BONE GRAFT USE IN INTERNAL FIXATION OF PROXIMAL AND DIAPHYSEAL HUMERAL FRACTURES AND PSEUDOARTHROSIS

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Introduction: This study explores the use of bone graft in combination with internal fixation for treating fractures and pseudarthrosis of the proximal and diaphyseal humerus.

Materials and Methods: We retrospectively analyzed data collected for proximal and diaphyseal humerus fractures between 2020-2024. The analysis focused on cases treated with open reduction and internal fixation (ORIF), with or without bone graft utilization.

Results: Out of 584 cases analyzed, 65 (8.9%) were diagnosed with pseudarthrosis. In 12 cases post ORIF treatment with implant stability of diaphyseal segment were applied mononuclear stem cell apheresis (1.6%), and ORIF with T-plates or LCP for Neer 3-4 part fractures in 5 cases (0.6%) and humeral diaphysis fractures in 13 cases (1.8%). Bone graft(alo-auto) was used in 35 (4.8%) pseudarthrosis cases. 349 cases (47.6%) were extremity superior humerus fractures treated with ORIF using T-plates or LCP for Neer 2-parts fractures in 92 cases (12.5%), Neer 3-4 parts fractures in 229 cases (31.2%), and Neer 3-4 parts fractures with diaphyseal extension in 22 cases (3.0%). Bone graft was used in 6 (0.8%) of these cases. 170 cases (23.2%) were diaphysis humerus fractures treated with ORIF using T-plates or LCP in the proximal 1/3 in 5 cases (0.7%), the middle 1/3 in 157 cases (21.4%), and the distal 1/3 in 7 cases (1%). Bone graft was used in 1 (0.1%) of these cases.

Conclusions: The use of bone graft is frequent in the treatment of proximal and diaphyseal humerus pseudarthrosis. Internal fixation with plates remains an essential method in managing these fracture types. This has implications for future research in bone healing and fracture management.

Keywords: humeral fracture, pseudarthrosis, bone graft, internal fixation.