✚ Evidence in focus

Publication summary: Kazum E, et al. *Arch Orthop Trauma Surg* (2019)*

Smith+Nephew

Biomechanically comparable performance of Double ENDOBUTTON◊ Fixation Device and two cannulated screws for coracoid fixation in the Bristow Latarjet procedure

✚ Plus points

One Double ENDOBUTTON or two cannulated screws

Biomechanically **comparable** performance of button and screw fixation

Fewer hardware related graft failures with button versus screw fixation

Overview

- Independent biomechanical study comparing coracoid fixation methods in the Bristow Latarjet procedure.
- Nine cadaveric human scapulae with the conjoined tendon attached to the coracoid process were fixated with either:
  - Two cannulated screws (n=4; DePuy Synthes, Raynham, MA, USA) tightened with a two-finger technique
  - One Double ENDOBUTTON (n=5), compressed to 100N
- Constructs were cyclically preconditioned before a single pull-to-failure test at a normalised displacement rate of 400% of the measured gauge length per minute:
  - Load-to-failure, average stiffness and average stress at maximal load were calculated
  - Failure mechanism and site were recorded

Results

- No significant difference in the biomechanical properties of screw and Double ENDOBUTTON fixation (Figures 1 and 2)
- All screw-fixated constructs (4/4) failed due to graft failure through the proximal or distal drill hole
- Failure of Double ENDOBUTTON constructs was due to glenoid bone fracture (4/5) or failure at the clamp-muscle interface (1/5)

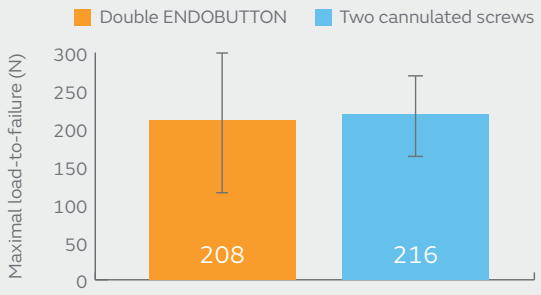

Figure 1. Average maximal load to failure (± standard deviation)

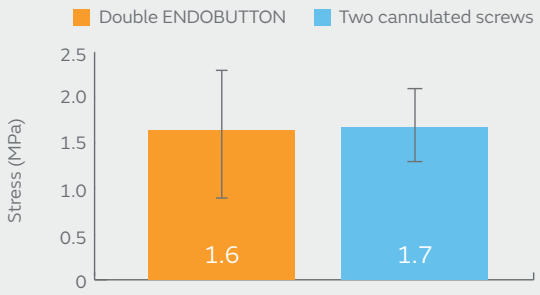

Figure 2. Average stress at maximal load (± standard deviation)

Conclusions

Coracoid fixation with one Double ENDOBUTTON in the Bristow Latarjet procedure is biomechanically comparable to fixation with two cannulated screws and presents a lower risk of graft fracture.†

Citation

*Kazum E, Chechik O, Pritsch T, et al. Biomechanical evaluation of suture buttons versus cortical screws in the Latarjet–Bristow procedure: a fresh-frozen cadavers study. *Arch Orthop Trauma Surg*. 2019;139(12):1779-1783.
Available at: Archives of Orthopaedic and Trauma Surgery

† Study results should be extrapolated carefully due to the limitations of the study design, including ex-vivo only, small sample size and no measurement of coracoid dislocation after cyclic loading.

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