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A Long Term Clinical Experience with Three Different Nucleus Replacement Devices - Lessons Learned after 9 Years Follow up
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Introduction: The nucleus replacement devices have been developed for treating moderate forms of degenerative disc disease, trying to fill the gap between discectomy and fusion. The surgical goals are pain relief, maintenance of the disc height and flexibility at the index and adjacent levels. Here we show our experience after 9 years using three different nucleus replacement prostheses.

Material and methods: 125 patients with moderate forms of degenerative disc disease were enrolled in this study. 80 patients had PDN disc prosthesis, 26 patients with PNR (Trans1) and 19 patients using the NUBAC (Pioneer) device. Radiographic (AP, lateral and dynamic) and clinical outcomes were collected preoperatively, 1 week and 1, 3, 6, 9, and annually through 9 years postoperatively. The VAS and ODI questionnaires were used to assess pain and functional outcomes.

Results: After 9 years follow up, the global retrieval incidence was 48.8% (61/125). From these patients, 15 (57.7% of the specific device) had PNR failures, 8 (42.1% of the specific device) experienced NUBAC retrievals and 38 (47.5% of the specific device) had PDN flaws. The failures included significant loosening of the disc height at the operated level, displacement, silicon inside de canal and migration. All patients underwent fusion as a retrieval surgery.

Conclusion: The retrieval rate in our series is very high. It shows that the end-plate reaction in a long period of time happens, resulting in important subsidence and mechanic back pain. The device expulsion was another cause of pain and second surgery, as shown in the literature.