

MANAGEMENT OF COMMINUTED DISTAL FEMUR FRACTURE WITH FIBULAR STRUT GRAFT: A CASE REPORT

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INTRODUCTION

COMMUNUTED DISTAL FEMUR FRACTURES, OFTEN FROM HIGH-ENERGY TRAUMA, ARE CHALLENGING DUE TO COMPROMISED BONE STOCK AND INSTABILITY.

ORIF WITH PLATES AND SCREWS IS STANDARD, BUT SEVERE COMMUNUTION OR BONE LOSS MAY REQUIRE ADDITIONAL SUPPORT.

FIBULAR STRUT GRAFTS, PROVIDING STRUCTURAL INTEGRITY AND AUTOLOGOUS BONE, ARE A VALUABLE ADJUNCT FOR COMPLEX FRACTURES.

THIS REPORT HIGHLIGHTS SUCCESSFUL USE OF A FIBULAR STRUT GRAFT WITH ORIF IN MANAGING A COMMUNUTED DISTAL FEMUR FRACTURE.

CASE REPORT

A 42-YEAR-OLD MALE PRESENTED WITH A COMMUNUTED DISTAL FEMUR FRACTURE FOLLOWING A MOTOR VEHICLE ACCIDENT.

AFTER STABILIZATION, SURGICAL INTERVENTION WAS PERFORMED UNDER GENERAL ANESTHESIA VIA A LATERAL APPROACH.

THE FRACTURE WAS REDUCED, AND PROVISIONAL FIXATION WAS ACHIEVED.

A FIBULAR STRUT GRAFT WAS HARVESTED FROM THE IPSILATERAL FIBULA, SHAPED TO FIT THE DISTAL FEMUR, AND SECURED USING CORTICAL SCREWS AND KIRSCHNER WIRES.

© A LOCKING COMPRESSION PLATE (LCP) WAS APPLIED LATERALLY, ENSURING OPTIMAL FIXATION WITHOUT INTERFERING WITH THE GRAFT.

FINAL FLUOROSCOPIC IMAGING CONFIRMED SATISFACTORY ALIGNMENT AND FIXATION.

OPERATIVE FINDINGS



Fig 2 & 3: Intra Op Photos



Fig 4: Post-Op X ray



DISCUSSION

COMMUNUTED DISTAL FEMUR FRACTURES ARE CHALLENGING DUE TO RISKS OF NONUNION AND MALUNION, REQUIRING STRATEGIES THAT ENSURE STABILITY AND RESTORE BONE STOCK.

FIBULAR STRUT GRAFTS ARE A VALUABLE ADJUNCT WHEN TRADITIONAL FIXATION METHODS ARE INSUFFICIENT.

AUTOLOGOUS GRAFTS MINIMIZE IMMUNOLOGICAL RISKS AND SUPPORT BIOLOGICAL HEALING THROUGH CANCELLOUS BONE OSTEOGENESIS.

THE FIBULA'S STRUCTURAL INTEGRITY PROVIDES LOAD-BEARING SUPPORT, ENHANCING STABILITY AND PROMOTING FRACTURE HEALING.

CONCLUSION

MANAGING COMMUNUTED DISTAL FEMUR FRACTURES REQUIRES A MULTIDISCIPLINARY APPROACH AND TAILORED SURGICAL TECHNIQUES.

THIS CASE HIGHLIGHTS THE EFFECTIVE USE OF A FIBULAR STRUT GRAFT WITH ORIF FOR STABLE FIXATION AND FRACTURE HEALING.

FURTHER STUDIES AND LONG-TERM FOLLOW-UP ARE NEEDED TO VALIDATE THE DURABILITY OF THIS APPROACH.

Results

- Postoperative care included range of motion exercises and partial weight-bearing ambulation.
- Serial radiographs monitored fracture healing and graft incorporation.
- At one year, the patient showed fracture union and a return to pre-injury functional status.



Fig 5: Images showing 1-month and 6-month Post Op X-rays

Fig 6: Post op clinical image showing complete flexion and extension of knee joint.

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