

COMPARISON BETWEEN OPEN AND ARTHROSCOPIC ACROMIOPLASTIES: EVALUATION OF ABSENTEEISM

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OBJECTIVE: To evaluate the rate of absenteeism from work in patients who had undergone open or arthroscopic acromioplasty.

DESIGN: A retrospective case series.

SETTING: A university hospital.

PATIENTS: Eighteen patients with excellent results after open acromioplasty performed by one orthopedic surgeon and 20 patients with excellent results after arthroscopic acromioplasty performed by another orthopedic surgeon.

MAIN OUTCOME MEASURE: The time between operation and return to work.

RESULTS: There were no statistical differences between the two techniques with respect to the return to work, age, sex and type of work. The overall time off work averaged 203 days (range from 42 to 840 days) for the arthroscopic group compared with 144 days (range from 60 to 540 days) for the open group.

CONCLUSIONS: Open acromioplasty, a safe and reliable procedure for the general orthopedic surgeon, is associated with a shorter, though not significant, delay in return to work than the arthroscopic technique.

OBJECTIF : Évaluer le taux d'absentéisme chez les patients qui ont subi une acromioplastie sanglante ou arthroscopique.

CONCEPTION : Étude de cas rétrospective.

CONTEXTE : Hôpital universitaire.

PATIENTS : Dix-huit patients qui ont obtenu un excellent résultat après une acromioplastie sanglante exécutée par un chirurgien orthopédiste et 20 patients qui ont obtenu un excellent résultat après une acromioplastie arthroscopique exécutée par un autre chirurgien orthopédiste.

PRINCIPALE MESURE DES RÉSULTATS : Temps écoulé entre l'intervention et le retour au travail.

RÉSULTATS : Il n'y avait pas d'écart statistique entre les deux techniques en ce qui a trait au retour au travail, à l'âge, au sexe et au type de travail. La durée globale de l'absentéisme s'est établie à 203 jours en moyenne (fourchette de 42 à 840 jours) chez les sujets qui ont subi une arthroscopie comparativement à 144 jours (fourchette de 60 à 540 jours) chez ceux qui ont subi une intervention sanglante.

CONCLUSIONS : L'acromioplastie sanglante, intervention sûre et fiable pour le chirurgien orthopédiste général, entraîne une absence plus courte, mais non importante, que l'arthroscopie.

Neer¹ has described a common condition referred to as the impingement syndrome that results from impingement of the rotator cuff, the overlying subacromial

bursa and the long head of the biceps against the anterior edge of the acromion and the coracoacromial arch.

The purpose of this review is to compare two techniques of acromio-

plasty in relation to the delay in return to work of patients with Neer stage II impingement syndrome, in which the bursa is thickened and fibrotic and the rotator cuff is degen-

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erated but without tears or bony changes.

PATIENTS AND METHODS

To obtain patients with excellent results after acromioplasty for impingement syndrome carried out between Jan. 1, 1990, and Dec. 31, 1993, we used the criteria of Neer¹⁻³ as those most accurately reflecting an excellent result. The criteria include patient satisfaction, minimal pain, full use of the shoulder, less than 20° limitation of overhead extension and at least 75% of the strength of the contralateral shoulder.

There were 38 such patients, who were considered in two groups according to the technique of acromioplasty. Twenty patients (group 1) underwent arthroscopic acromioplasty performed by an orthopedic surgeon, using the technique of Gartsman⁴ and Altchek and associates.⁵ Eighteen patients (group 2) underwent open acromioplasty performed by another orthopedic surgeon, using Neer's technique.² Two patients in each group did not fulfil Neer's criteria and were thus excluded from the study. Both procedures were performed on an outpatient basis.⁶

The two groups of patients were comparable with respect to sex (group 1, 8 women and 12 men; group 2, 12 women and 6 men) and age (group 1, mean age 39.3 years [range from 27 to 47 years]; group 2, mean age 42.7 years [range from 33 to 60 years]). All patients had been off work or on lighter work and had had a persistent disability for more than 1 year despite adequate conservative treatment. All had negative arthrograms and complete relief of pain after injection of xylocaine into the subacromial space. At the time of surgery, all patients had Neer stage II disease without any discernible partial

tear on the outer side of the rotator cuff and without degenerative changes in the acromioclavicular joint. The mean operative time was 46 minutes (range from 35 to 65 minutes) for group 1 and 33 minutes (range from 21 to 45 minutes) for group 2. The patients were discharged the same day with an interscalene block and with the arm in a sling and were encouraged to passively mobilize the shoulder as soon as possible. Active exercises were allowed after 4 weeks. No complications were encountered in either group.

All the patients were assessed clinically by an independent observer who did not participate in the surgical treatment.

The mean follow-up for group 1 patients was 22 months (range from 12 to 42 months) and for group 2 patients was 24 months (range from 12 to 45 months).

Any differences were analysed by the *t*-test, and a probability value of less than 0.05 was considered significant.

RESULTS

The overall time from operation to return to work averaged 203 days (ranging from 42 to 840 days) for group 1 patients compared with 144 days (ranging from 60 to 540 days) for group 2 patients with no significant difference (*p* = 0.32) (Table I). Even after the extremes in both groups (absence from work over 270 days) were eliminated, no statistically significant differences were noted.

Considering sex distribution and the delay before the return to work, we found no significant difference between groups for either women (*p* = 0.21) or men (*p* = 0.90). The findings were similar (*p* = 0.80) for the Workers Compensation Board cases (seven patients in group 1 and three patients in group 2).

The patients in each group were considered according to the type of work they did:⁷ class I (light work), class II (moderate work) and class III (heavy work). In class I, group 1 patients were off work for an average 370 days (range from 60 to 840 days for three patients) and group 2 patients were off work for an average of 83 days (range from 60 to 230 days

Table I
Evaluation of Absenteeism

Delay variable	Group, mean (and range) days off work*	
	1	2
Overall delay	203 (42-840)	144 (60-540)
Sex		
Women	316 (60-480)	116 (60-270)
Men	127 (42-356)	201 (70-540)
Workers Compensation Board cases	256 (165-240)	195 (60-730)
Type of work		
Class I	370 (60-840)	83 (60-230)
Class II	182 (42-730)	137 (60-270)
Age, yr		
30-39	284 (120-730)	190 (75-540)
40-49	154 (48-840)	104 (60-240)

*Group 1 = arthroscopic acromioplasty, group 2 = open acromioplasty

for five patients) ($p = 0.28$). In class II, group 1 patients were off work for an average of 182 days (range from 42 to 730 days for 15 patients) and group 2 patients were off work for an average of 137 days (range from 60 to 270 days for 12 patients) ($p = 0.28$). Although the difference was not significant there was a favourable trend toward group 2. In class III, the number of patients was insufficient for statistical analysis.

With respect to patient distribution by age, the numbers of patients between 20 and 29 years old and between 50 and 59 years old were insufficient for statistical analysis. In the category of patients 30 to 39 years old, group 1 patients were off work for an average of 284 days (range from 120 to 730 days for eight patients) and group 2 patients were off work for an average of 190 days (range from 75 to 540 days for six patients) ($p = 0.30$). In the category of patients 40 to 49 years old, group 1 patients were off work for an average of 154 days (range from 48 to 840 days for 11 patients) and group 2 patients were off work for an average of 104 days (range from 60 to 240 days for 8 patients) ($p = 0.49$). After eliminating the extremes in both groups, no statistical differences were noted.

Other considerations

With respect to surgical scars, in group 1 patients the scar area covered an average of 0.28 cm² (range from 0.3 to 2.4 cm² in 20 patients) and in group 2 patients the scar area covered an average of 1.50 cm² (range from 0.4 to 4.5 cm² in 18 patients) ($p < 0.001$). However, an equal number (14 patients) in each group judged that the scar was visible.

According to the statistics, with such variable results, even two groups of 100 open and 100 arthroscopic

acromioplasties would have failed to demonstrate any significant differences.

DISCUSSION

Both open and arthroscopic acromioplasties were performed on an outpatient basis⁶ and the routine use of an interscalene block with a long-acting anesthetic agent avoided unnecessary hospitalization.⁸

It has been assumed that arthroscopic acromioplasty is a simple outpatient procedure; in reality, it is much more difficult than open acromioplasty, which is relatively simple and has a documented history of success.^{4,9-11} Gartsman⁴ noted that, although the time needed for return to work and to overhead sports has not been documented, it was unlikely that the interval before the patient could return to strenuous work or sports was appreciably shortened by arthroscopic acromioplasty. The data collected in our study also failed to demonstrate a significant difference between the two groups concerning time off work. Further, there were no significant differences in regard to age, sex or type of work.

This study did not corroborate that damage to the deltoid muscle after open acromioplasty prolonged the postoperative morbidity and impaired the final result.⁵ In open acromioplasty, the deltoid muscle was minimally detached and was anatomically reattached to bone with nonabsorbable sutures giving results no different from those with arthroscopic acromioplasty.

The arthroscopic technique might improve diagnostic accuracy by allowing the identification and possible treatment of any intra-articular abnormalities. However, arthroscopic examination of the shoulder can also be performed with ease in conjunction with the open technique, if it is indicated.

In conclusion, the findings of this

study suggest that the orthopedic surgeon who has mastered the open technique should not feel obliged to learn the arthroscopic technique.

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