

Use of a Novel Telescoping Multiple Screw Plate for Treatment of Femoral Neck Fractures

Kenneth J. Koval, MD; James V. Nepola

Orlando Regional Medical Center, Orlando Health System, Orlando, Florida, USA

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. This implant is a hybrid between cancellous lag screws and a sliding hip screw, providing rotational stability, controlled collapse of the femoral neck, and prevention of screw toggling within the femoral neck. We report the results using a newer design telescoping screw plate in a consecutive series of patients who sustained a femoral neck fracture in the US.

Methods: After IRB approval, a retrospective evaluation was performed on consecutive patients who sustained a femoral neck 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 titanium screws are oriented in an inverted triangular configuration at a 130° angle to the side plate. The screw sliding occurs solely within the barrel, so that protrusion of the screws into the lateral soft tissue is prevented. The side plate is available in 2 and 4-hole lengths and has anterior offset of the proximal telescoping screw cluster for an anatomic fit. Patients were allowed to weight-bear as tolerated after surgery using an assistive device as needed.

Results: 44 patients who sustained a femoral neck were treated, 15 men and 29 women with an average age of 70 years. 23 fractures were nondisplaced or valgus impacted while 21 were displaced femoral neck fractures. 8 patients (18%) were lost to follow-up (6 nondisplaced, 2 displaced fractures) leaving 36 patients (82%) who had 6-month minimum follow-up (range, 6-16 months). In the nondisplaced fracture group (n = 17), all fractures united with no loss of fixation or osteonecrosis. In the displaced fracture group (n = 19), 18 fractures united (95%) while 1 patient had loss of fixation with screw cutout at 1-month follow-up.

Conclusion: Our early results using the Telescoping Screw Plate are promising, with very high union rates and low complication rates.