

**The Clinical Study of the Treatment of Femoral Shaft Nonunions After Nailing with Augmentation Plating Versus Exchange Nailing**

*Bosong Zhang, MD; Yunbang Liang, MD; Xiaofeng Gong, MD; Manyi Wang, MD; Jishuitan Hospital, Beijing, China*

**Purpose:** The purpose of this study was to compare the results between augmentation plating versus exchange nailing for femoral shaft nonunion after nailing. We hypothesized that augmentation plating group would have a similar clinical results versus exchange nailing.

**Methods:** From May 2003 to June 2011, 104 cases of femoral shaft nonunions after nailing were treated. 83 patients were treated with augmentation plating leaving the nail in situ and autogenous bone grafting. 21 patients were treated with exchange nailing without autogenous bone grafting. The main outcome measures included operation time, volume of intraoperative blood loss, volume of intraoperative autogenous blood refused, volume of postoperative drainage, length of hospital stay, cost of hospitalization, and time to radiographic union. The *t*'-test was performed to compare results.

**Results:** There were no significant differences between the two groups in age, gender, volume of postoperative drainage, and length of hospital stay. There were significant differences in operation time, volume of intraoperative blood loss, volume of intraoperative autogenous blood reinfused, cost of hospitalization, and time to radiographic union (Table).

**Conclusion:** Augmentation plating leaving the nail in situ with autogenous bone grafting is a better option than exchange nailing for femoral shaft nonunions.

**Table. Results of Augmentation Plating Compared With Exchange Nailing**

	Augmentation Plating Group	Exchange Nailing Group	<i>P</i>
Operation time (min)	99.3 ± 27.8	176.5 ± 46.0	<i>t</i> ' = 7.359, <i>P</i> < 0.001
Volume of blood loss (mL)	494.9 ± 281.3	1157 ± 815.7	<i>t</i> ' = 3.666, <i>P</i> = 0.001
Volume of blood reinfused (mL)	344.6 ± 173.2	665 ± 306.1	<i>t</i> ' = 3.005, <i>P</i> = 0.014
Volume of drainage (mL)	332.0 ± 220.7	315.0 ± 257.1	<i>t</i> ' = -0.305, <i>P</i> = 0.761
Hospital time (day)	13.9 ± 6.1	17.0 ± 5.4	<i>t</i> ' = 1.778, <i>P</i> = 0.078
Cost of hospital (RMB)	28862.5 ± 8547.1	40998.0 ± 14068.3	<i>t</i> ' = 4.083, <i>P</i> < 0.001
Union time (month)	5.2 ± 2.8	8.5 ± 5.5	<i>t</i> ' = 3.175, <i>P</i> = 0.002

• The FDA has not cleared this drug and/or medical device for the use described in this presentation (i.e., the drug or medical device is being discussed for an "off label" use). For full information, refer to page 600.