Arthroscopic capsulolabral repair with rotator interval closure for incompetent rotator interval - Evaluation of rotator interval competence using preoperative stress radiography –

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INTRODUCTION:
The purpose is to evaluate rotator interval (RI) competence using preoperative stress radiographs and to analyze clinical outcomes of arthroscopic capsulolabral repair (ACR) with RI closure (RIC).
METHODS: Between 2010 and 2023, a total of 85 patients underwent ACR with at least 1 year of follow-up and performing stress radiographs, CT arthrography, and isokinetic muscle strength testing were analyzed retrospectively. The difference in acromiohumeral distance (ΔAHD) between neutral rotation and external rotation (ER) shoulder position on stress radiographs was measured. Incompetent RI was defined as AHD not decreasing in ER position (ΔAHD ≤ 0). Patients were divided into three groups: group A (ACR+RIC for incompetent RI [n = 41]); group B (ACR alone despite incompetent RI [n = 18]); and group C (ACR with competent RI [n = 26)]). Clinical outcomes were assessed preoperatively and at 1 year after surgery.
RESULTS: Preoperatively, demographics and clinical characteristics were not different between groups (all $P > 0.05$). At 1 year after surgery, RI became competent by RIC in group A in stress radiographs. pVAS, WOSI and ROMs were not different between groups (all $P > 0.05$). Notably, group A showed no ER loss after surgery due to RIC ($P = 0.513$). Although pre- and post-operative isokinetic muscle strengths were not different between groups (all $P > 0.05$), group B presented the worst peak torque deficit of ER after surgery ($P = 0.280$). There was no recurrent dislocation in all groups, but postoperative positive apprehension sign was more prevalent in group B (50.0% [9/18]) compared with group A (17.9% [7/41]) and C (34.6% [9/26]) ($P = 0.046$)
DISCUSSION AND CONCLUSION: Preoperative stress radiography was helpful to determine the RI incompetence in patients with anterior instability. Arthroscopic RIC for incompetent RI might be the effective procedure to reduce postoperative apprehension sign without a postoperative loss of ER.