

ACHILLES PARATENDONITIS: AN EVALUATION OF STEROID INJECTION

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ABSTRACT

A prospective, randomised, double-blind study of 28 patients presenting with Achilles paratendonitis was undertaken in order to evaluate the role of peritendonous injection of methyl prednisolone acetate (Depo Medrone)‡. At presentation patients were either administered peri-tendonous injection of 40 mgs of methyl prednisolone acetate suspended in 1 ml of 0.25% marcaine or 2 ml of 0.25% marcaine alone. Response was gauged by resolution of pain, tenderness and return to normal activity. Patients who failed to respond to initial treatment were crossed over to the other group at 12 weeks. All patients received standardised physiotherapy.

Results indicate that peri-tendonous injection of methyl prednisolone acetate is of no value in Achilles paratendonitis.

Key words: Achilles paratendonitis, Methyl prednisolone acetate

METHOD

Patient Selection

All patients presenting to the Accident and Emergency Department, Leicester Royal Infirmary between February 1985 and December 1986 were admitted to the study if they had pain and tenderness in the Achilles tendon, gradual in its onset and not accompanied by signs of a complete or partial tear of the tendon. Patients with pain at the musculo-tendonous junction and those with pain at the point of insertion of the Achilles tendon were excluded. None of the patients studied were on systemic steroid therapy and none had received previous treatment for their condition.

Clinical Assessment

All patients were assessed at presentation, 3 weeks and 6 weeks and subsequently at 6-week intervals by a single physician. At each visit patients graded their pain using a 10 cm linear analogue scale in response to the question "How bad is your pain when it is at its worse?". Patients were unaware of any previous pain scores when replying. Swelling was assessed by measuring the thinnest diameter of the tendon with calipers and comparing it with the other side if symptoms were unilateral. Activity was gauged using an 'activity level score'. The scores available were 25%, 50% and 75% of normal activity including training. Tenderness was graded by the patient's response to pinching gently the affected Achilles tendon between the finger and thumb. If a patient winced and withdrew he was classified as grade 3, grade 2 comprised wincing without withdrawal and grade 1 tenderness involved neither wincing nor withdrawing. Flexion of the ankle was measured using a goniometer.

All patients had both ankles X-rayed at presentation — the presence of calcaneal spurs, calcification in the tendon and calcification of soft tissues around the tendon were sought.

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Treatment

All patients were randomised into two groups: Group A received a locally administered peri-tendonous injection of 40 mgs methyl prednisolone acetate in 1 ml of marcaine 0.25%. Group B received a peri-tendonous injection of 2 ml of 0.25% marcaine alone. All injections were administered by the first author himself, taking care to avoid penetrating the substance of the Achilles tendon. Patients were made to lie prone and the drugs were deposited on either side of the easily palpable tendon.

Physiotherapy

All patients enrolled in this study were administered a standardised course of physiotherapy by a single physio-therapist, the second author, over a period of 4 weeks. Patients unable to attend the twice-weekly sessions were excluded from the study. The programme involved application of an ice pack, followed by therapeutic ultrasound administered at a dosage of 0.5 watts per centimetre for 5 minutes. All patients were given an orthopaedic felt heel insert at their first attendance. No restriction on the level of activity was enforced — patients were merely asked to try to function normally within the limits of their pain. When running was recommended it was at half pace and on a soft surface with well-padded shoes and a sorbithane insert.

Follow-up

This was conducted on a double-blind basis. Pain, tenderness, activity level and ankle movements were checked. Patients in a particular group that failed to respond to their treatment were crossed over at 12 weeks.

RESULTS

A total of 36 patients were enrolled but six of these failed to attend for physiotherapy and two more refused further injection when they came to cross-over. Of the 28 patients studied, six had bilateral problems. There were 18 males and ten females with an average age of 28 (22-46). Twenty patients were keen sports-persons who ran more than three miles per day. Four played racquet sport on a regular basis and the remaining four did no sport. The commonest precipitating factor was a sudden increase in training (Table I). At presentation, patients in the two treatment groups were comparable for age, sex, pain, tenderness and activity levels (Table II). None of the patients were found to

TABLE I
Causes of Achilles paratendonitis

Increase in mileage	11
Single, severe session	6
Return from lay-off	4
Inversion injury to ankle	3
'Don't know'	4

TABLE II
Response to treatment

	No. of tendons	Pain Score	Tenderness*			Activity Level		
			I	II	III	25%	50%	75%
Group A (steroid and local anaesthetic)								
Presentation	19	41	12	5	2	8	11	—
6 weeks (†)	13	35	6	5	2	3	6	4
12 weeks (†)	13	30	6	6	1	3	6	4
Group B (local anaesthetic alone)								
Presentation	15	39	9	2	4	6	9	—
6 weeks (†)	10	31	5	2	2	3	4	3
12 weeks (†)	10	28	4	3	3	3	4	3

*For Grading see text

(†) excluding tendons that had fully recovered

have any demonstrable swelling or limitation of movement at the ankle joint. No patient in this series had any evidence of soft tissue calcification on their radiographs.

Patients were deemed to have recovered fully when reviewed if they were back to normal activity and had no pain or demonstrable tenderness. On this basis, it was apparent that the two groups did not differ significantly in their response to treatment (Table II). Only eleven tendons (39%) responded completely to treatment (six in group A and five in group B). Unlike those who failed to respond, these patients all exhibited grade one tenderness and had activity levels of 50% at presentation. When patients did respond, they did so within six weeks. Nine tendons appeared to respond completely but relapsed within twelve weeks on resumption of normal activity. Twenty-three tendons appeared to fail to respond to therapy at all, despite being crossed over from one treatment to the other at twelve weeks. Eleven of these patients have now been subjected to surgery and have had their paratenons stripped under general anaesthesia. The remainder have chosen not to have any treatment.

Rupture of the Achilles tendon did not occur in this series.

DISCUSSION

Whilst the pathology of Achilles paratendonitis remains obscure, there is little doubt that it is due to excess stress on the tendon (Clement et al, 1984). Stress may be acute in its application or chronically repetitive. Over pronators are thought to be at risk (Clement et al, 1984). Such stresses may cause microruptures of tendon fibres, which in turn will set up an intense inflammatory response (Brubaker et al, 1974).

The role of locally administered prednisolone acetate has not been evaluated prospectively in the past, though it is used extensively. Welsh et al (1980) recommend a maximum of two peri-tendonous injections, whereas Clancy et al (1976) feel steroids have no role to play. Certainly, if locally-acting steroids are to be administered, they must not be deposited within the substance of the tendon as this predisposes to tendon rupture (Unverfirth et al, 1973). In this study only eleven out of 35 tendons studied (33%) responded to treatment. As six of these patients had received a steroid and five had not, it appears that locally-acting steroids have no role to play. Patients who did respond to treatment had only minimal signs and symptoms when they presented and recovered within six weeks. The four patients who did not do any sport all fell within this category. Radiography was found to be an unhelpful investigation in this series.

Drawing on the experience of other authors, it appears that patients who do not respond to rest and physiotherapy but wish to continue an active lifestyle ought to be operated on sooner rather than later (Kvist, H. and Kvist, M., 1980, Clancy et al, 1986). There were eleven patients in this study who were subjected to surgery, where the thickened paratenon was stripped, who obtained an excellent end result. These patients have returned to normal activity and are asymptomatic.

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