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CASE REPORT

BILATERAL SPONTANEOUS RUPTURE OF THE ACHILLES TENDONS IN A PATIENT ON LONG-TERM SYSTEMIC STEROID THERAPY

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A 46 year old woman, on long-term steroid therapy for bronchial asthma, ruptured both Achilles tendons, one two days after the other. Surgical repair was carried out, and the patient made an uncomplicated recovery.

CASE REPORT

A 46 year old married woman radiographer was admitted with rupture of the right Achilles tendon during a Scottish Highland Dance. She stopped dancing but was able to walk with some difficulty. Twenty-four hours later, she was admitted and surgical repair was carried out using monofilament nylon 'figure of 8' fashion. After repair a below-knee plaster was applied with the foot in equinus.

Twenty-four hours after the operation she was walking around the room, holding the edge of the bed. Suddenly she felt something give way in the left leg, and the back of the leg was painful. Spontaneous rupture of the left Achilles tendon was diagnosed. Twenty-four hours later surgical repair was carried out using monofilament nylon 'figure of 8' fashion, and below-knee plaster was applied with the foot in equinus. She made a complete recovery.

She was known to have had bronchial asthma since she was 7 years old and treated symptomatically with various drugs by her general practitioner. She was asymptomatic until, at the age of 30, she suffered from a severe episode of bronchial asthma and was treated with high doses of systemic Prednisolone. She made a satisfactory recovery, but has been taking oral Prednisolone, mostly in the winter when her bronchial asthma

gets worse. Six months before the injury she started again to take Prednisolone, and continued on 5 mg a day as a maintenance dose, and she remained asymptomatic.

During the operation a biopsy from the tendo-Achilles was sent for histological examination, and report stated "The Achilles tendon shows partial necrosis and haemorrhagic destruction, consistent with rupture the day before. Sufficient time has elapsed for a (neutrophil) polymorphonuclear response. Congested capillaries in the neighbourhood of the rupture show endothelial swelling but granulation tissue formation has not yet commenced. These changes are non-specific".

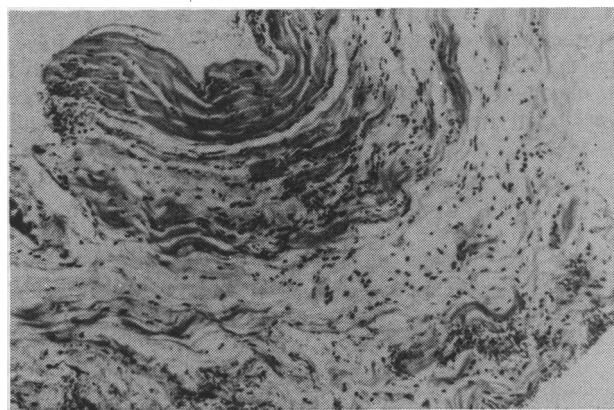


Fig. 1: shows partial necrosis and haemorrhage, aggregation of polymorphs. (H & E x 142)

DISCUSSION

It is known that long-term systemic or local steroid therapy reduces the number of fibroblasts (Checkick, 1982), and may even cause partial necrosis of the tendon

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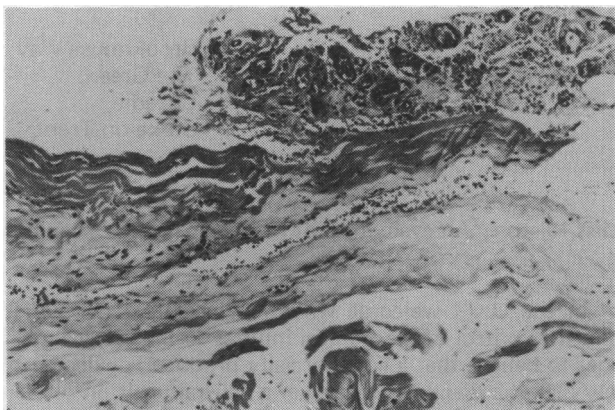


Fig. 2: Congested capillaries, partial necrosis and aggregation of polymorphs. (H & E x 142)

fibres. Normal tendon has a great tensile strength (Hirsch, 1974) and spontaneous rupture is uncommon. Some other systemic disorders may be associated with spontaneous tendon rupture, and these include primary hyperparathyroidism (Preston, 1972), rheumatoid arthritis (Backhouse et al, 1971), systemic lupus erythematosus (SLE) (Morgan and McCarty, 1974), secondary hyperparathyroidism (Circinione and Baker, 1975), gout (Mahoney et al, 1981), steroid medication in SLE (Morgan and McCarty, 1974), steroid medication of other conditions.

Even in the absence of underlying disease, local degeneration of the tendon may occur after the third decade of life, leading to rupture of part of the tendon (Hasted et al, 1958). It has been proved angiographically (Lasergren and Lindholm, 1959) that there is decreased blood flow to the tendon about 6 cms above its insertion into the calcaneum, after the third decade of life. This decreased blood flow and retardation of fibroblast production and maturity during steroid therapy may be the commonest cause of the spontaneous rupture of the Achilles tendon. This type of injury of Achilles tendon almost always requires proper surgical repair, and conservative treatment with long-leg plaster with 90 degrees of flexion of the knee and equinus position of the foot is less acceptable (Inglis and Sculeo, 1981).

Although we report this case as our only such injury in the course of a vigorous physical activity, Highland Dancing, we have treated another patient on long-term steroid therapy who sustained bilateral quadriceps tendon rupture through a much less vigorous activity.

A seventy-five year old man ruptured both his quadriceps tendons while he was walking down the steps of his own home. He was admitted on the same day into hospital, and surgical repair was carried out. His recovery was uncomplicated.

Three weeks prior to the rupture of the quadriceps tendons, he suffered from acute exacerbations of rheumatoid arthritis and he was treated with 15 mgs of Prednisolone in a day, in divided doses, by his general practitioner. His acute symptoms disappeared and his condition was quite stable. Then, doses of steroid were reduced from 15 mgs to 7.5 mgs a day in divided doses and he remained quite well.

REFERENCES

- Backhouse, K. M., Kay, A. G. L., Coomes, E. N. and Kates, A., 1971 "Tendon involvement in rheumatoid hand". *Ann.Rheum.Dis.* 30: 236-42.
- Chechick, A., 1982 "Recurrent rupture of the Achilles tendon induced by corticosteroid injection". *Br.Med.J.* 16 (2).
- Circinione, R. J. and Baker, B. E., 1975 "Tendon rupture with secondary hyperparathyroidism". *J.Joint Surg.* 57A: 252-3.
- Hasted, K., Larson, L. G. and Lindholm, A., 1958 "Clearance of radiosodium after deposit in the Achilles tendon". *Acta Chir.Scand.* 116: 251.
- Hirsch, G., 1974 "Tensile properties during tendon healing". *Acta Orthop.Scand.* 153 suppl: 1-145.
- Inglis, A. E. and Sculeo, T. P., 1981 "Surgical repair of rupture of the Tendo Achilles". *Clinical Orthopaedics and Related Research*: 156, 160.
- Lasergren, C. and Lindholm, A., 1959 "Vascular distribution of the Achilles tendon - an angiographic and micro-angiographic study". *Acta Chir.Scand.* 116: 491.
- Mahoney, P. G., Peter, D. J. and Howell, C. J., 1981 "Spontaneous rupture of the Achilles tendon in a patient with gout". *Ann.Rheum.Dis.* 40: 416-8.
- Morgan, J. and McCarty, D. J., 1974 "Tendon ruptures in patients with SLE (treated with corticosteroids)". *Arthritis Rheuma* 17: 1033-6.
- Preston, E. J., 1972 "Avulsion of both quadriceps tendons in hyperparathyroidism". *J.Am.Med.Ass.* 221: 406-7.