Sural nerve injury associated with neglected tendo Achilles ruptures

M D A Fletcher, P J Warren

Abstract

Two patients are described with delayed presentation of a ruptured tendo Achilles, each exhibiting signs of sural nerve dysfunction. Recovery occurred in each case after operative repair.

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Keywords: sural nerve injury; tendo Achilles rupture; Bosworth repair

Rupture of the tendo Achilles is a commonly seen injury, with an incidence of between 2 and 12 cases per 100 000 people per year.^{1,2} Whereas intraoperative injury to the sural nerve is a well recognised but relatively uncommon complication, we believe injury to the sural nerve occurring as a direct consequence of tendon rupture to have been previously unreported. We describe two cases in which injury to the sural nerve was identified before operative repair of a ruptured tendo Achilles presenting late.

Case report 1

A 41 year old man, with no previous history of injury to the right lower leg, sustained a subcutaneous rupture of his right tendo Achilles while sprinting. Initially he opted to be treated non-operatively by progressive serial casting from equinus to plantigrade over an eight week period. On review at 12 weeks, he complained of persisting pain at the site of injury and the inability to plantarflex his foot from neutral. Clinical examination showed a 5 cm gap in the tendo Achilles and also an objective loss of sensation in the distribution of the sural nerve in the same foot.

At operation, a Bosworth turn down repair³ of the tendo Achilles was performed through a posterior longitudinal midline incision because it was impossible to approximate the free ends of the tendon without excessive tension. In view of the sural nerve signs before the operation, the sural nerve was examined at the time of surgery and, although found to be intact, was noted to be stretched adjacent to the ruptured segment of tendon. The nerve was freed by gentle dissection; it was apparent that no dense scar tissue related to it was present.

An above knee cast in equinus was applied at the time of surgery. This was changed to a below knee equinus cast at two weeks. Over the following eight weeks, a series of casts were applied to bring the foot from equinus to plantigrade. The leg was immobilised for a total of 10 weeks.

After the operation, there was an objective improvement in sensation in the distribution of

the sural nerve, and it had returned to normal three months after surgery. The patient regained active plantarflexion of the ankle. No complications occurred as a result of surgery.

Case report 2

A 53 year old man presented five weeks after rupturing his tendo Achilles during a game of badminton. Initially he sought treatment from an osteopath. He presented to our department after his symptoms failed to resolve. Clinical examination at this time showed a positive Simmonds sign and altered sensation within the distribution of the sural nerve.

Delayed primary repair of the tendo Achilles rupture was performed through a posterolateral approach, with subsequent immobilisation in a series of casts, varying from equinus to plantigrade over the course of eight weeks. At cast removal, it was noted that sensation within the distribution of the sural nerve had recovered, and the integrity of the repair was confirmed.

Discussion

Cadaver studies have shown considerable variation in the course of the sural nerve between individuals.^{4,5} This is of importance because the nerve crosses the lateral border of the tendo Achilles at a variable position along the tendon,⁵ and therefore may be at risk of intraoperative injury. Such injuries are most common after percutaneous repair, particularly if sutures are placed laterally, with a reported incidence of between 7 and 60%.^{6,7,8} Non-surgical injury to the sural nerve has been observed following entrapment in scar tissue as a result of haematoma,⁹ but no dense scar tissue was evident on exploration of the nerve in either of these cases. The mechanism of nerve dysfunction in these cases probably results from stretching of the nerve when the foot was inadvertently dorsiflexed; the absence of an intact tendo Achilles acting as a check rein allowed the nerve to be stretched beyond its normal physiological limits.

Older ruptured Achilles tendons often present with profound impairment of normal day to day activities,¹⁰ and under these circumstances it is relatively easy to overlook concomitant pathology. We feel that the importance of these cases lies in drawing attention to the possibility of associated sural nerve injury and, also, it reinforces the importance of careful clinical examination in the identification of any such associated injuries. In the light of increasing litigation for operative complications, structures at risk should be considered before surgery and their function noted, as they may be dysfunctional before surgical intervention.

Department of
Orthopaedic Surgery,
Northwick Park
Hospital, Watford
Road, Harrow, Middx
HA1 3UJ, UK
M D A Fletcher
P J Warren

Correspondence to:
Dr Fletcher, 1 Long
Barnaby, Midsomer Norton,
Bath BA3 2TZ, UK
matt.fletcher@doctors.org.uk

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Take home message

Neglected tendo Achilles ruptures often present with significant functional impairment, which may mask an associated sural nerve injury. The sural nerve is at risk of injury during surgical repair, therefore examination is advised to document its preoperative function.

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