

## Posterior Lumbar Interbody Fusion with Cancellous Allograft

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– Abstract –

**Study Design:** This is a retrospective study.

**Objectives:** This study compared the clinical results of the posterior lumbar interbody fusion (PLIF) using a cancellous allograft with the conventional autologous iliac bone graft.

**Summary of Literature Review:** The allograft is known to produce a similar effect as that of a nonvascular autogenous bone implantation. However, the implantation process occurs more slowly with the various degrees of the inflammatory reaction caused by the immunological reactions.

**Materials and Methods:** From June 1999 to February 2002, 39 patients were operated on by a single surgeon. There were 14 cases with 1 level, 4 cases with 2 levels posterior fusion with a cancellous allograft (objective group), and 20 cases with 1 level and 1 case with 2 levels posterior fusion with a conventional bone graft (control group). The clinical results and standing lateral views of the lumbar spine were compared and analyzed in order to assess the fusion rate, the changes in the distance between the two vertebral bodies and changes in the lordotic angle formed between the fused bodies immediate after surgery and at the final follow-up.

**Results:** During the early post-operative period, the control group showed superior results. However, there were no significant differences between the two groups at the final follow-up. There were no statistically significant differences in the fusion rate, the changes in the intervertebral distance, and the lordotic angle.

**Conclusion:** PLIF using a cancellous allograft and a locally harvested autograft showed acceptable radiological union rate and clinical results. It is believed that this is an excellent surgical technique with a shorter operation time, less bleeding, less pain and no morbidity of the donor site.

**Key Words:** Lumbar spine, posterior lumbar interbody fusion, cancellous allograft, autogenous bone graft

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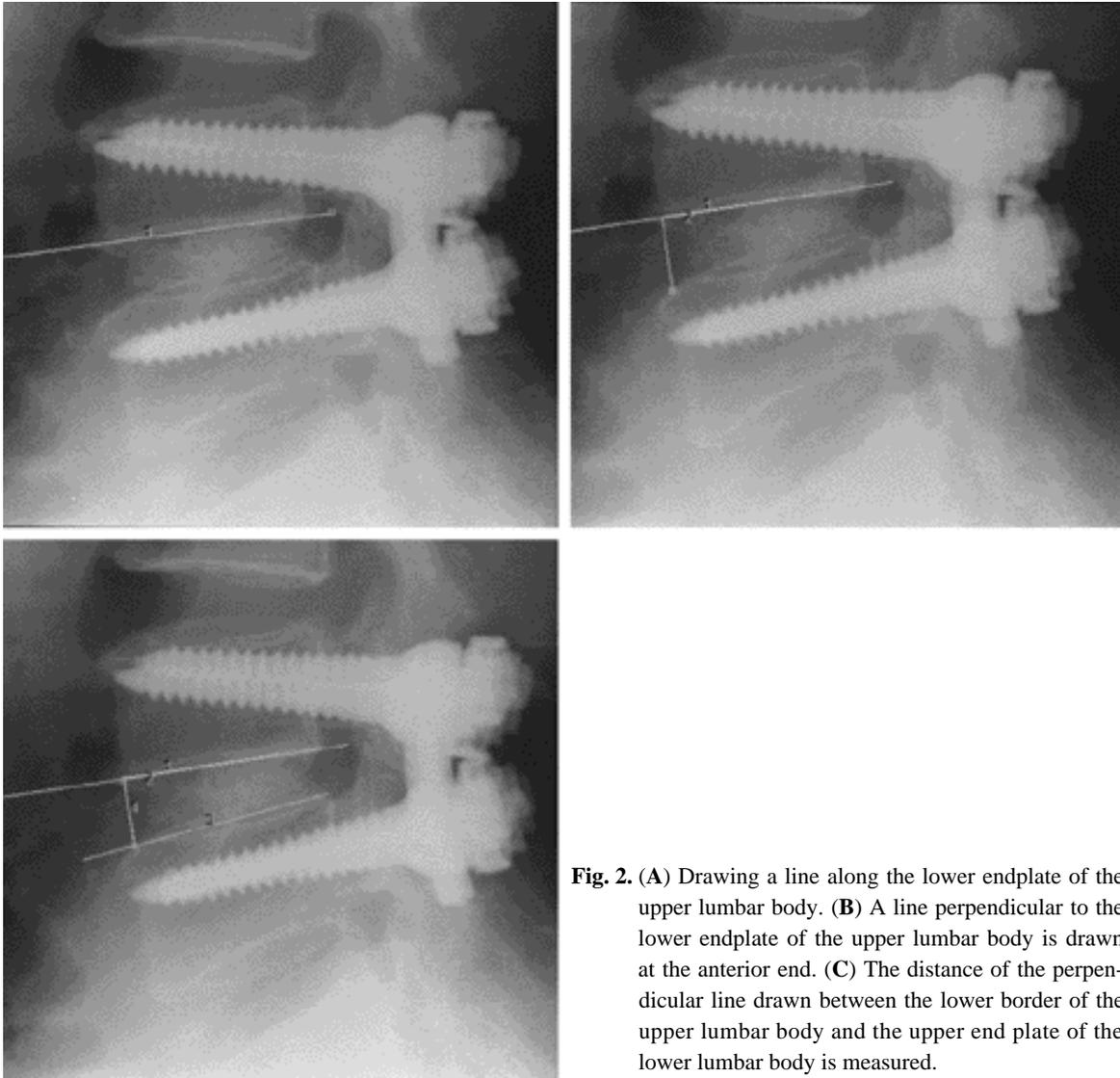
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**Fig. 1.** Lordotic angle measures the angle between the lower end plate of the upper lumbar body and upper end plate of the lower lumbar body, which underwent fusion.



**Fig. 2.** (A) Drawing a line along the lower endplate of the upper lumbar body. (B) A line perpendicular to the lower endplate of the upper lumbar body is drawn at the anterior end. (C) The distance of the perpendicular line drawn between the lower border of the upper lumbar body and the upper end plate of the lower lumbar body is measured.

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**Table 1.** Clinical results

%	Poor	Fair	Good to excellent
Case (2 week)	0.0	55.6	45.5
Case (final)	13.6	27.3	59.1
Control (2 week)	50	50	0
Control (final)	4.6	31.8	63.6

**Table 3.** Changes of lordotic angle and intervertebral disc height

Angle (degrees)	Number (levels)	Mean	Standard deviation	Maximum	Minimum
Case	22	-2.2	1.9	-7.6	-0.4
Control	22	-2.7	1.9	-7.5	-0.1
Height (mm)					
Case	22	-3.4	2.1	-9.9	-0.8
Control	22	-3.4	2.2	-8.3	-0.5

**Table 2.** Union rates

%	Nonunion	Union
Case	4.6	95.5
Control	0	100

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