Indication for the Operation of a Disc Herniation or Spinal Canal Stenosis

– Current State of the Art according to Science, Guidelines and International Recommendations

This text is primarily written for medical colleagues but can also be interesting for laypersons; in case of unknown words, please visit our glossary, or simply contact us.

The indication for disc surgery in case of lumbar and cervical disc herniation is – like every surgical procedure – crucial for its success. The success of a surgical treatment for lumbar disc herniations amounts about 90% according to specialist literature. Therefore, it is necessary to clearly differentiate a disc herniation or slipped disc (so-called soft prolapse) from osseous stenosis (hard disc, spinal stenosis). In terms of a fixed, osseous stenosis with claudicatio spinalis, a conservative treatment is not suitable to permanent cure. To the contrary, its conservative treatment can be a faulty treatment (e.g., cervical spinal stenosis with myelopathy, see below).

A symptomatic spinal stenosis has to be similarly assessed as a so-called mass prolapse, and entails a compression of the cauda accompanied by the danger of a permanent paraplegia. Thus, the primary indication for surgery is given, and the more this holds concerning cervial spinal stenosis with perceptible myelopathy. To indicate a conservative treatment and refuse surgery indication is almost a malpractice because paraplegia can even occur in case of trivial injuries.

The discussion on conservative vs. surgical treatment is only valid with regard to the uncomplicated, ‚soft' disc herniation, i.e., the prolapse without neurological symptoms with slight pain and moderate changes visible in imaging examinations.

Indication criteria for patients suffering from the abovementioned uncomplicated, ‚soft' disc herniation are not distinctly and clearly described (Lühmann et al.). For evidence-based guidelines, the basic condition for all invasive measures with respect to disc herniation treatment is a congruence among the results of medical history, clinical and imaging examinations (e.g., CT, MRI). Furthermore, patient´s expectations on cause and development of their illness as well as personal living conditions are prognostic factors that have to be considered if weighing up the proper treatment (Clinical guideline on low back pain (AAOS) and guideline ‚Kreuzschmerzen', Evidenzbasierte Leitlinie der Deutschen Gesellschaft für Allgemeinmedizin und Familienmedizin, 2003).
The guideline of Deutsche Gesellschaft für Neurochirurgie (German Association for Neurosurgery, last version) also classifies fresh, extreme paralyzation and imminent death or nerve roots as indications for emergency surgery.
Additionally, when facing paralyzations, increasing sensation disturbances, mass prolapses (e.g., with osseous stenosis) and big sequesters (e.g., with osseous stenosis), surgery is indcated without previous conservative treatment according to the guideline. Extreme radicular pain, which cannot be affected by analgesics in a short period of time, and which shows adequate results in imaging examinations (e.g., MRI), justifies early surgery.
In case of a slight development of disc herniation, a conservative therapy is an alternative if it results in distinct alleviation of pain within 6-8 weeks and an increase of load bearing capacity. Otherwise, a revision of therapy or the surgical option should be taken into consideration (Rothoerl et al. 2002, Postacchini 1996). An uncritical continuation of conservative treatments can lead to a chronification of pain syndromes.

A clear therapy recommendation (surgery yes or no) is missing in all guidelines for patients with symptomatically and clinically proven disc herniation (medical history, clinical examination, and, if necessary, imaging examinations) who do not suffer from cauda equina syndrome or motory dysfunctions. Besides this fact, the guideline is not valid anymore since its validity was restricted to 2006. A new one is still missing. Apart from this, it has to be mentioned that guidelines do only fulfil recommendation purposes and are not binding. Decision making, thus, is at every doctor´s discretion, considering all clinical and personal aspects of his or her patient.

Within the guideline of Deutsche Gesellschaft für Orthopädie und Orthopädische Chirurgie (German Association of Orthopedics and Orthopedic Surgery), there is no current guideline on the topic disc herniation.

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Several, even foreign (USA), evidence-based orthopedic guidelines demand an initial waiting period of 4-8 weeks with conservative therapy before primary discectomy if results of medical history, clinical and imaging examinations and considered patient´s expectations match without any doubt.

As claimed by Krämer et al., the indication for lumbar discectomy is given if conservative treatment does not show any improvement of symptoms (severe pain) after at least 6 weeks of therapy, and MRI or CT proof the existence of a disk protrusion or prolapse. They refer to contraindications like back pain without radicular symptoms, uncertainties with regard to diagnosis, missing patient´s willingness and spine hypochondria. The study is a published opinion of the researchers and not the recommendation of, for instance, a specialist association.

Other authors utter on the contrary that patient´s degree of suffering is a crucial criterion for an early indication of invasive measures for patients suffering from discogenic back pain even without neurological deficits (Mayer, HM: Discogenic low back pain and degenerative lumbar spinal stenosis – how appropriate is surgical treatment? In: Der Schmerz 15 (2001) Nr. 6, S. 484-491).

Based on the aforementioned information, there is no clear definition of indication and no binding evidence-based guideline. In every single case, it is the decision of the attending doctor considering all relevant factors and medical reports.

In Germany the Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften (AWMF – Association of Scientific Medical Societies in Germany) publishes rules for the indication for non-emergency or urgent cases comprising ischialgia/sciatica and degenerative lumbar nerve root compression (compare Lühmann et al.). Both guidelines consider history of illness and results of clinical and imaging examinations for their decision-making. The decision is at attending doctor´s own discretion.

As a result, one can conclude that there is no homogeneous schematic procedure which dictates conservative treatment but rather a procedure focussing on the individual case and patient´s individual situation.

It has to be taken into account that the cited German guidelines are so-called stage 1 guidelines. The contents are worked out from a specialist group within the specialist associations. A systematic and transparent explanation of their recommendations with corresponding evidence has not been made.

The concept of evidence in medicine corresponds to the anglophone definition of evidence as the best existing scientific knowledge. In terms of competing diagnosis and therapy options, it does not automatically mean that an option with a high degree of recommendation is superior to any other option because the evidence focuses on the special case, and often studies analyzing alternative methods and options are missing. The inefficacy or inferiority to certain options is only valid if it is scientifically proven. Here, guidelines are not binding and the decision is still at attending doctor´s own discretion, especially since guidelines belong to group D and not A or B according to the internationally renowned recommendation of SIGN.

Furthermore, it has to be born in mind that the last update of the guideline of the Deutsche Gesellschaft für Neurochirurgie (German Association for Neurosurgery) took place in 2004 (substantially unaltered since 1999 and only valid until 2006), and that especially microsurgical and endoscopic surgery techniques have significantly improved, so that surgery does not only have fewer complications but also a higher degree of success.

As a result of the abovementioned argumentation, it is not bearable from a medical perspective in the face of therapy options with quick and excellent cure to conduct 6 weeks of conservative treatment for a patient who suffers severely from pain, or for a patient whose social, occupational (e.g., freelance entrepreneur, craftsman or pro sports

athlete) and existential restricions demand acting fast. This holds, especially since there is the danger of worsening of patient´s condition, and since a conservative treatment with drugs does entail serious side effects, risks and the danger of chronification.

In every case, we try to interdisciplinary (neurosurgery, neurology, orthopedics and pain therapy) evaluate the best possible therapy for the individual patient. In case of lumbar disc herniation, this could be conservative treatment but also, depending on the individual case, an early surgical proceeding without long-lasting conservative treatment.

Cervical disc herniation and extreme lumbar and cervical spinal canal stenoses have to be treated completely differently as mentioned at the beginning of this text.

In our opinion, it is not correct to generally and obstinately demand conservative therapy without any clear scientific basis and partially despite scientific recommendations, and not considering the difference between diverse illnesses with disparate etiology and prognosis.