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The lumbar disc prosthesis

With the artificial intervertebral disc, a surgical therapy option is available today that not only restores stability by replacing the worn disc, but also maintains controlled mobility of the motion segment. With the intervertebral disc prosthesis, the anatomical conditions are artificially restored to a large extent and the measurable increase in load on the neighboring segments that occurs during stiffening is eliminated. A truly eminent advantage of the prosthesis is that, in the event of disappointing results or complications, it is still possible to perform a fusion using the minimally invasive techniques available today. In addition, the advantage of prostheses on the spine is that the load conditions are significantly lower compared to the hip and knee, and thus the holding period of the disc prosthesis is certainly very high.

The artificial intervertebral disc is available in different sizes to suit individual anatomical situations. The prosthesis consists of a plastic sliding core and two metal end components that are anchored to the end plates of the vertebral bodies. Today, a wide variety of prosthesis models are available, whereby the difference must be judged from the material and the mobility or the biomechanical principle. The Charité and ProDisc prostheses have the greatest empirical values with up to 20 years of long-term use (Figures 1 and 2). There were no relevant complications associated with the prosthesis. Today, however, our clinics use what is certainly the most advanced new development, the Dynardi prosthesis (Figure 3).

Figure 1

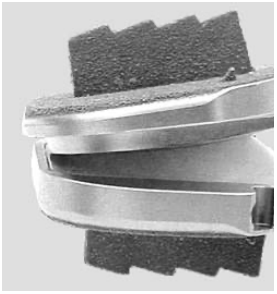

Figure 2

Figure 3

The disc prosthesis is implanted anteriorly with a soft tissue-sparing approach without opening the sheath encompassing the intestines (Figure 4).

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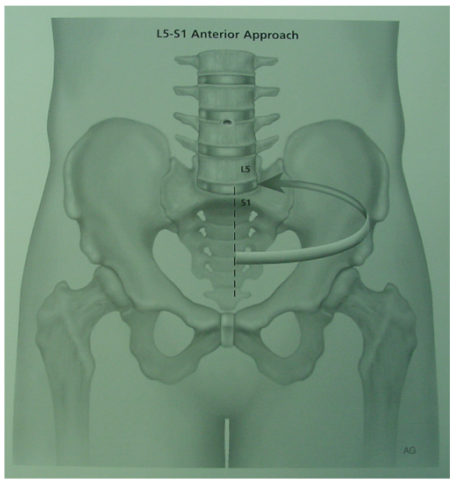

Figure 4

The approach is extremely minimally invasive, as evidenced by rapid mobilization and rehabilitation (Figures 5 and 6).

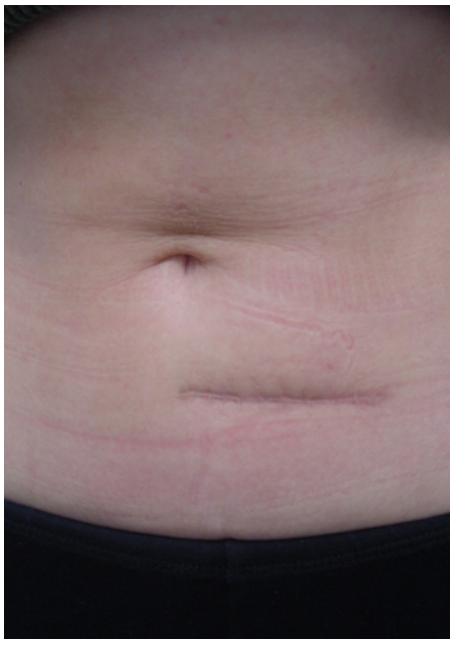

Figure 5

Figure 6

The prosthesis must be positioned precisely according to the anatomical conditions and taking into account the laws of mechanics.

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Figure 7 shows an X-ray example with a massive loss of height of the lowest motion segment and Figure 8 then demonstrates the reconstruction of the anatomy by the Dynardi prosthesis. The patient should be able to stand up as early as 6 hours after surgery. After 2-3 days, the patient can leave the clinic. After three months of moderate rest, all activities can be resumed.

Figure 7

Figure 8