17 months. The authors also present the expected radiographic results of such technique: an increase in facet, foraminar, interspinous, and disc space heights. With a basis on such data the authors conclude that this new technique of lumbar facet joint distraction through cage

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