

# Clinical assessment of a CMC/PEO gel to inhibit postoperative epidural adhesion formation after lumbar discectomy: a randomized, control study

Zhi-chen Liu · Yang Li · Yuan Zang ·  
Geng Cui · Hong-xun Sang · Zhen-sheng Ma ·  
Liang Kong · Wei Lei · Zi-xiang Wu

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## Abstract

**Purpose** To evaluate effectiveness of carboxymethyl-cellulose/polyethylene oxide (CMC/PEO) gel in improving clinical outcomes after the first-time lumbar discectomy.

**Method** Ninety-three patients with herniated lumbar disc at L4–L5 or L5–S1 were enrolled and randomized into two groups: CMC/PEO gel treatment group and control group. All the patients underwent laminotomy and discectomy by posterior approach. The preoperative and postoperative Oswestry Disability Index (ODI) and Visual Analogue Scale (VAS) scores for lower-back pain and leg pain were analyzed and compared between two groups at 30- and 60-day time points.

**Results** No patient presented with any clinically measurable adverse event during surgery. There were no significant differences between the treated group and the control group on the preoperative ODI and VAS scores. In general, the ODI and VAS scores decreased in both groups

at all the time points. At the 30-day time point, the VAS scores for back pain and leg pain and the ODI scores in treatment group were lower by 9.9 % ( $P = 0.0302$ ), 27.0 % ( $P = 0.0002$ ) and 16.3 % ( $P = 0.0007$ ) than those in control group. And at the 60-day time point, the ODI and VAS scores further decreased in both groups. The VAS scores for leg pain in treatment group were lower by 4.5 % than that in the control group ( $P = 0.0149$ ). However, no significant difference was detected between two groups on the ODI and VAS scores for back pain.

**Conclusions** The results demonstrated that CMC/PEO gel is effective in reducing posterior dural adhesions in the spine with no apparent safety issues. It can improve patients' postoperative clinical outcome.

**Keywords** Carboxymethylcellulose · Polyethylene oxide · Epidural · Fibrosis · Discectomy

Z. Liu · Y. Li · Y. Zang · H. Sang · Z. Ma · W. Lei (✉) ·  
Z. Wu (✉)

Institute of Orthopaedics, Xijing Hospital,  
The Fourth Military Medical University, No. 17 Changlexi  
Road, Xi'an 710032, Shanxi, People's Republic of China  
e-mail: leiwei@fmmu.edu.cn

Z. Wu  
e-mail: wuzixiang@fmmu.edu.cn

Z. Liu  
e-mail: jacklitt218@126.com

Y. Li  
e-mail: yanglee.112@163.com

Y. Zang  
e-mail: yuanzang@fmmu.edu.cn

H. Sang  
e-mail: sanghx@fmmu.edu.cn

Z. Ma  
e-mail: mazhensheng@fmmu.edu.cn

G. Cui  
Institute of Orthopaedics, the General Hospital of P.L.A.,  
Beijing 100000, People's Republic of China  
e-mail: gengcui@163.com

L. Kong  
Department of Implantology, School of Stomatology,  
The Fourth Military Medical University, Changlexi Road No. 17,  
Xi'an 710072, People's Republic of China  
e-mail: kongliang@fmmu.edu.cn