The Lumbar Multifidus Muscles are Affected by Medial Branch Interventions for Facet Joint Syndrome: Potential Problems and Proposal of a Pericapsular Infiltration Technique

J. Gossner

doi: https://doi.org/10.3174/ajnr.A2901
http://www.ajnr.org/content/32/11/E213
The Lumbar Multifidus Muscles are Affected by Medial Branch Interventions for Facet Joint Syndrome: Potential Problems and Proposal of a Pericapsular Infiltration Technique

Low back pain is a major health problem. Like any structure of the spine and its adjacent musculature, the facet joints can be a source of pain. It has been proposed that in 15%–52% of patients with chronic low back pain, the facet joints are involved, but isolated facet joint pain is exceedingly rare. This is in accordance with the proposed biomechanical pathophysiology of facet joint syndrome. In the course of degenerative disk disease, the intervertebral disk loses height; this change leads to a segmental instability with an increased loading of the facet joints and consecutive osteoarthritic changes. To compensate for this degenerative cascade, segmental stabilization by the lumbar musculature is extremely important. Especially, the multifidus muscles seem to play a key role.

With cross-sectional imaging, atrophy of the multifidus muscles in chronic low back pain can be found, and targeted exercise showed an improvement in back pain. The multifidus muscles as well as the facet joints are innervated by the medial branch of the dorsal ramus of the spinal nerve. For diagnosis and treatment of facet joint syndrome, the medial branch is a common target for infiltration with local anesthetics, steroids, or radio-frequency denervation (medial branch block). The concomitant innervation of the multifidus muscles by the medial branch raises several questions. On one hand, medial branch blocks may not be a specific test of facet joint–mediated pain, and part of the pain relief may be due to the relaxation of muscles.

Of greater concern are atrophic changes of the multifidus muscles after radio-frequency neurotomy of the medial branch, which have been shown by Dreyfuss et al. In this small case series, all 5 patients after radio-frequency neurotomy of the medial branch, which have mediated pain, and part of the pain relief may be due to the relaxation of muscles. Clearly more studies on this important topic are needed.

The feasibility of a quite similar approach by using CT fluoroscopy has been shown by Meleka et al. Pericapsular injections are easy to perform, and the same target points can be used for diagnostic and therapeutic interventions as part of a multidisciplinary treatment approach, also including targeted exercise of the paraspinal muscles. More studies on this important topic are needed.

References

J. Gossner
Department of Clinical Radiology
Weende Hospital
Göttingen, Germany

http://dx.doi.org/10.3174/ajnr.A2901