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Arthroscopic bone graft procedure combined with arthroscopic subscapularis augmentation (ASA) for recurrent anterior instability with glenoid bone defect: a cadaver study

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Abstract

Background: Glenoid bone loss and capsular deficiency represent critical points of arthroscopic Bankart repair failures. The purpose of this study was to evaluate an all-arthroscopic bone block procedure associated with arthroscopic subscapularis augmentation (ASA) for treating gleno-humeral instability with glenoid bone loss (GBL) and anterior capsulo-labral deficiency. Our hypothesis was that these two procedures could be combined arthroscopically. The feasibility of this technique and its reproducibility, and potential neurovascular complications were evaluated.

Methods: A tricortical bone graft was harvested from the cadaveric clavicle, and in one case a Xenograft was used. An anterior-inferior GBL of about 25% was created. Two glenoid tunnels were set up from the posterior to the anterior side using a dedicated bone block guide, and four buttons were used to fix the graft to the glenoid. The subscapularis tenodesis was performed using a suture tape anchor. Afterwards, the shoulder was dissected to study the relationship between all portals and nerves. The size of the bone block, its position on the glenoid and the relationship with the subscapularis tendon were investigated.

Results: In all seven specimens (five left and two right shoulders), the bone block was flush with the cartilage and fixed to the anterior-inferior part of the glenoid. No lesions of the surrounding neurovascular structures were observed. No interference was found between the two bone block tunnels and the anchor tunnel used for the tenodesis.

Conclusions: This study demonstrated the feasibility and reproducibility of this combined arthroscopic technique (bone block associated with ASA) in the treatment of anterior shoulder instability associated with anterior bone loss and anterior capsular deficiency.

Keywords: Recurrent shoulder instability, Cadaver study, Arthroscopic bone block procedure, ASA procedure, ASA-BB, Glenoid bone loss, Contact sports

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