

## Segamat Case Series: Biplane Double-Supported Screw Fixation for Neck of Femur Fractures

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### INTRODUCTION:

Femoral neck fractures are common in the elderly population, often resulting from low-energy trauma with underlying osteoporosis. Prompt surgical intervention is essential to minimize morbidity and mortality in this unique challenge. We presented case series of Biplane Double-Supported Screw Fixation (BDSF) for neck of femur fractures.

### REPORT:

We have three patients with undiagnosed osteoporosis presented with trivial fall at home sustained pain over left hip. Imaging showed fracture neck of femur (Garden 2). Operation decided for percutaneous screw fixation of left neck of femur.

Upon one month follow up visit, all patients demonstrated satisfactory progress with the ability of ambulating with partial weight bearing walking frame ambulation.

### DISCUSSION:

The F-Technique or BDSF applies two parallel screws inserted into femoral head over the anteroposterior plane, and another screw through cephalocaudal plane. The screws were positioned such that they intersect within the femoral head. It provides enhanced stability compared to single-screw fixation methods. The intersecting screws create a more robust construct, reducing the risk of implant failure and improving fracture stability.

The dual-screw configuration effectively resists rotational forces acting on the femoral head, reducing the risk of displacement or malrotation of the fracture fragments. Careful placement of screws and avoidance of critical vascular structures help preserve the blood supply to the femoral head, reducing the risk of avascular necrosis (AVN) and promoting fracture healing.

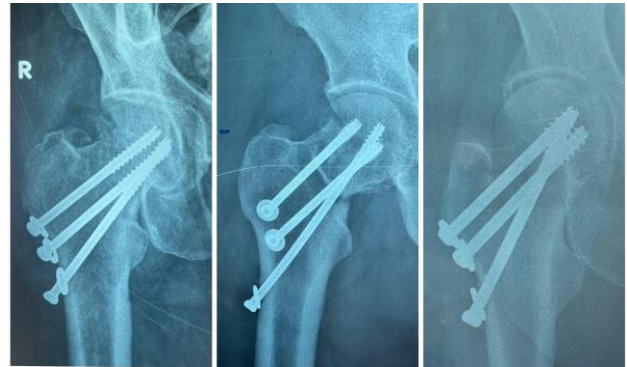


Figure 1: Post operative imaging

### CONCLUSION:

Overall, BDSF is a valuable technique for stabilizing femoral neck fractures, offering enhanced stability and resistance to rotational forces, while also preserving the blood supply to the femoral head. However, it's important to note that biplane double supported screw fixation may not be suitable for all femoral neck fractures, particularly those with significant comminution or displacement.

### REFERENCE:

1. Orlin Filipov et al; The Method of Biplane Double-Supported Screw Fixation (BDSF) at Femoral Neck Fractures – Principle and Clinical Outcomes.; *Journal of IMAB*; 2013;19:423-426(1)
2. Garg S et al; Role of Biplane Double-Supported Screw Fixation (BDSF) in Management of Fracture Neck Femur and Its Comparison with Conventional CC Screw Fixation. *Indian J Orthop.* 2023 Oct 27;57(12):2011-2017