Achilles tendon rupture: an underrated complication of corticosteroid treatment

D M Newnham, J G Douglas, J S Legge, J A R Friend

Abstract
Ten patients attending outpatient clinics who were taking oral corticosteroids ruptured their Achilles tendon in the course of 12 years. It is suggested that Achilles tendon rupture is a complication of corticosteroid treatment.

Oral corticosteroid treatment has many side effects but Achilles tendon rupture is not widely recognised as one of them. Several patients with chronic airflow obstruction attending our hospital clinics were noted to have non-traumatic Achilles tendon ruptures while having long term oral corticosteroid treatment. We have reviewed our clinic population and found that during 12 years 10 patients had an Achilles tendon rupture related to steroid treatment.

Details of the patients
Details of the 10 patients and their episodes of tendon rupture are given in the table. Their mean age was 68-5 years and in every case the rupture occurred while they were walking on level ground. Rupture was diagnosed in five patients immediately after the sudden onset of pain in the Achilles tendon with local tenderness, swelling, and a palpable discontinuity that was sometimes visible. Extensive subcutaneous bruising developed around the ankle and extended over the dorsum of the foot within hours. The remaining patients presented some weeks after the onset of
similar symptoms. All patients had chronic airways obstruction and were taking maintenance oral prednisolone of 5–10 mg daily and all but one had been taking oral corticosteroids for at least one year. All were taking a beta₂ agonist and corticosteroid from a metered dose inhaler in addition, and some were receiving oral theophylline or bronchodilators from a domiciliary nebuliser.

Discussion

Traumatic rupture of the Achilles tendon is well recognised. Spontaneous rupture is less often reported but is known to occur in patients with rheumatoid arthritis¹ and gout² and in recipients of renal transplants.³ Reports of non-traumatic rupture of the Achilles tendon in patients having long term oral corticosteroid treatment are rare, especially bilateral simultaneous ruptures. Haines, reviewing all the reports in English, found only 10 cases of bilateral Achilles tendon rupture, each of which was thought to be related to corticosteroid treatment⁴; a further case was reported in a 77 year old man with giant cell arteritis after four months' corticosteroid treatment.⁵

During 1988 14 patients presented to the Aberdeen hospitals with traumatic rupture of the Achilles tendon, an estimated annual incidence of one in 35 000 of the population. Their mean age (49·5 years) was considerably lower than that of our patients with non-traumatic rupture. About 10% of patients attending the Aberdeen chest clinics with chronic airways obstruction (around 500 patients) are receiving long term oral corticosteroid treatment. Our finding of 10 patients with Achilles tendon rupture over 12 years produces an estimated risk for patients taking corticosteroids who are attending our clinics of 1 in 600 a year. This supports our suggestion that long term oral corticosteroid treatment predisposes to an increased risk of non-traumatic rupture of the Achilles tendon. Achilles tendon rupture has not occurred in any of our patients with chronic airways obstruction not receiving oral corticosteroids. Although beta₂ agonists are known to cause muscle cramps, none of the patients were taking beta₂ agonists or unusually high inhaled doses, and none had complained of cramps immediately before tendon rupture.

The mechanism of rupture is forced dorsiflexion against a contracting calf and extending knee, and the diagnosis is confirmed by the presence of a bulging muscle belly in the proximal calf and a palpable gap in the Achilles tendon. Degenerative changes occur in the tendon from the third decade onward and these may be aggravated by corticosteroid treatment. This may explain why the patients taking oral steroids with non-traumatic Achilles tendon rupture are considerably older than those with traumatic ruptures. Only one of our patients was treated with open repair; the remainder of the ruptures healed by plaster immobilisation or by simple non-weight bearing after several weeks of disability.

Spontaneous Achilles tendon rupture in patients having long term corticosteroid treatment appears to be rather more common than has been suggested. We believe that this important and disabling complication of corticosteroid treatment merits greater recognition.


D M Newnham, J G Douglas, J S Legge and J A Friend

doi: 10.1136/thx.46.11.853

Updated information and services can be found at:
http://thorax.bmj.com/content/46/11/853

Email alerting service
Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/