

Guest editorial

Is surgery for the subacromial pain syndrome ever indicated?

In this issue of *Acta Orthopaedica*, a randomized study by Ketola et al. questions the value of surgery for the shoulder impingement syndrome. Using self-reported pain as the primary outcome measure, the authors failed to find any difference between patients treated with arthroscopic acromioplasty and patients treated with physiotherapy at both 2-year and 5-year follow-up. Furthermore, patients who did not experience satisfactory relief of symptoms after nonoperative treatment did not do any better after surgery. These findings add to several recent publications (Diercks et al. 2014, Dong et al. 2015, Saltychev et al. 2015) that have not found any significant difference when comparing nonoperative and operative treatment of subacromial pain. Does this mean that surgical treatment with acromioplasty should be discouraged?

Several factors need to be considered to answer this question. First of all, the fact that no difference in outcome has been found between different methods does not mean that a difference does not exist. The failure to demonstrate a difference may be due to inclusion criteria that are too wide, study populations that are too small, or outcome measures that are inadequate. In considering that several studies have come to the same conclusion, it is, however, likely that if there is any difference, it would be small and perhaps not clinically relevant. It should also be borne in mind that no difference between treatment outcomes does not necessarily mean that the result is equally good. It might just as easily be equally poor. When reviewing the literature on treatment of subacromial shoulder pain, it appears that excellent and good outcomes can be expected in about 80% of patients following surgery or different training regimes. This means that a substantial proportion of subjects included do not have a satisfactory result. The reason for this cannot easily be pinpointed, but a future analysis of factors that are predictive of poor results might possibly shed some light on this.

What is known about the etiology of subacromial pain? It is commonly appreciated that the pain is caused by inflammation of the subacromial soft tissues, particularly the subacromial bursa. Several structural problems such as tendinosis or ruptures of the rotator cuff or biceps tendon, primary bursitis, and osteoarthritis of the acromioclavicular joint may all cause inflammation and pain in the subacromial space. This mainly affects the middle-aged population. Furthermore, pain originating from instability, internal impingement, labral avulsions, overuse, or capsular contracture has been described, more often in younger individuals. The concept

of subacromial impingement as described by Neer (1972, 1983) refers to pain during arm elevation and abduction, and is attributed to encroachment of the subacromial soft tissues between the acromial under-surface and the greater tuberosity. The proposed treatment of acromioplasty was designed to relieve this problem. Consequently, subacromial pain not primarily caused by a mechanical conflict will not necessarily be improved by an acromioplasty. The rationale of most programs of physiotherapy appears to be strengthening of the rotator cuff muscles, aiming at improving the ability of the cuff to keep the humeral head centred on the glenoid fossa and thereby reducing superior translation of the humeral head and a consequential conflict with the acromion. A probably underestimated side effect of exercise treatment is the potentially positive influence of a dedicated physiotherapist and the possibility of vocal treatment, tutoring the patient on coping strategies, over several training sessions. Other treatment options such as NSAIDs, acupuncture, ultrasound, and injections of corticosteroids are probably frequently prescribed for these patients but, apart from the good short-term effect of steroid injections, these methods have little, if any, scientific support.

What most of the treatments have in common is that they often address the symptoms rather than the underlying cause of the disorder. The etiology may vary between different patients although they present with similar clinical symptoms. If the efficacy of the different treatments is to be analyzed in detail, we either need to have more precise information on the etiology and pathomechanisms of the symptoms or substantially larger study populations that compensate for uncertain inclusion criteria. Patients who do not respond to either form of treatment are likely to be misdiagnosed or misunderstood—and although they present with symptoms suggesting a subacromial origin, there may in fact be other causes of their discomfort. This again highlights the importance of understanding the pathomechanisms rather than focusing on the symptoms. From this also follows that little is known about the natural course of the subacromial pain syndrome. It appears likely that mild problems may resolve spontaneously through rest and from activity modifications, and many patients probably acquire mechanisms to help them cope mentally or compensate physically. Other problems may develop into long-standing and severe ones, such as rotator cuff failure and secondary osteoarthritis, but no factors that can reliably predict the long-term course have so far been identified.

Several reports have described generally good results after nonoperative or operative treatment of subacromial pain, suggesting that both treatment options are reasonably effective. When considering the poor scientific basis for recommendation of surgery, it is surprising that the numbers of these procedures have increased dramatically since their introduction (Yu et al. 2010). From a patient standpoint, it appears likely that if the 2 treatment options are equally effective, most would avoid the risks and discomfort associated with surgery if given the opportunity to choose. It is, however, somewhat surprising that these treatments are compared rather than being regarded as complementary. In contrast to the findings of Ketola et al., relatively good outcome after surgery has been described even after a failed nonoperative treatment (Hallgren et al. 2014). Already in 1983, Neer was very clear about indications for surgery and adamantly recommended at least 1 year of nonoperative treatment before surgery was considered (Neer 1983). If these guidelines were to be respected, more patients could be adequately treated with physiotherapy—and surgery with acromioplasty would be reserved for those suffering from a true subacromial, mechanical conflict.

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