No Indications for Subacromial Decompression in Rotator Cuff Tendinopathy: A Level I Evidence Clinical Guideline

We read with interest the article "Indications for Arthroscopic Subacromial Decompression. Level V Evidence Clinical Guideline" by Hohman et al.[1] The authors well described the history, physical examination, relevant radiology, and treatment of patients with rotator cuff pain. I think it is important for the readers of *Arthroscopy* to interpret the conclusions and recommendations formulated in this guideline in the light of some comments.

The authors discuss the supporting evidence in favor of subacromial decompression (SAD). Unfortunately, this there is no such evidence. Based on a recent meta-analysis assessing the benefits and harms of SAD surgery compared with placebo, no intervention, or nonsurgical interventions, there is no support for the use of surgery in people with rotator cuff tendinopathy.[2]

We agree with the authors that the concept of the critical shoulder angle (CSA) in rotator cuff pain and especially in tears is promising.[3] Although the first results of changing the CSA have been published, we still do not know if changing the CSA is really beneficial in treating rotator cuff pain in the long term.[4,5] From recent placebo-controlled randomized trials and the BMJ Guideline, we can conclude that even sham surgery in patients with rotator cuff pain will lead to improvement in shoulder function.[6] Jones et al.[7] recently concluded that high-quality randomized trials are needed before widespread adoption of promising operative procedures so as to avoid overtreatment and wasted resources. The question remains: is performing a lateral acromion resection ethical when doing it outside an experimental setting and comparing it with placebo/sham surgery?

The authors conclude that if symptoms persist despite physical therapy for at least 6 weeks, including a short course of anti-inflammatory medication, an SAD can be considered. However, Ketola et al.[8] concluded that patients who do not recover after nonoperative treatment should not be operated on either, which is an important finding for clinical practice. We are not aware of evidence that patients with a long-lasting and failed nonoperative treatment will improve from surgery. If patients are treated surgically after a short nonoperative treatment, time may also heal these patients, but when there is no comparison with a persisting nonoperative treatment group we are not able to draw conclusions.

All studies and subsequent guidelines are subject to potential biases, and of course these have to be discussed. However, the burden of proof lies with those who claim that SAD is effective for treating long-lasting shoulder pain. This proof must be built on high-quality experiments. Based on meta-analyses of the highest-level studies available today, there is no evidence that surgery results in superior outcome compared with placebo surgery or nonsurgical treatment in patients with (intact) rotator cuff pain in the absence of acromion spurs, osteophytes, and calcifications. Therefore, currently there is strong recommendation against surgery in these patients.[6]

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Author Reply: Arthroscopic Subacromial Decompression. What Are the Indications? A Level V Evidence Clinical Guideline

We thank the authors for their interest in our level V evidence clinical guideline discussing the indications for arthroscopic subacromial decompression (SAD) in patients with shoulder impingement without rotator cuff tears.[1] In their letter to the editor, van den Bekerom and Poolman[2] argue strongly against SAD and referenced several published trials in support.[3-6] We agree that there is no current and strong evidence to either support SAD or nonoperative treatment. In the introduction, we have clearly stated that credible, reliable, reproducible, and valid evidence is required. Therefore, surgeons have to rely on clinical judgment and careful patient selection. van den Bekerom and Poolman[2] have based their opinion on a recently published meta-analysis[4] and a randomized trial investigating failures in both surgical and nonoperative treatment.[6]

The meta-analysis of Karjalainen et al.[4] included 8 studies and concluded that SAD does not provide clinically important benefits over placebo; however, due to the imprecision of results, the certainty of evidence was downgraded to moderate. Of the 8 included studies, 6 had a high risk of bias. One included study used an intention-to-treat protocol (per protocol) and of 25% of the patients in the placebo group had surgery within 12 months.[7] Although the risk of bias was considered low, the authors had to contact the senior author, who confirmed verbally that postoperative personnel were unaware of treatment allocation. The study by Beard et al.[7] has been criticized by multiple German-speaking associations[8] because of its multiple biases, as we have highlighted in our guideline.[1] Similarly, the second study included in the meta-analysis that was assessed as low risk of bias used an intention-to-treat protocol.[9] Twelve percent of patients in the placebo group and 21% of patients in the exercise group eventually crossed over and had surgery.[9]

Crossover compromises interpretation of outcomes if the percentage of patients crossing over is one way.[10] In addition, patients who cross over usually have more symptoms and comparing patients with more symptoms with patients who have good results with nonoperative treatment results in systematic error and bias.[10] The second study referenced in support against subacromial decompression was published by Ketola et al.[11] This study suffers from significant bias, as there was missing data at 3, 6, and 12 months in both the surgery and exercise group, 13% in the surgery group also received labral repair, both groups received corticosteroid injections over the 2-year follow-up period, 18% in the surgery group did not receive the planned surgery, and 20% of the exercise group eventually had decompression surgery.[11] High risk of bias, low study quality, and heterogeneity does not allow any meaningful conclusions to be drawn, and the conclusions of systematic reviews and meta-analyses including these studies must be viewed with extreme caution.[12]

In their final statement van den Bekerom and Poolman[2] commented that there are strong recommendations against surgery based on the current clinical practice guideline for adults with shoulder pain recently published in the *British Medical Journal*.[3] We have discussed the value of these recommendations very critically in our Level V clinical guideline already.[1] The recommendations by Vandvik et al.[3] were based on Beard et al.,[7] Paavola et al.,[9] and Lähdeoja et al.[13] We have outlined the concerns for the studies by Beard and Paavola already. Lähdeoja et al.[13] performed a meta-analysis and compared SAD with exercise and diagnostic arthroscopy. Interestingly, their study demonstrated a significant advantage of SAD over exercise and diagnostic arthroscopy at all time intervals.[13] In addition, the authors have not set strict inclusion criteria but accepted studies with homemade criteria.[13] We will leave it to the readers of *Arthroscopy* to judge the value of the recent BMJ guideline.[3]

Critical shoulder angle (CSA) and lateral acromion resection (LAR) is a new concept. Katthagen et al. and Marchetti et al. have shown that an arthroscopic anterolateral acromioplasty and a 5-mm lateral acromion resection each reduced the CSA significantly and did not damage the deltoid origin.[14-16] It appears that there is a relationship between a greater CSA and full-thickness rotator cuff tears supporting the concept of LAR.[17] In addition, re-tear rates are greater in patients with a larger CSAs.[18] The mean CSA in patients who