Triangular Titanium Implants for Sacral Insufficiency Fracture

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Purpose: Sacral insufficiency fractures are commonly thought to be stable fractures. In some patients, however, the pain of the fracture prevents participation in physical therapy (PT), thus leading to being bedbound, with the potential for increasing morbidity. The purpose of this study is to review the use and utility of unique triangular titanium implants to facilitate early unrestricted weight-bearing in sacral insufficiency fractures (SIFs) that fail conservative management.

Methods: Chart review was performed for 11 patients with OTA 61B1.1 and 61B3.2 fractures treated with surgical fixation using a single cannulated screw supplemented with 1-2 titanium triangular implants after failing conservative measures for at least 24 hours. Patients were allowed immediate weight-bearing postoperatively. Primary outcome measured was time to mobilization out of bed with PT compared to preoperative functional levels. Likewise, patient-reported pain scales 24 hours preoperatively compared to 24 hours postoperatively, and increase in distance traveled with PT prior to discharge were also evaluated.

Results: These 11 patients each were able to stand and work with therapy no later than postoperative day (POD) 1, whereas preoperatively all patients had been bedbound at least 24 hours. All had taken a minimum of 10 steps prior to discharge. Barring 1 outlier, the average increase in steps taken prior to discharge was 17.7 $\pm$ 10.99 feet. Pain scales demonstrated an average pain score decrease of 4.9 $\pm$ 0.94 points compared to preoperative evaluation. Average time to discharge was 2.6 $\pm$ 1.6 days postoperatively.

Conclusion: Triangular titanium implants used in conjunction with a cannulated screw for sacral insufficiency fractures allow for immediate weigh- bearing. The increased stability of these implants, even in poor quality bone where screws not infrequently back out, facilitates mobility, thus leading to decreased morbidity for patients whose pain prevents active participation in PT. These implants should be considered for supplemental fixation in SIF patients who are unable to actively participate in therapy.

See the meeting app for complete listing of authors' disclosure information.