

Introduction

Intertrochanteric femur fractures are common in the elderly and require stable internal fixation to allow early mobilization and optimal functional recovery. Various implant designs have been developed to improve fixation stability in osteoporotic bone, including double-screw systems and helical blade devices. The helical blade is proposed to offer improved purchase in cancellous bone through compaction, potentially reducing implant-related complications. This study aimed to compare the clinical, radiological, and functional outcomes of double-screw fixation versus single screw fixation in intertrochanteric femoral fractures.

Methods

This prospective comparative study was conducted in the Department of Orthopedic Surgery at SGRD Medical Institute. A total of 60 patients with intertrochanteric fractures were enrolled and divided equally into two groups of 30 each: a double-screw group and a helical blade group. Patient were recorded based upon demographic characteristics, mechanism of injury, fracture classification, operative time, and early postoperative symptoms. Radiographic assessment included reduction quality and time fracture takes for union. Palmer and Parker score, and Harris Hip Score were used for functional outcomes at defined postoperative intervals. Surgery related complications like implant failure, AVN femoral head , superficial and deep infections , anterior thigh pain and stress related fractures were compared among both the groups .

Results

The mean age of patients in both groups was similar, with most injuries resulting from domestic falls. Fracture types were distributed mainly among A2 and A3 classifications in both groups. Anterior thigh pain was less frequent in the helical blade group. No significant differences were noted between the two groups regarding the time to sit, stand, or walk postoperatively. The mean time to radiological union was also comparable. Functional scores, including the Palmer and Parker score, Jensen mobility score, and Harris Hip Score, showed no statistically significant differences at final follow-up. Operative time was significantly shorter in the helical blade group compared with the double-screw group. Radiographic reduction quality was slightly better in the helical blade group. No cases of stress fractures or avascular necrosis were observed in either group. Overall, implant-related complications were more common in the double-screw group.

Conclusion

According to this study both helical blade and double screw implants have similar radiological and functional outcomes. The helical blade provides advantages in terms of lesser operative time and fewer implant related complications and even better purchase in osteoporotic bones due to compaction of cancellous bone by the blade . Nevertheless, optimal fracture reduction on spica table and proper implant positioning is of utmost importance regardless of implant used . Based on above findings helical blade is reliable device to be used in osteoporotic inter trochanteric fractures.