

## Use of a Novel Telescoping Multiple Screw Plate for Treatment of Intertrochanteric Hip Fractures

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**Purpose:** A new implant, with multiple smaller diameter cancellous screws that slide in a barrel and lock to a side plate, has shown promising potential for managing femoral neck fractures in Europe. We report the early results using a novel design telescoping screw plate in a consecutive series of patients who sustained an intertrochanteric fracture in the US.

**Methods:** After IRB approval, a retrospective study was performed on consecutive patients who sustained an intertrochanteric fracture and were treated with the Telescoping Screw Plate at our institution from April 2015 until April 2016. The Telescoping Screw Plate consists of three 7.5-mm cancellous lag screws that telescope within a barrel that locks to a side plate. The 3 screws are oriented in an inverted triangular configuration at a 130° angle to the sideplate. The screw sliding occurs solely within the barrel, so that protrusion of the screws into the lateral soft tissue is prevented. Patients were followed at 6 weeks, and 3, 6, and 12 months. Radiographs were assessed for signs of healing, osteonecrosis, loss of fixation, implant failure, and fracture of the lateral wall. Amount of screw sliding and femoral medialization were determined at latest follow-up. Bone lengths were obtained on patients at 6 or 12 months.

**Results:** 64 patients who sustained an intertrochanteric fracture were treated. 42 fractures were stable (OTA type 31A1) while 22 were unstable intertrochanteric fractures (OTA type 31A2). 44 patients (69%) were available for 6-month minimum follow-up (mean 9.0 months; range, 6-18). No patient sustained loss of fixation, lag screw cutout, nonunion, or osteonecrosis. No fracture sustained a fracture of the lateral wall. Overall, lag screw slide averaged 4.0 mm (range, 0-17 mm). In stable fractures, lag screw slide averaged 1.2 mm (range, 0-8) and in unstable fractures averaged 8.8 mm (range, 0-17). Femoral medialization ranged from 0-10%. Bone length radiographs were available in 21 patients (16 stable fractures, 5 unstable fractures). Overall, femoral shortening averaged 4.1 mm (range, 0-19). In stable fractures, femoral shortening averaged 1.1 mm (range, 0-9) and in unstable fractures averaged 11.2 mm (range, 0-19).

**Conclusion:** Our results using the Telescoping Screw Plate are promising with very high union rates and low complication rates when used to stabilize both stable and unstable intertrochanteric fractures. The amount of screw sliding and limb shortening were much lower than those reported with use of a conventional sliding hip screw and were comparable to those reported using an intramedullary device.