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## Modified poly (methyl methacrylate) bone cement in the treatment of Kümmell disease

Kummell Disease (KD) causes serious vertebral body collapse in patients. However, only a few case reports have been conducted and the number of patients with KD investigated was limited. Additionally, the frequently used poly (methyl methacrylate) (PMMA) bone cement for KD is limited by excessive modulus and poor biocompatibility. Herein, we aimed to modify PMMA bone cement with mineralized collagen (MC), and compare the clinical effects, image performance and finite element analysis between the modified bone cement and PMMA bone cement for the treatment of phase I and II KD. Thirty-nine KD patients treated with PMMA bone cement and 40 KD patients treated with MC-modified PMMA bone cement from June 2015 to March 2017 were retrospectively analyzed. The surgical procedure, intraoperative blood loss, hospital stay and complications were compared between different groups. Visual analog scale, Oswestry disability index, anterior vertebral height,

posterior vertebral height, computed tomography value, adjacent vertebral re-fracture, <u>Cobb angle</u> and wedgeshaped correction angle were evaluated. Additionally, the representative sample was selected for finite element analysis. We found that the MC-modified PMMA bone cement could achieve the same effect as that of PMMA bone cement and was associated with better vertebral height restoration in the long term.

## **Biography**

Jiandong Guo, deputy chief physician in the orthopaedics department of Hangzhou Ninth People's Hospital, is the review editor of Frontiers in Oncology. He is the member of professional <u>osteoporosis</u> group of Zhejiang Integrated Chinese and Western Medicine Association, and the member of minimally invasive spine group of Zhejiang Orthopedics Branch. He is committed to the minimally invasive diagnosis and treatment of cervical spondylosis, lumbar disc herniation, osteoporotic fractures and other spinal surgery.

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