Rupture of the subscapularis tendon, especially from isolated tears, is a rare finding that was first described by Hauser in 1954.1 This special pathology, its epidemiology, and the clinical and radiological findings were evaluated by Gerber and Krushell in 1991.2 As with many pathologies, it appears to be more and more common as soon as it becomes well known. Lift off and belly press tests should now be part of all physical exams of the shoulder as soon as a rotator cuff tear is suspected. Subscapularis tear may be isolated or associated with posterior superior cuff tear, but symptoms, clinical signs, and natural history are very different. The treatment of subscapularis lesions has been neglected despite studies with satisfying results with open subscapularis repair.3-5

Arthroscopic treatment of rotator cuff lesions has developed during the last two decades and has become a successful approach even for large tears. But despite rapid progress of arthroscopic rotator cuff repair techniques, the subscapularis tendon seemed inaccessible until recently. In 2002, Burkhart and Tehrany6 reported encouraging preliminary results in 25 cases with arthroscopic repair of subscapularis tears. The proposed technique demonstrated the feasibility of arthroscopic subscapularis repair, but the short follow-up of the patients and the heterogeneity of the series did not permit valid conclusions about the success of arthroscopic subscapularis repair. The only other author who reported on isolated arthroscopic subscapularis repair is Bennet; his series included eight cases, including two partial tears but no extended tear, and he proposed a new classification.7

We started all-arthroscopic repairs of subscapularis tears in 1995, but our series starts in 2000. We present the surgical technique and review of clinical results.

13.1. Anatomy and Endoscopy

The subscapularis is a large muscle that contributes 50% of the strength of the rotator cuff and is attached to the surface of the scapula medially. Its humeral attachment at the lesser tuberosity is made up of two parts
(Figure 13.1): the superior two third is a big, strong tendon and the inferior third is a weak, direct attachment of the muscle. The surface of insertion of the lesser tuberosity has a large footprint (3 × 2 cm). Its anterior limit is the bicipital groove, and the subscapularis superficial fibers are connected to the facia of the sulcus groove as the end of the superior glenohumeral (SGHL) and coracohumeral (CHL) ligaments. This fibrous area is considered as the anterior restraint of the long head of the biceps (LHB) at its entrance in the groove, thereby preventing subluxation of the LHB, especially during external rotation.8

The arthroscope allows one to visualize the intra-articular side, which is the superior third only, as the remaining two thirds is covered by the capsule. The upper part of the LHB pulley is formed by the conjoint attachment of the SGHL and CHL back to the subscapularis tendon attachment. Stability of the biceps is assessed by external rotation of the humeral head. The intra-articular subscapularis tendon has a long sliding distance (3 cm) and passes in the concave part of the glenoid rim when the humeral head is internally rotated. The rotator interval goes from the superior part of the subscapularis tendon to the CHL. These weak aponeurotic fibers are used for easy access of instruments to the joint for Bankart repair and for the intra-articular part of the subscapularis tendon repair. A probe passed through this portal can go under the tendon and shows the deep fibers, while some internal rotation and flexion of the humerus decreases the tension of the muscle in order to have good visualization.