

CONSERVATIVE TREATMENT OF ACHILLES TENDON RUPTURE

A Follow-up Study of 14 Cases

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A follow-up study of 14 patients with Achilles tendon rupture is reported. The patients were treated by conservative methods, i.e. with immobilization in a plaster cast for 8 weeks with the foot in the relaxed equinus position. Solid healing of the tendon was obtained in 13 cases. As assessed by the patients, the end result was unsatisfactory in two, fairly satisfactory in one and fully satisfactory in 11 cases.

Key words: Achilles tendon rupture; conservative treatment

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For many years, surgical repair has been the treatment used in Achilles tendon rupture. Complications such as wound infection, skin necrosis, suture loosening, sural nerve injury and tendinocutaneous adhesion have been tolerated because a ruptured Achilles tendon, like other tendon lesions, readily lends itself to surgical intervention.

Conservative treatment has been reported in a few cases, for example, by Arner & Lindholm (1959), but a large series in which this mode of treatment was systematically applied did not appear until 1972 (Lea & Smith).

METHODS

The diagnosis of subcutaneous total Achilles tendon rupture is established on the basis of the history and clinical picture—preferably supplemented by soft-part radiography in order to ensure a greater diagnostic certainty.

Conservative treatment using the method of Lea & Smith (1972) consists of immobilization in a plaster cast applied from the toes to below

the knee with the foot in the relaxed equinus position—usually about 30°. A walking iron is incorporated in the cast, and the patient is allowed to bear full weight as soon as the cast is dry, with a compensatory elevation on the unaffected side. The cast is removed after 8 weeks, and the patient is instructed to use a 2.5 cm homolateral heel lift and to undertake active exercises of the muscles and joints. It is of the greatest importance that the plaster cast is retained for 8 weeks, and that a heel lift is used after its removal.

RESULTS

During the period from March 1973 to April 1975 a total of 15 patients with Achilles tendon rupture were admitted to our department. Of these, 14 were treated conservatively, while one refused this form of treatment. Those who underwent conservative treatment were subjected to a clinical follow-up examination in May 1975, and the end results were further checked by answers to a standard questionnaire in December 1975.

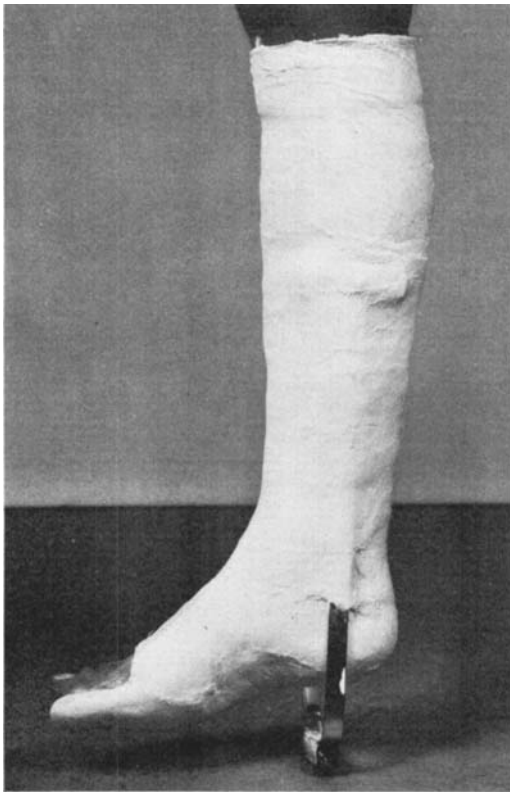


Figure 1. Below-knee plaster cast with incorporated walking iron and the foot in relaxed equinus position.

The results appear in Tables 1 and 2. Immobilization had been performed within the first 3 days after the rupture except in cases 9 and 14, in which 8 days and 6 weeks, respectively, had elapsed.

It can be seen that complications developed in four patients. In case 2, re-rupture occurred 11 days after the removal of the cast, but further immobilization for another 8 weeks led to a perfect result. In case 12, re-rupture occurred 7 days after the removal of the cast, but was not recognized until 2 months later. No further treatment was carried out because the functional result was good, and the patient was satisfied with the condition. In case 9, there was a tendency to oedema, but the tendon was solidly healed. In case 3, instability of the ankle joint developed, necessitating surgical correction of an elongated tendon. The operation, performed in a specialized orthopaedic hospital, showed a solidly healed tendon with abundant amounts of fibrous tissue; the tendon was shortened by a tenoplasty.

The clinical follow-up examination revealed normal gait without pain in 11 pa-

Table 1. Age distribution and course of treatment.

Case no.	Age at time of rupture	Observation period (months)	Duration of hospital treatment (weeks; both in- and out-patients)	Complications
1	23	26	12	0
2	24	14	23	Re-rupture
3	25	20	14	Elongation of tendon—tenoplasty
4	25	11	11	0
5	26	11	10	0
6	39	23	10	0
7	41	10	12	0
8	44	21	10	0
9	47	33	13	Deep thrombophlebitis
10	47	13	17	0
11	57	26	14	0
12	64	28	12	Re-rupture—no treatment
13	70	29	11	0
14	71	30	10	0
Average	43	21	12	

Table 2. Clinical observations at the follow-up examination.

Passive dorsiflexion of ankle joint	No. of cases	Maximal calf circumference	No. of cases
Unchanged	8	Unchanged	3
Increased (10 degrees)	5	Decreased (0.5–2.0 cm)	10
Decreased (10 degrees)	1	Increased (1.0 cm)	1

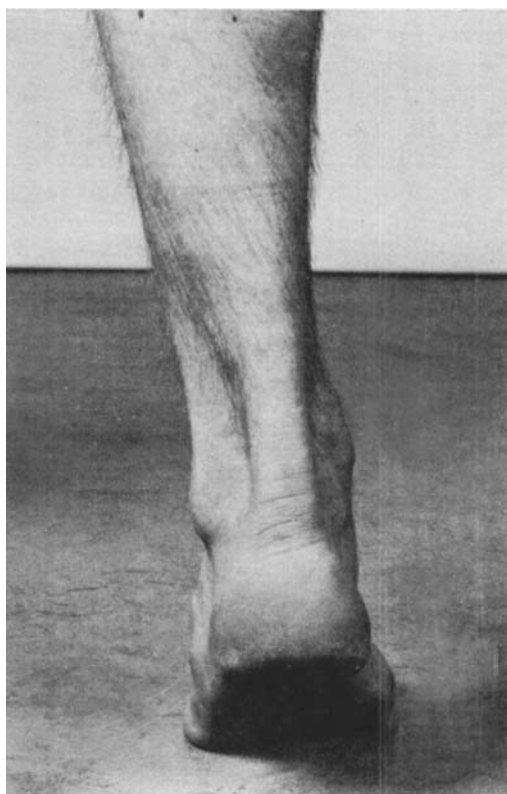


Figure 2 a. Case 1 one year after Achilles tendon rupture. Full weightbearing on the ball of the affected left foot. Note thickening of the tendon.

tients; cases 9 and 12 had a slight limp, but no pain. Case 3 could not be assessed because of the short postoperative period and, later on, for geographical reasons.

No attempts were made to measure the muscular power of the affected leg, but 13 of the patients could bear full weight on the ball of the affected foot. There was no tenderness at the site of rupture, but some thickening was present in all cases.

The end results as reflected by the answers to the questionnaire appear in Table 3. Many of the patients were active sportsmen, and we have tried to assess the influence of the treatment on their sporting activities in Table 4.

DISCUSSION

The complications encountered in our conservatively treated patients were sim-

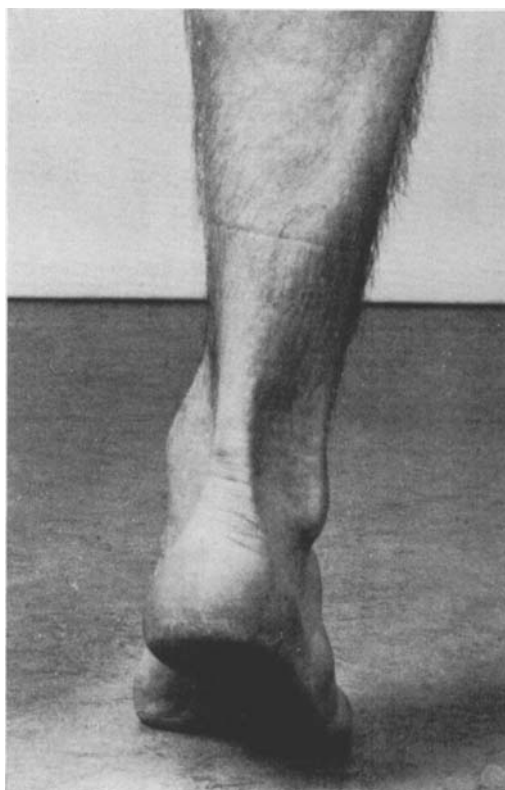


Figure 2 b. Same patient as in Figure 2 a—normal right foot.

Table 3. End results according to answers to questionnaire.

	No. of cases
Walking capacity after treatment	
Unchanged	12
Reduced less than 25 per cent	1
Reduced by 25–50 per cent	1
Subjective discomforts	
None	10
Slight stiffness of ankle joint	1
Tendency to oedema, limping, diminished power of leg	3
Patients' own assessment of end result	
Fully satisfactory	11
Fairly satisfactory	1
Unsatisfactory	2 *

* Cases 3 and 9.

ilar to those described by other authors. Thus, Lea & Smith (1972) reported re-rupture in seven out of 55 cases, including four which healed after a second period in plaster, and their end results were satisfactory in 52 cases. Nistor (1974) experienced one re-rupture among 12 patients; this, too, healed after conservative treatment. Gillies & Chalmers (1970) had one re-rupture in seven patients.

In their follow-up study of 86 patients treated with surgical repair, Arner & Lindholm (1959) encountered deep thrombophlebitis in two patients, with fatal pulmonary embolism in one of them; necrosis of the skin over the

Achilles tendon in 11 cases, wound infection in three; suture loosening in 10, including four with refractory fistula formation; re-rupture occurred in four cases. In a group of 37 patients, Kristensen & Andersen (1970) saw wound infection in six, suture loosening in one, and re-rupture in one.

Re-rupture is a complication which may occur both after surgical and conservative methods, but it is apparently more frequent after the latter form of treatment. Anyway, it seems as if repeated conservative treatment does not affect the end result (Lea & Smith 1972; our case 2).

As regards re-rupture, it is, in our view, very important that the patients are informed of this risk, and that they use the heel lift.

Late sequelae seen in our series were calf atrophy, thickening of the tendon at the site of rupture and impaired mobility of the ankle joint. Similar sequelae after surgical repair were reported by Arner & Lindholm (1959) and Kristensen & Andersen (1970) and seemed to occur with equal frequency after both modes of treatment. From a functional point of view, the two methods appear to give equally good end results.

As long as further research has not proved which of the two is the better principle, conservative treatment may be used as an alternative in cases in which surgical repair should be avoided.

Table 4. Sporting activities according to answers to questionnaire.

Case no.	Type of sport	Activity level after treatment	Difference in power between the legs
1	Football + cross-country	Unchanged	None
2	Badminton	Dissuaded for one year	None
3	Gymnastics	Stopped	Great
4	Badminton	Unchanged	None
5	Badminton	Diminished	None
7	Football + badminton	Unchanged	None
9	Football + football referee	Diminished	Moderate
10	Gymnastics	Diminished	None

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