Indications & Experience with Percutaneous Endoscopic Cervical Discectomy (PECD) w/wo B-twin Stabilization

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Citation

Abstract

Introduction: Percutaneous endoscopic cervical discectomy (PECD) could be considered as a good alternative to the standard anterior cervical discectomy and fusion (ACDF) in dealing with soft cervical disc herniation. However, this procedure cannot be applied for patients with cervical disc herniation accompanied by segmental instability. Recently developed WSH cervical B-Twin can be used as an interbody spacer to achieve stability without open discectomy. The purpose of the study is to evaluate the efficacy of PECD and percutaneous cervical stabilization (PCS) with or without dynamic cervical stabilization.

Materials and Methods: The cervical working channel endoscope (WSH endoscopy set, Karl-Storz, Germany) for PECD has a working cannula that has integrated high-resolution endoscope, illumination, and irrigation. Therefore it allows surgeons to selectively remove the herniated disc via a Holmium: Yttrium-Garnet-Aluminum (Ho: YAG) laser and microforceps under endoscopic visualization. The PCS procedure also follows that of PECD. Under the fluoroscopic guidance, the reduced 3.3 mm cylindrical implant is inserted into the intervertebral disc space. Once expanded, its octagonal shape and fins prevents implant migration. Therefore, it restricts the excessive movement between endplates and to re-establish balance of cervical curvature.

Results: From January 2001 to October 2006, a total of 105 patients (M:F=62:43) were included in this study. Mean age was 44.13 years (range; 24-67 years) and mean follow-up period was 36.4 months (range; 2-70 months). The clinical outcome was evaluated according to the Macnab criteria. The surgical outcomes were excellent in 39 patients (37.1%), good in 49 patients (46.6%), fair in 4 patients (3.8%) and poor in 13 patients (12.3%), thereby indicating an 83.7% rate of favorable outcome. A total of 45 patients underwent PCS with cervical B-Twin at our hospital. Among these, 33 patients who were available for follow up were retrospectively reviewed for their clinical outcome. There were 18 male and 15 female patients with mean age of 46.9 years (range; 28-78 years). The preoperative mean VAS of neck pain and back pain were improved from 6.09 to 4.72 and 3.19 to 1.7, respectively. Mean ODI was improved from 47.82% to 14.46%. Based on the Macnab criteria, the surgical outcomes were excellent in 10 patients (30.3%), good in 18 patients (54.5%), fair in 2 patients (6.1%) and poor in 3 patients (9.1%), indicating a favorable outcome of 84.8%. There were two additional surgeries at the affected level or adjacent levels. The rate of return to work after surgery was 93.9%.

Conclusion: The procedure of direct fragmentectomy and manual decompression by microforceps and thermal effect of Ho: YAG laser under direct endoscopic view is safe and effective for the treatment of soft cervical disc herniations. In our experience, there is a very low associated morbidity with a rapid recovery resulting in a significant saving on expenditure. Biomechanically and clinically, PCS has potential to treat the angular instability. This technique prevents postoperative kyphosis and maintains anterior structures and stability unlike the conventional open procedures. In order to firmly establish the efficacy of B-Twin for treating segmental instability, further study requires large-scale trial long term follow-up.

References
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