

Lumbopelvic Fixation Supplemented With Gull-Wing Plate For Multiplanar Sacral Fracture With Spinopelvic Dissociation: Case Series

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INTRODUCTION:

Spinopelvic dissociation resulted from multiplanar sacral fracture is characterized by a transverse sacral fracture connected to bilateral vertical sacral fracture through the sacral alar. We operated on three cases over one month duration (April 2017). All patient had lumbopelvic fixation with three pair of poly-axial screws in lumbar L4 and L5 and long a pair of long iliac screws. This construct is supplemented with "gull-wing plate" across both sacroiliac joint.

MATERIALS & METHODS:

Posterior midline incision approach was used. The lumbosacral musculature was elevated as distal V-shaped flap bilaterally. Two pair poly-axial pedicle screws (L4 and L5 spine) and one pair of long iliac screw were used. This construct is then supplemented with "gull-wing" plate using a 3.5 mm reconstruction plate, placed posteriorly on S1, spanning both sacroiliac joint.



Figure 1: CT scan with 3D reconstruction of multiplanar sacral fracture

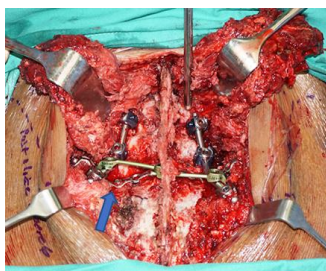


Figure 2: Final construct of lumbopelvic fixation supplemented with "gull-wing" plate (arrow)



Figure 3: Post-operative xray of lumbopelvic fixation

RESULTS:

The functional outcome was assessed with Majeed Score. Average time to follow up was 8 months. Two patient scored excellent outcome (score of 94 and 96). The patient with body weight of 145kg (BMI 50) scored 67 (Good).

DISCUSSIONS:

In all three cases, there were not much callus formation and fractures were still mobile despite average time to surgery of three weeks. The "gull-wing" plate was shown to be biomechanically stable for post-operative loading, and enable patient to attain mobility sooner.¹ Caution to be taken in case of lumbar spine sacralization, to avoid misplacement of L4 and L5 pedicle screws. Surgery in morbidly obese patient is still feasible with good outcome. CT scan with 3D reconstruction is helpful in defining characteristic of this type of fracture, especially when plain radiograph is inconclusive.

CONCLUSION:

Lumbopelvic fixation supplemented with "gull-wing" plate is a viable option in treating complex multiplanar sacral fracture with spinopelvic dissociation.

REFERENCES:

1. Taeyong L, Abhishek V, Rammohan, Vincent BCT, Khong KS. A Biomechanical Analysis of the Gull-Wing Plate Technique for Fixation of Sacral Fractures.