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A Comparative Study of Radiographic Results Using HEALOS Collagen-Hydroxyapatite Sponge with Bone Marrow Aspiration versus Local Bone Graft in the Same Patients Undergoing Posterolateral Lumbar Fusion

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Abstract

Background: Autologous bone harvested from the iliac crest is the gold standard for lumbar spinal fusion. However, postoperative donor site pain and morbidity have been reported. Local bone graft is insufficient and contains some softtissue attachment. Therefore, Healos (DePuy Spine, Raynham, MA, USA) is currently bone graft substitute that was introduced for spinal fusion with good results but radiographic fusion rate has not been clearly defined yet.

Objective: To assess the radiographic fusion rate of HEALOS with bone marrow aspiration versus autologous bone graft in the same patients undergoing posterolateral lumbar fusion.

Material and Method: A retrospective radiographic outcome study of radiographic fusion rate from plain radiographs in 55 patients indicated for posterolateral lumbar fusion in Lerdsin General Hospital between April 2005 and December 2006 was done. The patients were implanted with HEALOS collagen-hydroxyapatite sponge with bone marrow aspiration and local bone graft on each side of Posterolateral Lumbar Fusion. Twenty-seven patients were included in the present study according to the authors' inclusion criteria. Plain radiographs were collected and radiographic fusion rate was assessed for at least two years follow-up.

Results: The two years post operative radiographic fusion rate was 29.63% (8/27) in Healos/BMA group and 62.96% (17/27) in LBG group. At three-years follow-up, radiographic fusion rate of 36.84% (7/19) was achieved in the Healos/BMA group and 78.93% (15/19) in the LBG group.

Conclusion: In the present study, Healos collagen-hydroxyapatite sponge with bone marrow aspiration had lower radiographic fusion rate when compared to local bone graft in posterolateral lumbar fusion at two years post operative. The results of the Healos/BMA group was increased fusion rate with time but remained lower than LBG group at three and four years follow-up.

Keywords: Healos, Collagen hydroxyapatite sponge, Bone marrow aspirate, Autologous bone graft, Radiographic fusion rate, Posterolateral lumbar fusion

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