



Adipofascial radial forearm flap after failed surgical treatment of lateral epicondylitis

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Secondary cases of lateral epicondylitis after failed surgical treatment are a particular therapeutic challenge. Excision of the scar tissue and muscle transposition have been advocated as alternative procedures, although the optimal treatment has yet to be established.

We present one desperate case of failed surgical treatment of lateral epicondylitis, where an adipofascial radial forearm flap was used successfully to alleviate the patient's symptoms.

Keywords : epicondylitis ; sequelae ; forearm adipofascial flap.

INTRODUCTION

Various surgical procedures are currently used to treat lateral epicondylitis. The overall success rate of the different techniques is reportedly high, ranging from 80 to 97%.

The treatment of secondary cases, however, remains controversial. Revision surgery is often difficult, with fair results. Historically large debridement with excision of scar tissue was advocated. Recently reports from Almquist *et al* (1) and later Degreeef *et al* (2) described the use of a local anconeus muscle flap in secondary cases.

The interposition of healthy, well vascularised tissue is a new concept in the treatment of primary and secondary cases of lateral epicondylitis, which was applied in the following case.

CASE REPORT

A 54-year-old female patient had primary surgical treatment for lateral epicondylitis of the right elbow three years earlier. The classical release and slide technique was used. Surgery resulted in complete atrophy of all subcutaneous tissue over the lateral epicondyle. The mass of the extensor muscle had moved distally for about 4 cm, and the radio-humeral joint was visible beneath the skin (fig 1).

The patient complained of severe pain at rest and on movement. Touching the operated area resulted in extreme discomfort and dysaesthesia. Conservative treatment, mainly physiotherapy and corticoid injections, had failed.

Technetium bone scan ruled out complex regional pain syndrome, and electromyography excluded a nerve entrapment syndrome. Management by the pain clinic only provided moderate relief of the symptoms.

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Fig. 1. — Elbow after failed surgical treatment of lateral epicondylitis with severe soft tissue atrophy.

After long discussion with the patient and in multidisciplinary consultation between the plastic surgery and orthopaedic surgery department, a surgical intervention to achieve soft tissue padding of the bone and the radio-humeral joint was proposed.

Upon surgical exploration we encountered a large area of heavy fibrosis, with no healthy tissue left to pad the bone and radio-humeral joint. It was obvious that the anatomical bases for an anconeus muscle flap as well as for an adipofascial reverse arm flap had been destroyed by the previous procedure. Thus an adipofascial radial forearm flap on a proximal vascular leash was raised and used to cover the lateral epicondyle as well as the radio-humeral joint (figs 2, 3).

The post-operative course was slowly favourable. The patient was discharged from hospital the second day after surgery. After remission of post-operative oedema the area of the lateral epicondyle was painless to touch.

Surprisingly pain during movement improved considerably as well.

Currently at 9 months post operatively the patient rates her pain (on a scale of 1 to 10) as 0 at rest (9-8 pre-operatively) and pain during movement improved from 10 to 3-4.

Donor site morbidity was limited to a longitudinal scar on the forearm and transitional discomfort from sensitive denervation in the same area, which improved gradually (figs 4, 5).

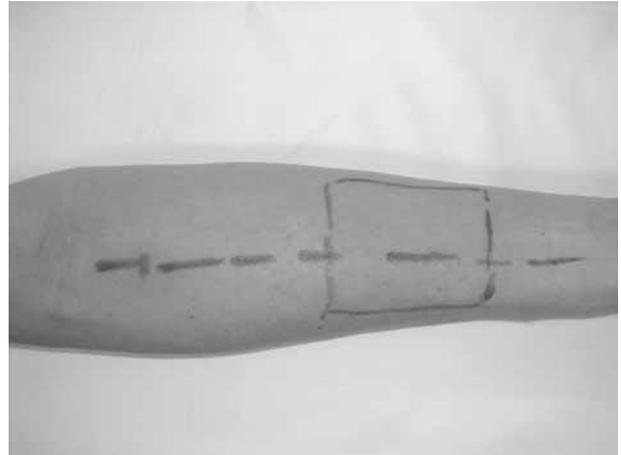


Fig. 2. — Intraoperative markings for adipofascial forearm flap.



Fig. 3. — Inset of the adipofascial radial forearm flap in the elbow.

DISCUSSION

Revision procedure after failed surgical treatment for lateral epicondylitis is a particular challenge. Only sparse reports in the literature deal with this topic.

Organ *et al* (3) described simple re-debridement without the use of flaps as a successful procedure in 84% of the cases. However, in cases with severe scarring, atrophy of subcutaneous tissue and displacement of extensor muscles, simple excision of the fibrotic tissue might not be enough. The



Fig. 4. — Elbow 6 months post-operatively with acceptable contour.



Fig. 5. — Donor site at the forearm 6 months post-operatively.

anconeus muscle flap and its use was described by Almquist *et al* (1) and Schmidt *et al* (5). Almquist *et al* (1) used anconeus transposition with success in primary and secondary cases of lateral epicondylitis. The same technique was used by Degreef *et al* (2) in secondary cases with satisfactory results in over 70% of the patients. Thus the interposition of healthy tissue is a concept which appears to yield good results in cases where simple scar tissue resection seems inadequate.

In our case, failed surgical treatment was associated with deficient soft tissue padding. An adipofascial radial forearm flap was chosen for several reasons. A relatively thin flap was needed in order to preserve normal elbow contour and the flap had to be at least 6 by 7 cm large. The anconeus muscle flap, although somewhat small, might have been our first choice. Alternatively the reverse adipofascial lateral arm flap would have been another good solution (4). It would probably have yielded the largest amount of tissue with reduced donor site morbidity. However, the anatomical basis for the two aforementioned flaps had been compromised by prior surgery.

Soft tissue padding and coverage of the entire epicondylar region was obtained by an adipofascial radial forearm flap.

As no cutaneous coverage was needed, donor site morbidity was reduced by preserving the skin on the forearm.

The sacrifice of one of the major arteries of the forearm was justified in our opinion by the severity of the symptoms and the impairment in every day life they provoked.

As expected soft tissue padding resolved pain resulting from direct contact to the lateral epicondyle. More surprising, however, was the dramatic improvement in elbow function. We have no explanation for this, and medical literature does not give any answers. One can only hypothesise, that, similar to anconeus muscle transfer, the new well-vascularised tissue supplied to the area acts favourably on the underlying muscular and bony structures.

Adipofascial flaps might thus be considered an alternative solution in desperate secondary cases of lateral epicondylitis, especially when the anconeus muscle flap is not longer available. Additionally adipofascial flaps have the advantage of supplying larger amounts of tissue which might be needed when soft tissue padding is required.

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