

# CASE STUDIES

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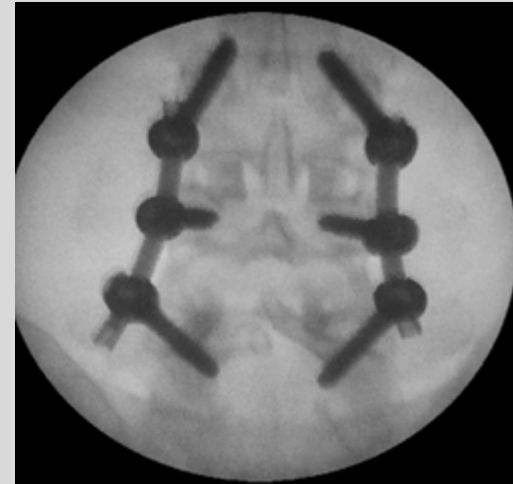
## USE OF DEMINERALIZED BONE MATRIX (DBM) IN POSTEROLATERAL SPINE FUSION

### History

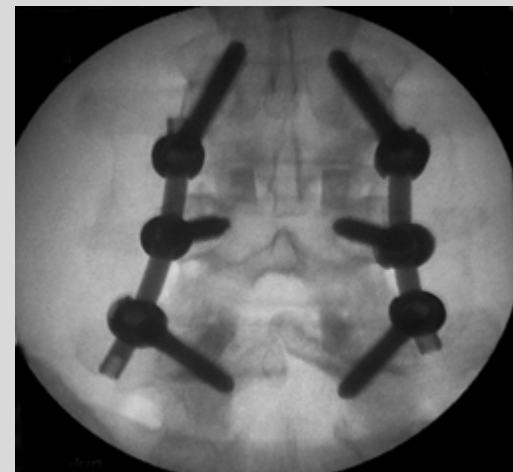
A 48-year-old man presented with a history of persistent severe low back pain radiating bilaterally to the lower extremities. MRI showed severe L3-L4 and L4-L5 degenerative disc disease, with broad-based disc osteophyte complex, and significant degenerative facet changes resulting in severe bilateral foraminal stenosis and some central canal stenosis.

### Treatment

After failure of conservative treatments, the patient underwent L3-L4 and L4-L5 posterior lumbar interbody fusion and posterolateral fusion, supplemented with L3-L4-L5 posterior instrumentation with pedicle screws. The L3-L4-L5 posterolateral fusion was performed using a volume of 40cc of DBM granules (150 $\mu$ m to 800 $\mu$ m) soaked in autologous bone marrow aspirated from the patient's iliac crest.



**Figure 1.** 6 Weeks Postoperative: fusion mass is barely visible in the posterolateral regions on AP views.



**Figure 2.** 4.5 Months Postoperative: posterolateral fusion mass is clearly visible on AP views.

## Postoperative Results and Outcome

The postoperative course was uneventful. Neither generalized nor local adverse reactions were observed postoperatively. Follow-up radiographs were obtained at six weeks and four and a half months after the surgery. As anticipated, six week X-rays did not show evidence of bone growth (Fig. 1). However, at four and a half months, X-rays demonstrated clear evidence of early bilateral posterior lateral fusion (Fig. 2). Further follow-up evaluation is planned.

## Discussion and Conclusion

Osteoinductive property of bone graft is essential in achieving solid and successful arthrodesis. The osteoinductive potential of allogenic DBM was demonstrated about 40 years ago by Urist et al.<sup>1,2</sup> DBM has been studied extensively both as a substitute for autograft, and as an autograft extender for a number of orthopedic procedures including posterolateral spine fusion<sup>3-5</sup>.

This Case confirms that the use of pure DBM with autologous bone marrow in posterolateral spine fusion is safe and effective. At four months, bilateral posterior fusion is already visible. Further follow-up of this case is planned.