Long-term effects on subscapularis integrity and function following arthroscopic shoulder stabilization with a low anteroinferior (5:30 o'clock) portal.

The use of a low anteroinferior (5:30 o'clock) portal for arthroscopic shoulder stabilization allows an anatomical refixation of the capsulolabral complex. This anteroinferior portal, however, penetrates the inferior subscapularis (SSC), which is criticized. Therefore, the aim of the study was to evaluate the functional and structural properties of the SSC in patients with anteroinferior shoulder stabilization. The hypothesis was that it does not harm the SSC by demonstrating full muscular function and imaging-based normal structure at a long-term follow-up.

Twenty patients were examined (14 males and six females; mean age 37.0 years) retrospectively after a mean follow-up of 9.6 years. At final follow-up, clinical examination and clinical scores (ASES, Constant-Murley, WOSI, and Rowe score) were documented. Additionally, SSC strength was evaluated with a custom-made electronic force measurement plate. All patients underwent bilateral magnetic resonance imaging to assess structural integrity and fatty infiltration (grading according to Fuchs et al.) of the SSC. Furthermore, vertical and transversal (superior and inferior) diameters of the muscle and the muscle area in a parasagittal plane were measured. Clinical scores revealed good-to-excellent long-term
results (ASES 92 points, Constant-Murley 82 points, WOSI 85 %, and Rowe 84 points). Force measurement in comparison with the contralateral side showed no significant (p > 0.05) differences for the 'belly-press' test (ipsilateral 102 N vs. contralateral 101 N) and the 'lift-off' test (73 vs. 69 N). There were also no significant differences between the mean diameters and the areas of the SSC muscle belly (vertical diameter ipsilateral 92 mm vs. contralateral 94 mm; superior transversal 28 vs. 29 mm; inferior transversal 34 vs. 34 mm; area 2336 vs. 2526 mm²). Arthroscopic labral repair with a low anteroinferior portal demonstrates no signs of structural and functional impairment of the SSC after 9.6 year follow-up. For clinical relevance, the lower part of the SSC can be penetrated for an optimal anchor placement in shoulder instabilities or Bankart fractures without concerns of a negative long-term effect on the SSC. Case series, Level IV.

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