

AC Joint Osteoarthritis

title: "AC Joint Osteoarthritis" slug: ac-joint-osteoarthritis region: shoulder audience: patient mesh_terms: ["Acromioclavicular Joint", "Osteoarthritis", "Clavicle", "Joint Dislocations", "Ligaments, Articular", "Shoulder Pain", "Acromion", "Arthroplasty"] article_count: 271 model_used: Qwen3.6-35B-A3B-Q8_0.gguf generated_at: '2026-06-13T10:38:05+00:00' key_articles: - title: "Outcome of distal clavicle resection in patients with acromioclavicular joint osteoarthritis and full-thickness rotator cuff tear" ref_num: 1 evidence_tier: paper evidence_level: 2 doi: 10.1007/s00167-014-3114-2 year: 2014 - title: "Seven-year course of asymptomatic acromioclavicular osteoarthritis diagnosed by MRI" ref_num: 2 evidence_tier: paper evidence_level: 2 doi: 10.1016/j.jse.2019.04.004 year: 2019 - title: "Acromioclavicular joint arthritis is not an indication for routine distal clavicle excision in arthroscopic rotator cuff repair" ref_num: 3 evidence_tier: paper evidence_level: 2 doi: 10.1007/s00167-020-06098-y year: 2020 - title: "The Role of Arthroscopy in Revision of Failed Open Anterior Stabilization of the Shoulder" ref_num: 4 evidence_tier: paper evidence_level: 4 doi: 10.1016/j.arthro.2009.04.073 year: 2009 - title: "Factors Predicting the Outcome After Arthroscopically Assisted Stabilization of Acute High-Grade Acromioclavicular Joint Dislocations" ref_num: 5 evidence_tier: paper evidence_level: 3 doi: 10.1177/0363546519862850 year: 2019 - title: "Diagnostic value of a preoperative acromioclavicular injection for symptomatic acromioclavicular osteoarthritis: a retrospective study of cross-sectional midterm outcomes" ref_num: 6 evidence_tier: paper evidence_level: 4 doi: 10.5397/cise.2023.00073 year: 2024 - title: "Severe acromioclavicular joint osteoarthritis is associated with acromial stress fractures after reverse shoulder arthroplasty" ref_num: 7 evidence_tier: paper evidence_level: 3 doi: 10.1016/j.jseint.2021.11.008 year: 2022 - title: "Degenerative Joint Disease of the Acromioclavicular Joint" ref_num: 8 evidence_tier: paper evidence_level: 5 doi: 10.1177/0363546513485359 year: 2013 - title: "Limited distal clavicle excision of acromioclavicular joint osteoarthritis" ref_num: 9 evidence_tier: paper evidence_level: 4 doi: 10.1016/j.otsr.2016.01.008 year: 2016 - title: "Editorial Commentary: Why We Have To Respect The Anatomy In Acromioclavicular Joint Surgery And Why Clinical Shoulder Scores Might Not Give Us The Information We Need!" ref_num: 10 evidence_tier: paper evidence_level: 5 doi: 10.1016/j.arthro.2019.01.038 year: 2019 - title: "Improved identification of unstable acromioclavicular joint injuries in a clinical population using the acromial center line to dorsal clavicle radiographic measurement" ref_num: 12 evidence_tier: paper evidence_level: 4 doi: 10.1016/j.jse.2019.12.014 year: 2020 - title: "Isolated acromioclavicular osteoarthritis and steroid injection" ref_num: 13 evidence_tier: paper evidence_level: 4 doi: 10.5397/cise.2023.00311 year: 2023 - title: "Arthroscopically assisted reduction of acute acromioclavicular joint dislocation using a single double-button device: Medium-term clinical and radiological outcomes" ref_num: 14 evidence_tier: paper evidence_level: 4 doi: 10.1016/j.otsr.2017.11.001 year: 2018 - title: "Successful Conservative Therapy in

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Overview

- Asymptomatic AC-OA remained asymptomatic in 90% of patients over a 7-year period [2].
- Untreated ACJ osteoarthritis, whether symptomatic or not, encountered during arthroscopic rotator cuff repair is associated with a low percentage of failure [3].
- Radiographic ACJ osteoarthritis is common in patients undergoing reverse shoulder arthroplasty [7].
- Severe acromioclavicular joint osteoarthritis is associated with acromial stress fractures after reverse shoulder arthroplasty [7].
- Both open and arthroscopic resection arthroplasty techniques provide predictable pain relief for symptomatic AC osteoarthritis [8].
- Open and arthroscopic resection arthroplasty techniques have unique sets of potential complications that may be minimized with improved understanding of anatomy, biomechanics, and meticulous surgical technique [8].
- Limited distal clavicle excision reduced pain and improved shoulder function at midterm follow-up in patients with AC joint osteoarthritis resistant to conservative treatment [9].
- A distinction between symptomatic and asymptomatic radiographic AC OA is unnecessary as all patients were equally satisfied with the outcome of preoperative acromioclavicular injection [6].
- Further characterisation of patients in whom mild arthroscopic findings of OA of the AC joint are clinically significant and warrant resection is needed [1].
- Acromioclavicular joint arthritis is not an indication for routine distal clavicle excision in arthroscopic rotator cuff repair [3].

- Clinicians should consider overreduction of the AC joint because it may lead to favorable radiological results [5].
- The authors recommend anatomic reconstruction procedures for the treatment of chronic complete AC dislocations [21].

Anatomy & Pathophysiology

- Anatomic techniques that address both coracoclavicular ligaments and the AC capsule are recommended to restore horizontal and vertical stability while allowing physiological rotation [10].
- None of the reconstruction strategies completely restored the shoulder girdle to its preinjured state [26].
- Kinematic changes resulting from AC joint dislocation could be a potential source of pain and dysfunction in the shoulder [27].
- Scapular and clavicular kinematics were affected in AC separation models [28].
- The position of the hook portion of a clavicle hook plate can predispose anatomic structures to post-operative complications of subacromial impingement and bony erosion [29].
- Future research should focus on addressing horizontal and rotational instability to restore native physiological and biomechanical properties of the AC joint [35].
- Coracoclavicular reconstruction with augmentation of the acromioclavicular joint provides improved horizontal stability compared to isolated coracoclavicular reconstruction [41].
- Adding a fixation of the AC joint minimizes lateral tilting of the scapula and maintains a more anatomic reposition result over time [45].

Classification

- Asymptomatic acromioclavicular osteoarthritis diagnosed by MRI remained asymptomatic in 90% of patients over a 7-year period [2].
- Untreated acromioclavicular joint osteoarthritis, whether symptomatic or not, encountered during arthroscopic rotator cuff repair is associated with a low percentage of failure [3].
- Mild arthroscopic findings of acromioclavicular joint osteoarthritis may be clinically significant and warrant resection, but further characterization of such patients is needed [1].
- Severe acromioclavicular joint osteoarthritis is associated with acromial stress fractures after reverse shoulder arthroplasty [7].
- Radiographic acromioclavicular joint osteoarthritis is common in patients undergoing reverse shoulder arthroplasty [7].
- Osteolytic changes in the acromioclavicular joint seemed to be associated with incongruity of the joint but did not correlate with clinical results [11].

- The acromial center line to dorsal clavicle radiographic measurement and the use of the Alexander view provide a more realistic appreciation of true acromioclavicular joint displacement, especially in defining watershed cases (Rockwood types IIIA, IIB, and IV) [12].
- Evaluating the integrity of the capsuloligamentous structures stabilizing the acromioclavicular joint is reproducible and provides additional information on the severity of the injury [24].
- Injuries to the sternoclavicular joint are uncommon, and recognition and classification are critical to proper management to minimize long-term sequelae [16].
- Some persistent pain and osteoarthritis progression remain concerns in the arthroscopic revision of failed open anterior stabilization of the shoulder [4].

Clinical Presentation

- Asymptomatic AC-OA remained asymptomatic in 90% of patients over a 7-year period [2].
- Untreated ACJ osteoarthritis, whether symptomatic or not, encountered during arthroscopic rotator cuff repair is associated with a low percentage of failure [3].
- Preventive arthroscopic distal clavicle resection is not recommended in patients with radiological but asymptomatic ACJ arthritis [19].
- Further characterisation of patients in whom mild arthroscopic findings of OA of the AC joint are clinically significant and warrant resection is needed [1].
- A distinction between symptomatic and asymptomatic radiographic AC OA is unnecessary, as all patients were equally satisfied with the outcome of preoperative acromioclavicular injection [6].
- Osteolytic changes seemed to be associated with incongruity of the AC joint, but did not correlate with clinical results [11].
- Additional research is needed to determine the main cause of pain in isolated acromioclavicular osteoarthritis and to compare clinical outcomes of intra-articular versus extra-articular injections [13].
- Risk factors for subsequent distal clavicle excision after rotator cuff repair include tenderness to palpation at the AC joint, female sex, and surgery on the dominant side [18].
- Subsequent distal clavicle excision was performed in 40% of cases with a combination of the three identified risk factors (tenderness to palpation, female sex, dominant side surgery) [18].
- Recurrence of the initial dislocation after arthroscopically assisted reduction appears to be related to the onset of degenerative ACJ arthropathy [14].
- Some persistent pain and osteoarthritis progression remain concerns in the revision of failed open anterior stabilization of the shoulder [4].

Investigations

- Asymptomatic AC-OA remained asymptomatic in 90% of patients over a 7-year period [2].

- Untreated ACJ osteoarthritis, whether symptomatic or not, encountered during arthroscopic rotator cuff repair is associated with a low percentage of failure [3].
- Preventive arthroscopic distal clavicle resection (DCR) is not recommended in patients with radiological but asymptomatic ACJ arthritis [19].
- Further characterization is needed to determine which patients with mild arthroscopic findings of AC joint OA are clinically significant and warrant resection [1].
- Radiographic ACJ osteoarthritis is common in patients undergoing reverse shoulder arthroplasty (RSA) [7].
- Severe ACJ osteoarthritis is associated with acromial stress fractures after reverse shoulder arthroplasty [7].
- Osteolytic changes in the AC joint seemed to be associated with incongruity but did not correlate with clinical results [11].
- Patients with edema on MRI were more likely to present with pain than patients without edema [43].
- Subchondral bone edema on histologic examination was more frequent in patients with pain [43].
- The outcomes of a preoperative AC injection suggest that a distinction between symptomatic and asymptomatic radiographic AC OA is unnecessary, as all patients were equally satisfied with the outcome [6].
- Additional research is needed to determine the main cause of pain and to compare clinical outcomes of intra-articular versus extra-articular steroid injections for isolated AC osteoarthritis [13].
- Risk factors for subsequent distal clavicle excision after rotator cuff repair include tenderness to palpation at the AC joint, female sex, and surgery on the dominant side [18].
- Subsequent distal clavicle excision was performed in 40% of cases with a combination of the three identified risk factors (tenderness, female sex, dominant side) [18].
- The arthroscopic approach offers an advantage in diagnosing and treating occult intra-articular pathology during distal clavicle excision [20].
- Some persistent pain and osteoarthritis progression remain concerns in the revision of failed open anterior stabilization of the shoulder using arthroscopy [4].
- Evaluating the integrity of the capsuloligamentous structures stabilizing the AC joint is reproducible and provides additional information on injury severity, which may influence treatment decisions [24].
- The AC-DC measurement and use of the Alexander view provide a more realistic appreciation of true AC joint displacement, particularly in defining watershed cases (IIIA/IIB/IV) [12].
- Radiological failures were observed in 41% of cases in a prospective multicenter study of arthroscopic acute AC dislocation fixation [50].

Treatment

NON-OPERATIVE MANAGEMENT

- Conservative therapy is a valid initial treatment option for Rockwood Type V acromioclavicular dislocations [15].

- Non-operative reduction and stabilization is a valuable treatment option for acute high-grade acromioclavicular joint separations [33].
- Nonoperative treatment is helpful for most patients with painful conditions of the acromioclavicular joint, although those with osteolysis may need to modify their activities [44].
- Conservative and surgical treatments are both effective in the management of acromioclavicular joint osteoarthritis [17].
- Acromioclavicular injections offer a 1-year success rate of 47% in patients with acromioclavicular osteoarthritis [22].
- Additional research is needed to determine the main cause of pain and to compare clinical outcomes of intra-articular versus extra-articular steroid injections for isolated acromioclavicular osteoarthritis [13].

OPERATIVE MANAGEMENT

- Both open and arthroscopic resection arthroplasty techniques provide predictable pain relief for symptomatic acromioclavicular osteoarthritis [8].
- Limited distal clavicle excision reduces pain and improves shoulder function at midterm follow-up in patients with acromioclavicular joint osteoarthritis resistant to conservative treatment [9].
- Untreated acromioclavicular joint osteoarthritis, whether symptomatic or not, encountered during arthroscopic rotator cuff repair is associated with a low percentage of failure [3].
- Further characterization is needed to identify patients in whom mild arthroscopic findings of acromioclavicular joint osteoarthritis are clinically significant and warrant resection [1].
- Conversion to anatomic coracoclavicular ligament reconstruction shows similar clinical outcomes compared to successful non-operative treatment in chronic primary type III to V acromioclavicular joint injuries at a minimum 5-year follow-up [49].
- The authors recommend anatomic reconstruction procedures for the treatment of chronic complete acromioclavicular dislocations [21].
- Osteoarthritis is associated with poorer final clinical outcomes after rotator cuff repair, and an unhealed or re-torn cuff increases the risk of osteoarthritis [23].

DIAGNOSTIC CONSIDERATIONS

- A distinction between symptomatic and asymptomatic radiographic acromioclavicular osteoarthritis appears unnecessary, as all patients were equally satisfied with the outcome of preoperative acromioclavicular injection [6].
- Asymptomatic acromioclavicular osteoarthritis diagnosed by MRI remained asymptomatic in 90% of patients over a 7-year course [2].
- Some persistent pain and osteoarthritis progression remain concerns following arthroscopy in the revision of failed open anterior stabilization of the shoulder [4].

Complications

- Asymptomatic AC-OA remained asymptomatic in 90% of patients over a 7-year period [2].
- Untreated ACJ osteoarthritis, whether symptomatic or not, encountered during arthroscopic rotator cuff repair is associated with a low percentage of failure [3].
- Osteoarthritis is associated with poorer final clinical outcomes after rotator cuff repair [23].
- An unhealed or re-torn rotator cuff increases the risk of developing osteoarthritis [23].
- Severe AC joint osteoarthritis is associated with acromial stress fractures after reverse shoulder arthroplasty [7].
- Radiographic ACJ osteoarthritis is common in patients undergoing reverse shoulder arthroplasty [7].
- Some persistent pain and osteoarthritis progression remain concerns following arthroscopy in revision of failed open anterior stabilization of the shoulder [4].
- Recurrence of the initial dislocation after arthroscopically assisted reduction of acute AC joint dislocation appears to be related to the onset of degenerative ACJ arthropathy [14].
- Treatment of acute grade III and IV AC dislocations by synthetic ligament reconstruction carries a risk of significant early osteolysis [25].
- Open and arthroscopic AC joint reconstruction techniques have no differences in loss of reduction, complication rate, or revision rate [38].
- Both open and arthroscopic resection arthroplasty techniques provide predictable pain relief for symptomatic AC osteoarthritis but each has a unique set of potential complications [8].

Recovery

- Asymptomatic acromioclavicular osteoarthritis diagnosed by MRI remained asymptomatic in 90% of patients over a 7-year period [2].
- Untreated acromioclavicular joint osteoarthritis, whether symptomatic or not, encountered during arthroscopic rotator cuff repair is associated with a low percentage of failure [3].
- Limited distal clavicle excision for acromioclavicular joint osteoarthritis resistant to conservative treatment reduced pain and improved shoulder function at midterm follow-up [9].
- Acromioclavicular injections offer a 1-year success rate of 47% in patients with acromioclavicular osteoarthritis [22].
- A preoperative acromioclavicular injection study suggested that distinguishing between symptomatic and asymptomatic radiographic acromioclavicular osteoarthritis is unnecessary, as all patients were equally satisfied with the outcome [6].
- Osteolytic changes in the acromioclavicular joint seemed to be associated with incongruity but did not correlate with clinical results [11].

- Recurrence of initial acromioclavicular joint dislocation appears to be related to the onset of degenerative acromioclavicular joint arthropathy [14].
- Treatment of acute grade III and IV acromioclavicular dislocations using synthetic ligament reconstruction gave satisfactory results in terms of recovery of strength, but evolution is not risk-free due to the onset of significant early osteolysis [25].
- Arthroscopic coracoclavicular ligament reconstruction with double-bundle soft tissue allograft for chronic type V acromioclavicular dislocations showed sustained and statistically significant improvements in functional outcomes, high rates of return to sport, and maintenance of active-duty military status at minimum 10-year follow-up [39].
- Minimally invasive coracoclavicular ligament augmentation with a flip button/polydioxanone repair for total acromioclavicular joint dislocation revealed excellent radiologic and clinical results with no subluxations or dislocations noted in short-term follow-up [48].
- Some persistent pain and osteoarthritis progression remain concerns in the arthroscopic revision of failed open anterior stabilization of the shoulder [4].
- Type V acromioclavicular dislocations may be given a trial of conservative therapy [15].

Key Evidence

- [L2] Further characterisation of patients in whom mild arthroscopic findings of OA of AC joint are clinically significant and warrant resection is needed. ([10.1007/s00167-014-3114-2](#))
- [L2] Asymptomatic AC-OA remained asymptomatic in 90% over 7 years. ([10.1016/j.jse.2019.04.004](#))
- [L2] Untreated ACJ osteoarthritis, symptomatic or not, encountered during arthroscopic RCR is associated with a low percentage of failure. ([10.1007/s00167-020-06098-y](#))
- [L4] Some persistent pain and osteoarthritis progression remain concerns. ([10.1016/j.arthro.2009.04.073](#))
- [L3] Clinicians should consider overreduction of the AC joint because it may lead to favorable radiological results. ([10.1177/0363546519862850](#))
- [L4] The outcomes of this study seem to suggest that a distinction between symptomatic and asymptomatic radiographic AC OA is unnecessary, as all patients were equally satisfied with the outcome. ([10.5397/cise.2023.00073](#))
- [L3] Radiographic ACJ osteoarthritis is common in patients undergoing RSA. ([10.1016/j.jseint.2021.11.008](#))
- [L5] Both open and arthroscopic resection arthroplasty techniques provide predictable pain relief for symptomatic AC osteoarthritis, though each has a unique set of potential complications that may be minimized with improved understanding of anatomy, biomechanics, and meticulous surgical technique. ([10.1177/0363546513485359](#))
- [L4] Limited distal clavicle excision of patients with AC joint osteoarthritis resistant to conservative treatment reduced pain and improved shoulder function at midterm follow-up. ([10.1016/j.otsr.2016.01.008](#))

- [L5] Anatomic techniques that address both coracoclavicular ligaments and the AC capsule are recommended to restore horizontal and vertical stability while allowing physiological rotation. ([10.1016/j.arthro.2019.01.038](#))
- [L4] The AC-DC measurement and use of the Alexander view provides the clinician with a more realistic appreciation of true AC joint displacement, especially in defining watershed cases (ie, IIIA/IIB/IV) and may better inform the decision-making process regarding management options and recommendations. ([10.1016/j.jse.2019.12.014](#))
- [L4] Additional research is needed to determine the main cause of pain and compare clinical outcomes of intra-articular versus extra-articular injections. ([10.5397/cise.2023.00311](#))
- [L4] Recurrence of the initial dislocation appears to be related to onset of degenerative ACJ arthropathy. ([10.1016/j.otsr.2017.11.001](#))
- [L4] This suggests that Type V AC dislocations may be given a trial of conservative therapy. ([10.1177/2325967115s00017](#))
- [L1] Injuries to the SC joint are uncommon, and recognition and classification are critical to proper management to minimize long-term sequelae. ([10.1177/0363546513498990](#))
- [L4] Conservative and surgical treatments are both effective in acromioclavicular joint osteoarthritis management. ([10.1007/s00167-020-06377-8](#))
- [L3] Risk factors for subsequent DCE included tenderness to palpation at the AC joint, female sex, and surgery on the dominant side, with subsequent DCE performed in 40% of cases with a combination of these 3 factors. ([10.1177/2325967119844295](#))
- [L1] Preventive arthroscopic DCR is not recommended in patients with radiological but asymptomatic ACJ arthritis. ([10.1177/0363546514547254](#))
- [L1] The arthroscopic approach offers a unique advantage in diagnosing and treating occult intra-articular pathology. ([10.1016/j.jse.2006.10.006](#))
- [L4] The authors recommend this procedure for the treatment of chronic complete AC dislocations. ([10.1016/j.injury.2010.09.023](#))
- [L4] AC injections offer a 1-year success rate of 47%. ([10.5397/cise.2023.00031](#))
- [L4] Osteoarthritis is associated with poorer final clinical outcomes, and an unhealed or re-torn cuff increases the risk of osteoarthritis. ([10.1016/j.otsr.2017.03.007](#))
- [L1] Evaluating the integrity of the capsuloligamentous structures stabilizing the AC joint is reproducible and gives additional information on the severity of the injury, which might also influence the treatment decision. ([10.1016/j.jse.2020.10.026](#))
- [L4] Treatment of ACD by synthetic ligament reconstruction gave satisfactory results, notably in terms of recovery of strength, but evolution is not risk-free with onset of significant early osteolysis. ([10.1016/j.otsr.2010.06.004](#))
- [L5] Although each technique was able to restore different elements of the joint kinematics, none of the strategies completely restored the shoulder girdle to its preinjured state. ([10.1177/03635465221095231](#))

- [L5] The kinematic changes could be a potential source of pain and dysfunction in the shoulder with AC joint dislocation. ([10.1177/0363546512458571](#))
- [L5] Scapular and clavicular kinematics were affected in AC separation models. ([10.1016/j.jse.2013.01.004](#))
- [L5] The observed frequency of hook contact with surrounding subacromial structures in a static shoulder confirms that the position of the hook portion of the implant can predispose anatomic structures to the post-operative complications of subacromial impingement and bony erosion. ([10.1016/j.injury.2009.12.012](#))
- [L4] Non-operative reduction and stabilization of high-grade AC joint separations seems to be a valuable treatment option. ([10.1007/s00402-020-03630-0](#))
- [L5] Future research should focus on addressing horizontal and rotational instability, to restore native physiological and biomechanical properties of the AC joint. ([10.1186/s12891-022-05935-0](#))
- [L1] Open and arthroscopic AC joint reconstruction techniques have no differences in loss of reduction, the complication rate, and the revision rate based on the available literature. ([10.1177/0363546518795147](#))
- [L4] Outcomes after arthroscopic CC reconstruction for chronic, type V AC dislocations in an active-duty military patient population show sustained and statistically significant improvements in functional outcomes as well as high rates of return to sport and maintenance of active-duty military status at long-term follow-up. ([10.1016/j.arthro.2025.05.008](#))
- [L1] Coracoclavicular reconstruction with augmentation of the acromioclavicular joint has been shown to provide improved horizontal stability in both biomechanical and clinical studies compared to isolated coracoclavicular reconstruction. ([10.1007/s00167-018-5152-7](#))
- [L4] Patients with edema on MRI were more likely to present pain than patients without edema, and subchondral bone edema on histologic examination was more frequent in patients with pain. ([10.1016/j.jseint.2020.03.007](#))
- [L5] Nonoperative treatment is helpful for most patients, although those with osteolysis may have to modify their activities. ([10.5435/00124635-199905000-00004](#))
- [L3] The presented data suggest adding a fixation of the AC joint to minimize lateral tilting of the scapula and maintain a more anatomic reposition result over time. ([10.1007/s00402-021-03761-y](#))
- [L4] The short-term follow-up of 15 recently operated patients reveals excellent radiologic and clinical results, with no subluxations or dislocations of the acromioclavicular joint noted. ([10.1016/j.arthro.2006.12.015](#))
- [L4] At a minimum 5-year follow-up, patients with successful non-operative treatment for type III-V ACJ injuries achieved similar clinical outcomes compared to those who were converted to ACCR. ([10.1007/s00167-020-06159-2](#))
- [L4] Surgery for AC dislocations is difficult with radiological results that must still be improved, as radiological failures were observed in 41% of cases. ([10.1016/j.otsr.2015.09.012](#))

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