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Original article

Failed subacromial decompression. Risk factors



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ABSTRACT

Background: Arthroscopic subacromial decompression (acromioplasty) is widely held to be effective, although pain may persist after the procedure. The objective of this study was to evaluate the proportion of patients with residual pain (i.e., the failure rate) after isolated subacromial decompression and to look for predictors of failure.

Material and method: We conducted a retrospective multicentre study of 108 patients managed with isolated arthroscopic subacromial decompression between 2007 and 2011, for any reason. We excluded patients in whom surgical procedures on the rotator cuff tendons were performed concomitantly. Data were collected from the medical records, a telephone questionnaire, and radiographs obtained before surgery and at last follow-up. Failure was defined as persistent pain (visual analogue scale score > 3) more than 6 months after surgery and at last follow-up.

Results: The failure rate was 29% (31/108). Two factors significantly predicted failure, namely, receiving workers' compensation benefits for the shoulder condition and co-planing. Heterogeneous calcific tendinopathy and deep partial-thickness rotator cuff tears were also associated with poorer outcomes, but the effect was not statistically significant.

Discussion: Co-planing may predict failure of subacromial decompression, although whether this effect is due to an insufficient degree of co-planing or to the technique itself is unclear. Nevertheless, in patients with symptoms from the acromio-clavicular joint, acromio-clavicular resection is probably the best option. Receiving workers' compensation benefits was also associated with treatment failure, as a result of well-known parameters related to the social welfare system.

Conclusion: Isolated arthroscopic subacromial decompression is effective in 70% of cases. We recommend the utmost caution if co-planing is considered and/or the patient receives workers' compensation benefits for the shoulder condition, as these two factors are associated with a significant increase in the failure rate.

Level of evidence: IV (retrospective study).

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1. Introduction

Subacromial impingement syndrome is a common cause of anterior shoulder pain. In 1972, Neer was the first to describe open acromioplasty and its outcomes [1]. In 1983, Ellman reported an arthroscopic method for performing acromioplasty [2]. The principle was to achieve subacromial decompression by removing the bursa, resecting the undersurface of the anterior acromion, and severing the coraco-acromial ligament. Today, acromioplasty

is almost consistently performed as an arthroscopic procedure and remains widely used, although perhaps less often in isolation. Published studies of outcomes after isolated acromioplasty have produced fairly consistent results, with success rates of 77% to 90% [3,4]. Nevertheless, the finding in some studies that over 25% of patients experiencing residual pain may call into question the effectiveness of isolated acromioplasty in ensuring pain relief. Studies have shown that risk factors for failed acromioplasty include inappropriate patient selection and technical errors [5–7].

We performed a retrospective study with the dual objective of determining whether isolated arthroscopic acromioplasty is effective in ensuring pain relief and of identifying factors that predict failure.

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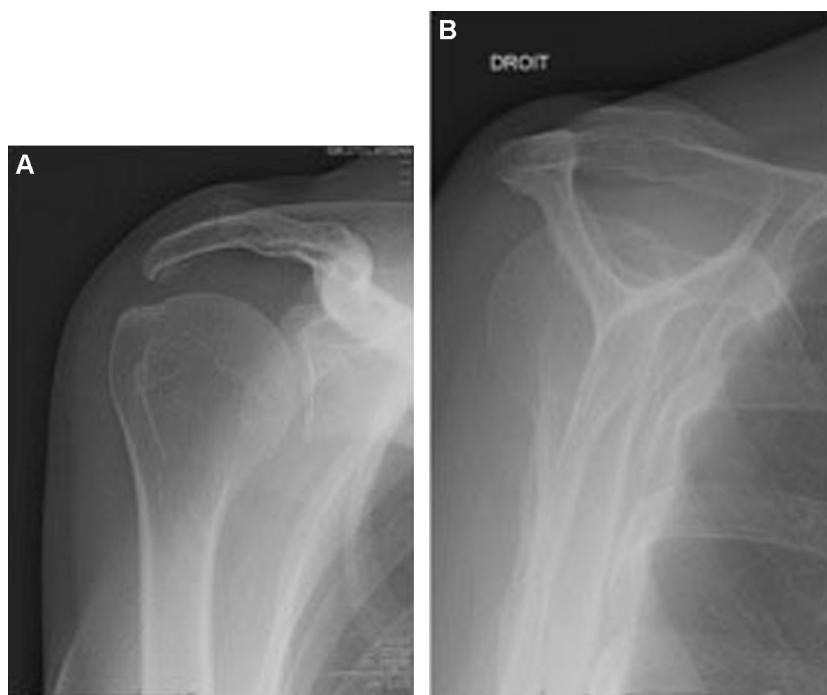


Fig. 1. A. Antero-posterior radiograph of the right shoulder before surgery. B. Lateral view of the same shoulder before surgery.

2. Material and methods

We conducted a retrospective multicentre (four centres) study for a symposium held by the French Society for Arthroscopy (*Société française d'arthroscopie*) in 2013. Investigators in the four centres reviewed the data from patients who underwent isolated arthroscopic acromioplasty between 2007 and 2011 for any reason. Patients in whom acromio-clavicular co-planing was performed concomitantly were included but those who underwent acromio-clavicular resection, a procedure on the long head of biceps tendon, or a procedure on the rotator cuff tendons were excluded. The data sources were the medical records, surgical report, responses to a questionnaire administered during a telephone interview, and

radiographs obtained before surgery and at last follow-up. Pain was assessed using a Visual Analogue Scale (VAS). The radiographs were used to determine the acromio-humeral interval, thickness of the acromion, and shape of the acromion according to Bigliani and to Park (Figs. 1–4).

Failure of the acromioplasty procedure was defined as a VAS pain score greater than 3/10 6 months after the procedure and at last follow-up.

Pain intensity was the primary outcome measure for the statistical analysis. Fisher's exact test was used to compare groups. Values of $P \leq 0.05$ were considered statistically significant. We identified factors predicting failure by computing the odds ratios (ORs) with their 95% confidence intervals (95% CIs).



Fig. 2. A. Antero-posterior radiograph of the right shoulder after surgery. B. Lateral view of the same shoulder before surgery.

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