



A CASE REPORT ON SALVAGE OF FAILED INTERNAL FIXATION OF PROXIMAL HUMERUS FRACTURE USING FIBULAR STRUT GRAFT.

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ABSTRACT Proximal humerus fractures are common problems plaguing in geriatric population. Approximately half of all proximal humeral fractures occur due to fall usually at ground level. (Low velocity trauma). In younger individuals fractures occurring because of higher-energy trauma such as a fall from a height, motor vehicle accidents, sports, or assaults. The proximal humerus fracture because of three loading modes: compressive loading of the glenoid onto the humeral head, bending forces at the surgical neck, and tension forces of the rotator cuff at the greater and lesser tuberosities. Most proximal humeral fractures are treated nonoperatively. However, surgical treatment is becoming more popular, with development of modern implant (PHILOS plate). Implant failure is common complication occur due to improper fixation, osteoporotic bone, early mobilization, non-union and varus malalignment. Various modality available for its management i.e., Hemiarthroplasty, reverse shoulder arthroplasty and ORIF + bone graft. IN this case report 60-year male patient with right side proximal humerus fracture treated with PHILOS plating. At 6 week follow up radiograph suggest implant failure. Patient was posted for revision surgery ORIF + plating and fibular strut graft was done.

KEYWORDS : Proximal Humerus, Fibular strut graft, ORIF, Salvage procedure, PHILOS plate

INTRODUCTION

Proximal humerus fractures (OTA 11-B)¹ are common in elderly individuals, reported as the third-most-common fracture in this population behind distal radius and hip fractures at 105 per 100,000 patients per year.^{2,3,4}

In part, the reason for this is the decreasing bone quality from osteoporosis or osteopenia that presents with increasing age. The rate of proximal humerus fractures has been steadily increasing in the United States over the past 30 years at a rate of approximately 13 % per year.^{4,6} Proxi- mal humerus fractures are also common in the overall

population, accounting for approximately 5% of all fractures; many of these fractures are managed nonoperatively.^{7,8} Operative versus nonoperative treatment is typically dictated by the type of fracture in addition to other patient-oriented factors, including health and functional status.

The optimal treatment for proximal humerus fractures has yet to be elucidated. Gupta et al⁶ recently reviewed various types of surgical treatments for complex proximal humerus fractures and found significantly better clinical outcomes but a significantly higher reoperation rate in patients who underwent an open reduction internal fixation (ORIF) versus hemiarthroplasty and reverse total shoulder arthroplasty.

To combat some of the issues with ORIF of proximal humerus fractures including implant failure, loss of reduction, fracture malunion or nonunion, osteonecrosis of the humeral head, or impingement syn- drome, use of a fibular strut graft has been described to attempt to decrease postoperative screw penetration into the joint as well as varus collapse.⁹

The purposes of this case report was to perform to determine clinical outcomes and complication rates with fibular strut augmentation of ORIF of proximal humerus fractures at short-term follow-up- technique.

Case Report

A 60-year male patient having trauma due to fall while walking. He sustained right sided closed proximal humerus fracture. He was initially offered universal shoulder immobilizer and planned for

operative management with ORIF with PHILOS plating. Then patient was discharged, and gradual physiotherapy was advised. Then at 6th week post-op period implant failure and varus malalignment was noted. Patient then posted for revision surgery. Then revision ORIF + Plating and Fibular strut graft was done. Procedure done under general anesthesia on simple table in beach chair position. after thorough painting and draping via delto-pectoral approach proximal humerus approached. and via direct lateral approach to proximal two third approach fibula exposed. 5 cm fibular strut graft isolated with taking care of peroneal nerve. Then strut graft placed along with standard PHILOS plate and reduction achieved. Closure done in layers. Universal shoulder immobilizer offered. On 2nd post operative day shoulder pendulum exercise started and patient called for follow up regularly.



Figure 1: Pre- operative radiograph showing Proximal Humerus fracture

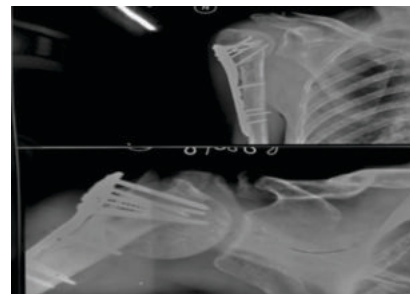


Figure 2: immediate post operative radiograph suggest varus malalignment and implant failure

CONCLUSIONS

There is great heterogeneity that exist in literature surrounding the use of fibular strut graft as an adjunct to ORIF of proximal humerus fracture. In our case there is great increase in range of motion (ROM) following revision surgery and that was gradually increasing in subsequent follow up which was very diminished following index procedure. There was no varus malalignment following revision surgery. So, in such cases with failed primary PHILOS plating and osteoporotic bone, such strut graft augmentation procedure offers such a promising result in term of reducing morbidity and improvement in shoulder ROM.



Figure 3: post operative radiograph following fibular strut graft + PHILOS plating.

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