

## **ABSTRACT**

### **OBJECTIVES:**

To assess whether percutaneous, or open reduction of closed distal femur fractures treated with intramedullary nailing results in increased complications (superficial infection, deep infection, nonunion) or improved alignment.

### **METHODS:**

This is a retrospective study carried out at 1 Level 1 and one Level 2 trauma center. Patients with distal femur fractures (AO/OTA 33A1-A3) treated between January 2012 and December 2022 with a femoral intramedullary nail with follow-up to union were included. Fracture union was bridging callus on >3 cortices and absence of pain with ambulation. Quality of reduction was graded as anatomic, good (<5 degrees coronal and sagittal malalignment), or poor (>5 degrees coronal or sagittal malignment).

### **RESULTS:**

94 patients were included. Closed reduction was performed in 27.7% of cases, percutaneous reduction in 43.6%, and open reduction in 28.7%. Superficial infections occurred in 0% of the closed group, 4.9% in the percutaneous group, and 3.7% in the open group (P=0.781). Deep infections were observed in 0% of the closed group, 2.4% in the percutaneous group, and 3.7% in the open group (P=1.000).

Nonunion rates were 7.7% in the closed group, 4.9% in the percutaneous group, and 0% in the open group (P=0.292). There was a statistically significant difference between groups with quality of reduction (closed: anatomic in 3.8%, good in 96.2%; percutaneous: anatomic in 12.2%, good in 87.8%; open: anatomic in 37.0%, good in 63.0% (P=0.006)

### **CONCLUSIONS:**

There were no significant differences in the rates of complications when using percutaneous or open techniques for closed distal femoral nailing. However, alignment was improved with percutaneous or open techniques.