

## Open microsurgical and endoscopic percutaneous nerve decompression surgery for disc herniation and spinal stenosis of the lumbar spine.

In principle, the open microsurgical technique for disc hernia and spinal stenosis does not differ. In this technique, the muscles are first pushed away from the vertebral arch through a small skin incision of 2-3 cm, then the window between the affected vertebral arches is exposed and a funnel-shaped space maintainer is inserted.

The rest of the operation is now performed under the operating microscope, which greatly improves visibility and thus precision.



Figure 1

Between the vertebral arches, only the intervening ligamentous structure and, if necessary, a small part of the vertebral arch is removed. This creates a small hole and gives access to the spinal canal. The nerve is then held away and the protruding disc material, the actual disc hernia, is removed (Figure 3 with view through the placeholder). As much of the intervertebral disc as possible is left in place so as not to further impair its shock absorber function.



Figure 2

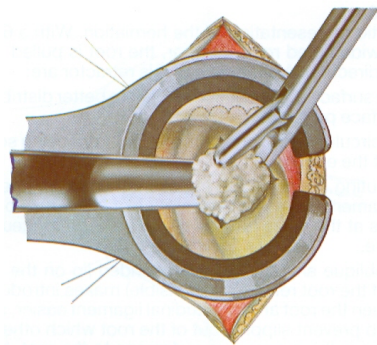


Figure 3

6 hours after surgery, the patient is allowed to get up and make first attempts to walk. Prohibition of sitting is no longer indicated and the patient immediately learns to sit properly. External fixation with a bandage helps to remember to adopt a correct position for the lumbar spine. For 6 weeks precautionary measures such as avoiding bending and lifting small loads (max. 5 kg on the body only) are indicated. Special physiotherapy depends on the individual case but is not always necessary. In general, the inpatient stay after microsurgical nerve decompression surgery is two days. Figure 4 shows the wound, which is usually hardly visible 6 weeks after the operation.



Figure 4

We have been successfully using the percutaneous ("through the skin") technique with permanent X-ray television monitoring during the procedure in cases with a favorable location of the disc hernia for more than 10 years. The disc hernia is punctured directly through a sleeve system and removed with very fine punches or by a suction system (Figures 5 and 6).

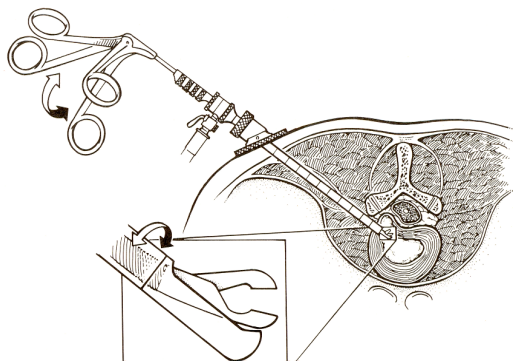


Figure 5

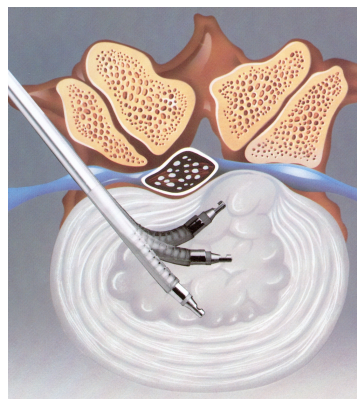


Figure 6

Increasingly, the removal of disc hernia is performed purely percutaneously/endoscopically.

However, this method is currently only suitable for special forms of disc hernia, although as endoscopic technology continues to develop, it will also be can certainly be increasingly applied. However, one must be aware that the difference in the rehabilitation process between the microsurgical and endoscopic nerve decompression methods is extremely small. In addition, after a "successful" endoscopic disc hernia removal, it is often necessary to reoperate with the more proven microsurgical technique! In spinal stenosis, the percutaneous endoscopic techniques cannot be used.

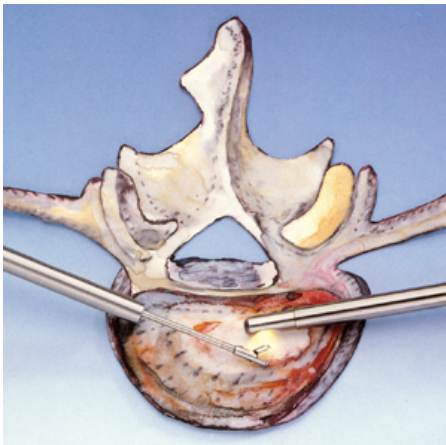


Figure 7