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Clinical Impact of a novel Greater tuberosity–Coracoid base–Scapular spine (GCS) patch augmentation technique after Arthroscopic Rotator Cuff Repair: A Retrospective Pilot Study

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Introduction and Background

Rotator cuff repair for large or chronic tears is associated with high re-tear rates and persistent postoperative pain. Although patch augmentation has been introduced to show good clinical outcomes, conventional techniques are often limited by possible incomplete coverage of the medial anchor area, lack of direct evidence for healing at the patch–cuff interface, and insufficient reinforcement of the medial repair site.To evaluate the clinical efficacy and safety of a novel **greater tuberosity–coracoid base–scapular spine (GCS) patch** augmentation technique, which adds fixation at the coracoid base and scapular spine, compared with conventional patch augmentation.

Material and Method

In this retrospective pilot study, 48 patients who underwent arthroscopic rotator cuff repair between January 2023 and December 2024 were analyzed (Conventional: 25; GCS: 23). Pain and functional outcomes were assessed using VAS, ASES, and Constant scores at baseline, 3, 6, and 12 months. Re-tear was defined as Sugaya classification IV or V on MRI. Statistical analyses included mixed-effects ANOVA, Fisher's exact test, and multivariate regression adjusting for age and tear size.

Results

Both groups showed significant improvements in all clinical scores over time. At 12 months, mean VAS decreased from 5.6 to 3.1 (Conventional) and from 6.1 to 2.5 (GCS). ASES and Constant scores improved similarly. Re-tear occurred in five patients from the GCS patch group and three patients from the conventional patch group, with no significant difference (re-tear definition per Sugaya).

Conclusions

GCS patch augmentation demonstrated comparable outcomes to conventional techniques, with a trend toward greater pain relief at follow-up. The addition of coracoid and scapular spine fixation appears safe and biomechanically promising, supporting further investigation in larger trials.

Figure & Table 1.

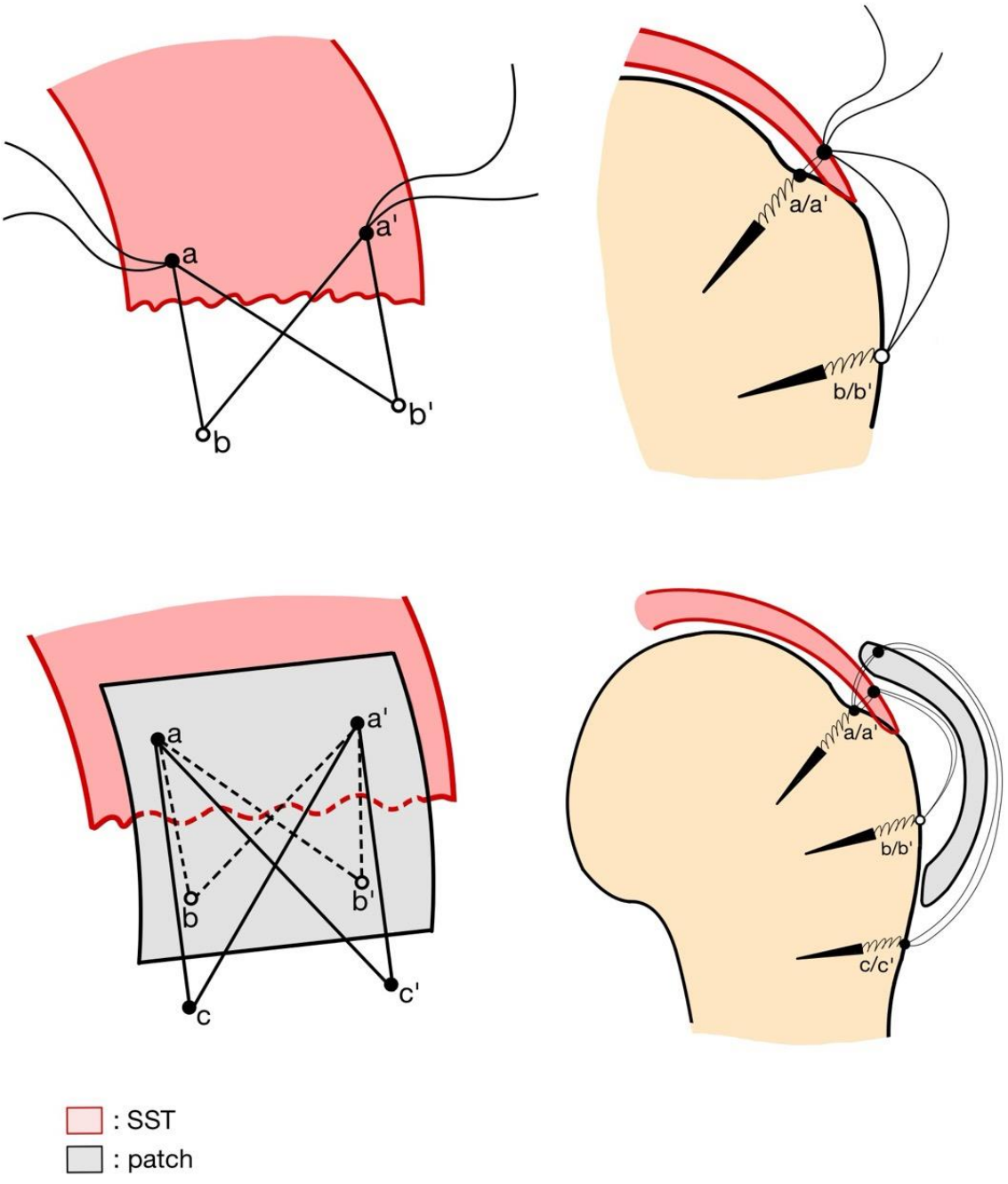

Figure & Table 2.