

## **BONE SANDWICH TECHNIQUE IN CLOSED HUMERAL PERIPROSTHETIC FRACTURE**

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**Introduction:** Bone sandwich is a relatively new technique used to treat severe comminuted fractures of femur and humerus. It is said to provide high union rate in osteopenic and complex femur/humeral fractures. Here we applied this technique on a patient with closed periprosthetic humerus fracture. The subject of my case study a right hand dominant 34-year-old gentleman who was admitted to orthopaedic ward after an alleged motor vehicle accident sustaining closed periprosthetic left humerus fracture. Prior, patient had sustained similar fracture on the midshaft 3 years ago which was treated conservatively initially but underwent 8 hole narrow dynamic compression plating due to hypertrophic non-union. Plain radiograph shows the fracture overlapping the tip of the prosthesis and extends distally. Patient then underwent double plating with locking compression plate and recon non-locking plate. Subsequent radiographs follow up at 3rd, 6th week and 2 months shows bridging callus formation and union.

**Discussion:** Primary objective of treatment of osteoporotic or comminuted humeral diaphyseal or metaphyseal fractures is to provide the optimum mechanical stabilisation, biological stimulation of healing, and early joint motion. Therefore despite advances of fixation techniques and implants, there is still a high degree of non union and pseudoarthrosis. To achieve proper mechanical stabilization one needs adequate screw purchases into adjacent cortices, whereas to facilitate primary bone healing, one must ensure rigid fixation through firm bone contact and compression of the bone ends. Therefore the double plating offers a way to anchor all cortices and 'sandwiching' the host shaft.

**Conclusion:** The main advantages of bone sandwich method include decreased morbidity, firm mechanical stabilisation to improve union rate, decreased hospital stay, and rapid return to daily life. One must however bear in mind of the risk of iatrogenic radial nerve injury during the procedure.