

Bilateral rupture of achilles tendon (bilrat) without predisposing systemic disease or steroid use: a case report and review of the literature

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Citation

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Abstract

Spontaneous Bilateral ruptures of tendoachilles is an uncommon injury, however when found they are associated with underlying medical conditions or consumption of drugs such as steroids or quinolones. We present a case where bilateral rupture of tendoachilles was seen without any predisposing condition. This is the first case reported in English literature, this report also reviews literature on bilateral rupture of tendoachilles.

INTRODUCTION

Rupture of tendoachilles, (TA) is not an uncommon injury to come across in clinical practice, however, bilateral tendoachilles rupture is certainly uncommon. There have been only a few cases of bilateral tendoachilles rupture reported in the literature and most of them have been associated with an underlying identifiable cause. Many systemic conditions as well as usage of steroids and fluoroquinolones have been reported to be associated with bilateral rupture of the Achilles tendon. However according to the author's best knowledge this is the first report in English Medical literature on spontaneous rupture of tendoachilles in healthy adults with no previous problems in tendoachilles or associated with any systemic disease or drug usage.

CASE REPORT

A 54-year-old previously healthy lady was Scottish dancing very gently, repeatedly going on to her toes, when she felt as if someone kicked her in the heel. She felt a sharp pain in the back of her ankle and she fell to the floor. She got up to dance again, and managed a few steps, and felt a similar sharp pain on her other ankle. She found herself on the floor again, but on this occasion she was unable to get up on her own. She was seen in the casualty department where a clear palpable gap was found bilaterally in the tendoachilles about five centimetres proximal to its insertion. Calf squeeze test was positive and a diagnosis of bilateral tendoachilles rupture was made. Her medical history did not reveal any

known systemic disorder and she was on no medication. Her routine blood investigations and others such as cholesterol were found to be normal. She underwent an open surgical repair of both the tendons simultaneously on the same evening. During the surgical procedure both the tendons were found to be macroscopically normal looking and nothing unusual was identified. Post operatively she was put in below knee casts with ankles in equinus for four weeks. Subsequently at four weeks the equinus was decreased and full weight bearing was permitted in plaster. At eight weeks the ankles were brought to the neutral position and finally at 10 weeks the casts were discarded and gentle physiotherapy instituted. She made a full recovery in about 6 months to almost pre-injury level.

DISCUSSION

Bilateral rupture of tendoachilles is a rare injury and has been reported by previous authors to be associated almost always with an underlying causative factor. The most common has been the systemic or local use of steroids. There are about 15 cases reported in the literature when bilateral ruptures have occurred post steroid consumption for as little as 12 weeks although no definite association has been reported between the duration of steroid use and the Achilles tendon rupture. These studies reported histopathological evidence of chronic weakening in the collagen structure of the achilles tendon and attributed this weakness to steroid consumption. Use of fluoroquinolones (ciprofloxacin, levofloxacin) for as less as 2 weeks have

been reported to be associated with bilateral TA rupture. It has been proposed that fluoroquinolones alter the viscoelastic properties of the tendons and induce increased fragility by decreasing decorin (proteoglycan which modulates collagen fibrillogenesis) transcription. Spontaneous rupture of the Achilles tendon has been associated with many systemic disorders, such as inflammatory (Rheumatoid Arthritis) and autoimmune (Systemic Lupus) conditions, genetically determined collagen abnormalities (Osteogenesis Imperfecta), infectious diseases, renal failure, neurological conditions, hyperlipidemia and metabolic conditions (hyperparathyroidism-primary and secondary, alkaptonuria, hypothyroidism.). Such disease processes may predispose the tendon to rupture from minor trauma. Blood flow into the tendon decreases with increased age and the 'watershed' area of the Achilles tendon may be more prone to rupture, as it is relatively avascular compared with the rest of the tendon.

Habusta reported two cases of BILRAT in healthy patients however both patients had long term Achilles tendonitis and were gymnasts. Specific bilateral forces generated through the Achilles tendons of experienced older gymnasts predispose them to chronic bilateral wear and acute bilateral simultaneous ruptures during specific manoeuvres. The case reported here is different from all previous cases as this patient was completely healthy and was not on any medication. She ruptured her tendons whilst she was dancing which she had been doing for many years, however this was not a Ballet type of dance which can put tremendous stresses on the Achilles tendon over a period of time. We found it extraordinary and hence this report. The purpose of this report is to make us aware of this condition and also that if encountered a thorough history of systemic diseases as outlined above and a thorough history of medication should be taken. Blood tests should be done to rule out metabolic conditions and hyperlipidemia. In our opinion these patients will be best treated by an open repair which will permit early rehabilitation and a chance to biopsy the site of rupture if anything unusual is suspected from the history or found

intraoperatively.

References

1. Ando W, et al. Bilateral Achilles Tendon Ruptures in a Patient With Ochronosis: A Case Report. *Clinical Orthopaedics & Related Research*. 424:180-182, July 2004.
2. Cowan MA, Alexander S: Simultaneous bilateral rupture of Achilles tendons due to triamcinolone. *Br Med J* 1:1658,1961.
3. Dent CM, Graham GP. Osteogenesis imperfecta and Achilles tendon rupture. *Injury* 1991; 22:239-240.
4. Dickey W, Patterson V: Bilateral Achilles tendon rupture simulating peripheral neuropathy : Unusual complication of steroid therapy. *J R Soc Med* 80:386-387, 1987.
5. Haines J: Bilateral rupture of the Achilles tendon in patients on steroid therapy. *Ann Rheum Dis* 42:652-654, 1983.
6. Habusta SF. Bilateral simultaneous rupture of the Achilles tendon. A rare traumatic injury. *Clin Orthop* 1995;320:231-4.
7. Kowatari K, Nakashima K, Ono A, Yoshihara M, Amano M, Toh S. Levofloxacin-induced bilateral Achilles tendon rupture: a case report and review of the literature. *J Orthop Sci*. 2004;9(2):186-90.
8. Melmed EP: Spontaneous bilateral rupture of the calcaneal tendon during steroid therapy. *J Bone Joint Surg* 47B:104-105, 1965.
9. Mahan KT, Maxwell J, Smith T, et al: Bilateral tendo Achilles rupture after gastrocnemius re-cession. *Am Podiatr Med Assoc* 76:457-461, 1986.
10. Mayer J H. Bilateral rupture of Achilles tendon. *Br Med J* 1961; 1:1830.
11. Mathiak G, Wening JV, Mathiak M, Neville LF, Jungbluth K. Serum cholesterol is elevated in patients with Achilles tendon ruptures. *Arch Orthop Trauma Surg* 1999; 119: 280-284.
12. Orava S, Hurme M, Leppilahti J. Bilateral Achilles tendon rupture: a report on two cases. *Scand J Med Sci Sports* 1996; 6:309-312.
13. Price AE, Evanski PM, Waugh TR. Bilateral Simultaneous Achilles Tendon Ruptures. Bilateral simultaneous achilles tendon ruptures. A case report and review of the literature. *Clin Orthop Relat Res*. 1986 Dec;(213):249-50.
14. Ramirez MA, Richardson LC. Pulmonary embolism associated with spontaneous bilateral Achilles tendon rupture. *J Foot Ankle Surg*. 2007 Jul-Aug;46(4):283-7.
15. Reed CC, Iozzo RV. The role of decorin in collagen fibrillogenesis and skin homeostasis. *Glycoconj J* 2002; 19:249-255.
16. SK Rao, BC Navadgi, A Vasdev. Bilateral spontaneous rupture of Achilles tendons. *Journal of Orthopaedic Surgery* 2005;13(2):178-180
17. Smaill GB: Bilateral rupture of Achilles tendons. *Br Med J* 1:1657-1658,1961.

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