

B-Ultrasound Surface Positioning Upper Arm Nerve Combined with MIPPO Technique for Upper Humeral Shaft Fracture

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Purpose: This was a comparison of the effects of B-ultrasound surface positioning upper arm nerve combined with MIPPO (minimally invasive percutaneous plate osteosynthesis) technique and simple MIPPO technique in the treatment of upper humeral shaft fracture.

Methods: We retrospectively analyzed 105 patients with upper humeral shaft fracture. There were 52 cases of B-ultrasound surface positioning upper arm nerve combined with MIPPO technique group, and 53 cases of simple MIPPO technique. The operation time, intraoperative blood loss, fracture healing time, and complication rate were recorded and compared between the 2 groups. At the last follow-up, the Neer shoulder function score (MEPS [Mayo Elbow Performance Score]) was used to assess joint function. There was no significant difference in preoperative general data (age, gender, fracture classification) between the 2 groups ($P > 0.05$), which were comparable.

Results: 105 patients were followed for 10 to 18 months (mean 12 months). B-ultrasound surface positioning upper arm nerve combined with MIPPO technique group surgery time (62.8 ± 8.6 min), intraoperative blood loss (107.4 ± 5.6 mL), and complication rate (7.8%) were compared with simple MIPPO technique group surgery. There was significant difference in time (96.8 ± 7.5 min), intraoperative blood loss (215.4 ± 7.2 mL), and complication rate (22.2%) ($P < 0.05$). Efficacy was evaluated according to MEPS score: B-ultrasound surface positioning upper arm nerve combined with MIPPO technique group: excellent in 47 cases, good in 2 cases, fair in 1 case, poor in 2 cases; excellent and good rate was 94.2%. Simple MIPPO technique group: excellent in 41 cases, good in 2 cases, fair in 4 cases, poor in 6 cases; the excellent and good rate was 77.4%. The excellent rate of B-ultrasound upper arm nerve combined with simple MIPPO technique group was significantly higher than that of MIPPO-only group ($P < 0.05$).

Conclusion: For upper humeral fractures, the B-ultrasound surface positioning upper arm nerve combined with MIPPO technique group is significantly better than the simple MIPPO technique group in operation time, surgical bleeding volume, and complication rate. The patient can obtain good clinical results and is worthy of promotion.

