Free bone graft transfer versus Latarjet procedure for treatment of anterior shoulder instability with glenoid bone loss: 5-year follow-up of a prospective randomized trial

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Introduction: Free bone graft transfers (FBGT) and the Latarjet procedure are two competing techniques for stabilization of anterior shoulder instability with glenoid bone loss. In current literature, there are no mid- to long-term prospective randomized comparative studies of both surgical methods.

Material and Methods: This prospective, bi-center, randomized study enrolled 60 patients with anterior shoulder instability and more than 15% glenoid bone loss. The study cohort was randomly assigned in a 1:1 ratio to either an open FBGT surgery (J-bone graft technique) or the open Latarjet procedure. Clinical data, including Western Ontario Shoulder Index, Rowe Score, Subjective Shoulder Value, Visual Analog Scale, satisfaction with the operation, sports and work limitations, range of motion and strength, as well as the extent of instability arthropathy were collected preoperatively and at 6, 12, 24, and 60 months postoperatively. The 5-year follow-up rate was 63.3% for the J-bone graft group and 66.6% for the Latarjet group.

Results: The primary outcome parameter (WOSI) showed no significant difference between the two groups at the 5-year follow-up (J-Span 221 ±186, Latarjet 201±239; $p=0.529$) or at other time points. The secondary clinical scores also showed no significant differences ($p>0.05$) between the two groups. Comparable results were observed regarding strength and motion, except for significantly better internal rotation in the FBGT group at all time points, including the 5-year follow-up ($p=0.004$). A single recurrence of instability event was observed in 3 patients in the ICBGT group and in 1 patient in the Latarjet group ($p=0.342$). Postoperative hypesthesia on the iliac crest donor site were reported in 3.4% of the FBGT patients. The degree of instability arthropathy showed a comparable increase in both cohorts ($p>0.05$).

Discussion: Neither one of the two surgical methods showed clinical superiority in the 5-year follow-up, except for statistically better internal rotation in the FBGT group. Both cohorts showed comparable success in joint stabilization, but neither could prevent the progression of instability arthropathy.

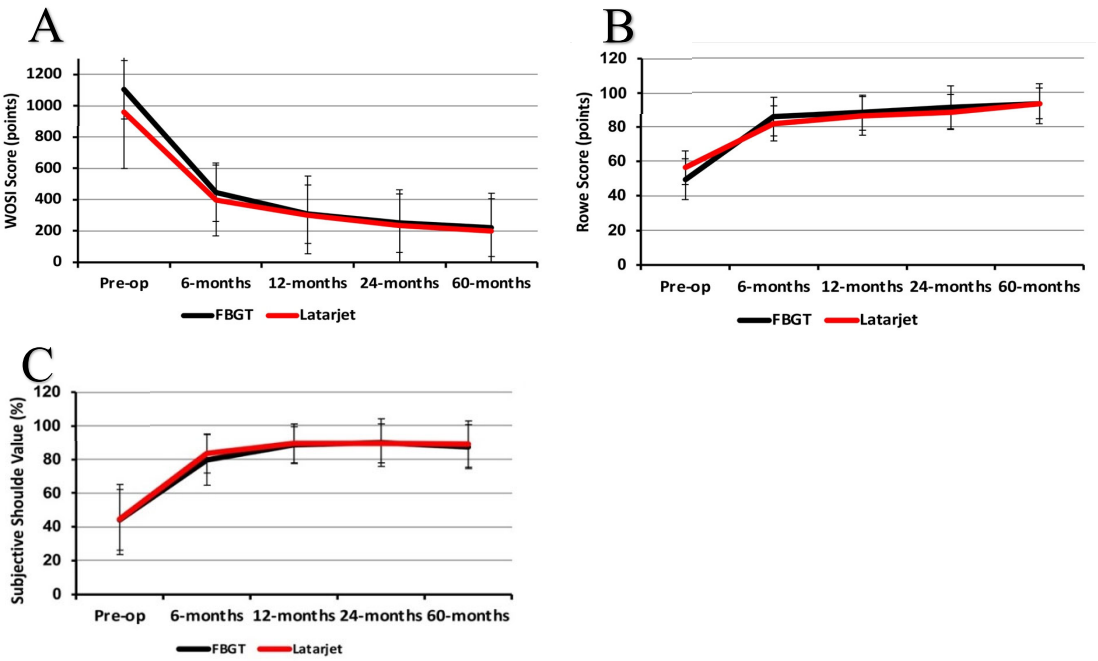

Figure 1: Longitudinal results of Western Ontario Shoulder Index (WOSI) (A), Rowe Score (B) and Subjective Shoulder Value (C) at the different time points for patients treated with free bone graft transfer (FBGT) (black line) or Latarjet procedure (red line)

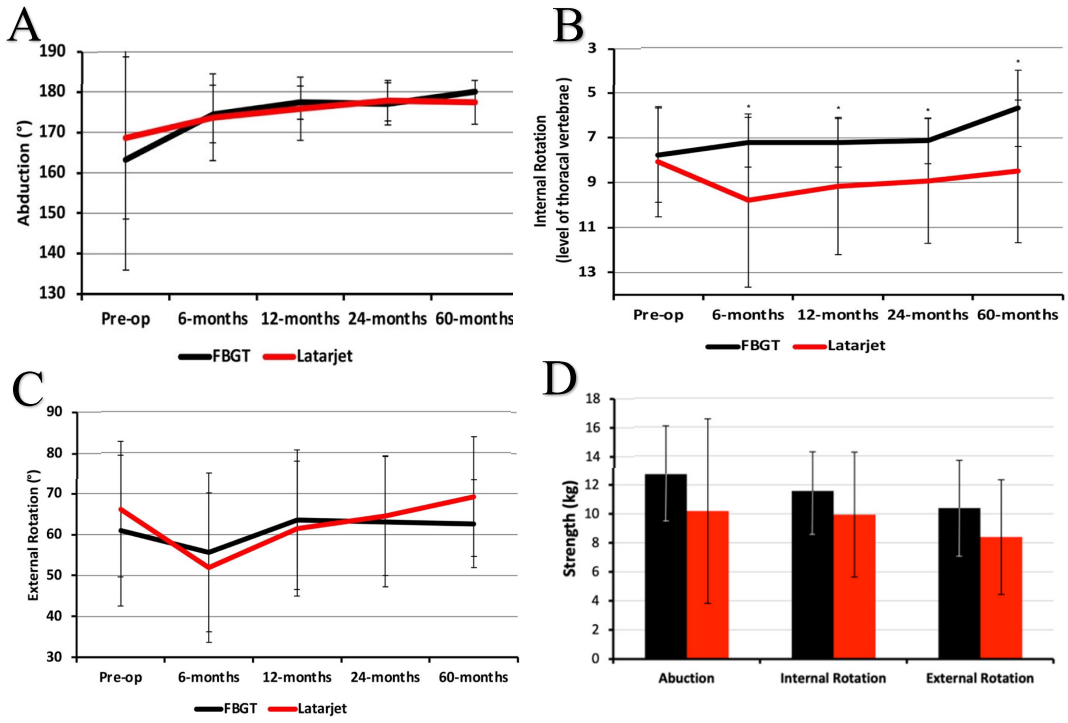

Figure 2: Longitudinal comparison of range of motion: abduction (A), external rotation (B), internal rotation (C) and high external and internal rotation (D) at the different time points for patients treated with free bone graft transfer (FBGT) or Latarjet procedure.