

# **Evidence Discussion (CMM-315: Shoulder Surgery-Arthroscopic and Open Procedures)**

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Risks of arthroscopic and open procedures can be broadly divided into three categories: surgical, medical and anesthesia. Surgical, medical, and anesthesia risks rates have been shown to be 7.9%, 2.2%, and 1% respectively. The most common surgical complications include arthrofibrosis, persistent pain, infection, nerve palsy, and vascular injury. Medical complications include respiratory failure/hypoxia, VTE, pneumonia, CVA and death. Anesthetic complications are predominantly nerve block-related. Surgical complication rates vary depending upon procedure with rotator cuff and biceps tenodesis having the highest rate (10.3%), debridement (7%) and labral repair the lowest rate (5.4%).[1] The highest risk factors for complications of rotator cuff surgery within 30 days of surgery have been shown to include age >65, male gender, elevated BMI, ASA class >2, history of chronic obstructive pulmonary disease, hypertension, dyspnea, steroid use, and operative time >90 minute, highlighting the need for judicious surgical patient selection. [2]

Successful outcomes after both open and arthroscopic distal clavicle excision occur in a high percentage of patients. However, treatment failures due to under-resection, over-resection leading to joint instability, postoperative stiffness, heterotopic ossification, untreated concomitant shoulder pathology, and postoperative post-operative infection have been reported. [3-4] A thorough history, AC joint examination and radiologic workup with suspicion for cervical, biceps or rotator cuff pathology can reduce the risk of poor surgical outcomes. [3, 5]

In the absence of obvious mechanical compression of the rotator cuff by superior structures, conservative treatment of subacromial impingement is favored in literature with multiple authors reporting no statistically significant differences in outcomes between non-operative and subacromial decompressions. [6-10]

Rotator cuff surgeries may be approached via the open, mini-open, and all arthroscopic methods. The risks of rotator cuff repair regardless of method include recurrent tear or failure to heal the repair which is reported to be as low as 5% to as high as 49.3% when looking at tear type such as large and massive tears in those over 70 years of age [20]. Other risks are much lower with stiffness similar to other shoulder surgeries and a small percentage needing reoperation. Less than 1% have infection, VTE, implant loosening, or axillary nerve injury. [21]

Risks of surgery for instability include axillary nerve injury, infection, chondrolysis, osteoarthritis, post-op stiffness, and recurrent instability potentially requiring remplissage technique. [11-12]

Tenotomy or tenodesis of the long head of biceps tendon (LHBT) are effective options for relieving pain arising from the LHBT in the setting of reparable and selected irreparable rotator cuff tears, with tenotomy having a lower complication rate. [13-14]

Operative interventions for adhesive capsulitis include manipulation under anesthesia

(MUA), and open or arthroscopic capsulotomy. Risks associated with these procedures include fracture, soft tissue injury along with other surgical and anesthetic risks. No present treatment protocols are universally effective. From a risk-benefit standpoint, operative intervention is typically reserved for recalcitrant cases. [15-18].

In summary, given the possibility of significant post-operative complications, proper patient selection is important to avoid unnecessary risk exposure and added costs of surgery and recovery. Correlation of the history, physical exam, and radiographic findings improve diagnostic accuracy while pinpointing sources of confounding symptomatology. In the absence of indications for urgent surgical intervention, a trial of conservative treatment is warranted to reduce the risks of poor outcomes and added costs.[19]

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