Quantitative Assessment of the Muscles of the Rotator Cuff after the open and arthroscopic Bankart repair for Anterior Dislocation of the Shoulder

Noriaki Nakamichi, Noboru Matsumura, Shohei Shiono, Kazuki Sato, Toshiyasu Nakamura, Yoshiaki Toyama, Hiroyasu Ikegami
Orthopaedic Surgery, Keio Univ., Tokyo, Japan
noriaki@ka2.so-net.ne.jp

Introduction: There are numerous reports of success with an open and arthroscopic Bankart repair, using low recurrence of dislocation. Few studies indicate that subscapularis (SSC) tenotomy may result in postoperative SSC insufficiency. The purpose of this research was to measure the subscapularis muscle area and signal intensity by magnetic resonance imaging after the open and arthroscopic Bankart repair.

Materials and Methods: A total of 36 patients were observed prospectively for a mean of 33 months (range 17-51 months). There were 34 men and 2 women. The mean patient age at the surgery was 22.8 years old (range, 18-36 years old). All patients were right-handed. 14 patients had injured their shoulder of their dominant extremity. Internal rotation (IR) at 45 degrees abduction was at 60 degrees per second. The peak torques of both extremities was measured at the day before the operation, 6 months and 12 months after the operation. We calculated the ratio of the affected side to the unaffected side.

Results: The peak torques of ER and IR of the pre-operation were 13.5% and 18.5% respectively lower than those of the unaffected side. The peak torques of ER and IR that were measured at 6 months after the operation were 27.6% and 21.1% respectively lower than those of the unaffected side. The peak torques of ER and IR that were measured at 12 months after the operation were 18.4% and 0.2% respectively lower than those of the unaffected side.

Discussion: The area at 12 months after the open repair was not significantly different from the preoperative area. However, the signal intensity at 12 months after the open repair was significantly higher than that in the preoperative signal intensity. The open Bankart procedure using an L-shaped tenotomy approach did not decrease SSC muscle strength and volume. This procedure approach may lead to the deterioration of the subscapularis muscle.