

Research Article

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Treatment of New Retrograde Intramedullary Nailing for Proximal Humeral Fractures

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Objectives

To evaluate clinical data after undergoing the new retrograde intramedullary nailing for proximal humeral fractures.

Features

- i. The rotator cuff is not damaged due to the retrograde intramedullary nail (Figures 1A, 1B).



Figure 1A: The retrograde intramedullary nail in the bone model on AP view.



Figure 1B: The retrograde intramedullary nail in the bone model on lateral view.

- ii. Greater tuberosity fracture is fixated by the proximal screws with the spike washers (Figures 2A, 2B).



Figure 2A: Spike washer.



Figure 2B: Spike washer for greater tuberosity fracture.

- iii. Back out of the screw is reduced depending on the threading in the nail (Figure 3).
- iv. The stability of the nail in the canal is supplied with threading in the nail (Figure 3).



Figure 3: Prevention of back out of the screw depending on the threading in the nail.

- v. As the all screws are inserted through the aiming arm device, operative time is saved valuably (Figure 4).



Figure 4: The all screws are inserted through the aiming arm device.

Patients and Methods

Eight patients who underwent retrograde nailing had a minimum follow-up for more than 6 months. AO type A2, A3, B1 and B2 were 2 cases respectively. The clinical data was performed to evaluate for union period, re-fracture, iatrogenic nerve injury,

implant failure, infection, nonunion and functional outcome of the shoulder using JOA score (Japanese Orthopaedic Association Score: 100-point scale).

Results

However, one patient was occurred re-fracture 3 days postoperatively according to falling out of the bed, the remaining 7 patients achieved union and the average union period was 3.6 months. No iatrogenic nerve injury, implant failure, infection and nonunion were observed in any patient. The average of JOA score was 96 points.

Case

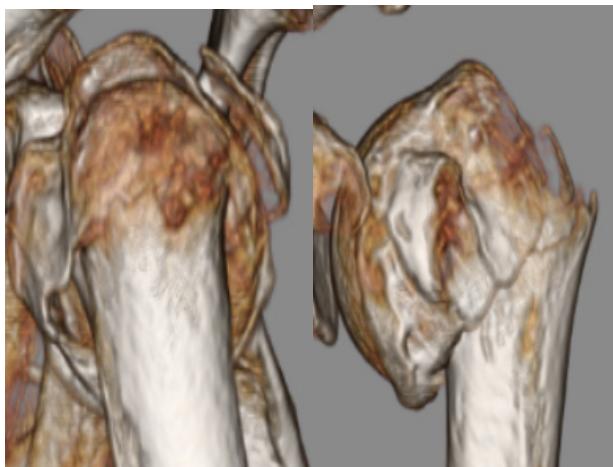
Two-part Varus fracture is shown on conventional radiography (Figure 5). Moreover, Greater tuberosity split is shown on 3DCT (Figures 6a-c).



Figure 5: Two-part varus fracture is shown on conventional radiography.



Figure 6A: Greater tuberosity split is shown on axial view.



Figures 6B, C: Greater tuberosity split is shown clearly on 3DCT.

Following reduction and this type of fracture can be treated by the new retrograde intramedullary nailing (Figures 7a, b).



Figure 7A: Postoperative radiography on AP view.



Figure 7B: Postoperative radiography on scapula Y view.

Discussion

Antegrade intramedullary nailing, which is currently the main stream, requires cutting the rotator cuff, and the application of a locking plate requires certain invasion even if using MIPO technique. The maximum benefits of this retrograde intramedullary nailing are to avoid the damage of rotator cuff. Although this clinical study is small group, the clinical results are excellent. We consider that this new implant would be a possibility to be one of the options of the treatments for proximal humeral fractures.

Conclusion

This new retrograde nailing for the proximal humeral fractures provides sufficient results.