Clinical Article

Intramedullary locked fixation of clavicle shaft fractures – review of early results

Dr PR King MBChB(Stell)
Registrar
Dr A Ikram MBBS, FCS(Orth)SA
Consultant
Orthopaedic Surgery, Advanced Orthopaedic Training Centre, Tygerberg Academic Hospital, Cape Town, South Africa

Reprint requests:
Dr PR King
Advanced Orthopaedic Training Centre
Tygerberg Academic Hospital
Cape Town, South Africa
Email: Docreg10@gmail.com
Cell: +27 83 364 8470

Abstract

Background
To assess the effectiveness of a novel locked intramedullary device in the treatment of acute clavicle shaft fractures.

Description of methods
Patients admitted with midshaft clavicle fractures were assessed to determine whether operative fixation of the fracture was required. Indications for surgery were: midshaft clavicle fractures with 100% displacement; more than 1.5 cm of shortening; presence of a displaced butterfly segment; bilateral clavicle fractures; ipsilateral displaced glenoid neck fractures; skin and neurovascular compromise. Patients who matched the criteria for surgery were treated operatively with an intramedullary locked device by the author. Post-operatively, patients were kept in a shoulder immobiliser for a period of 6 weeks. Patients were invited to attend a scheduled follow-up visit where the data was collected that comprised the review. All patients were assessed on the same day by the surgeon, a radiologist, a physiotherapist and an occupational therapist. Scar size and quality, Dash score, Constant Shoulder score, complications and the radiological picture were assessed.

Summary of results
Twenty-nine patients (31 clavicle fractures – two patients sustained bilateral fractures), 18 males and 11 females with a mean age of 28 years attended the schedule data collection visit and were included in the study. Twenty-nine clavicles achieved complete union with the remaining two fractures progressing normally to union at 10 and 13 weeks post surgery. Three patients developed post-operative complications – two nail failures and one hardware sepsis. All three fractures achieved union despite the respective complications and achieved union in an acceptable position. Two of the patients were non-compliant with the post-operative regimen and one sustained secondary trauma to the affected shoulder. These factors are believed to have caused the nail breakages in the two cases but implant failure could not be excluded.

Conclusion
Locked intramedullary fixation of clavicle shaft fractures that matches the criteria for operative fixation was found to be a reliable method of achieving fracture reduction and fracture union. This operation is moderately demanding with a short learning curve.

Level of evidence
Case series; level IV evidence

Key words: Clavicle, fracture, intramedullary, locked, nailing