

# Bilateral, Simultaneous Rupture of the Quadriceps Tendon Associated with Simvastatin

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**KEY WORDS:** quadriceps, rupture, statin, tendon

IMAJ 2011; 13: 185–186

**B**ilateral, simultaneous quadriceps tendon rupture is a rare entity. Shah et al. [1] analyzed 66 cases published in the English-language medical literature from 1949 to 2002, and Neubauer et al. [2] performed a meta-analysis of 105 published cases in the English and German literature from 1949 to 2004. The initial diagnosis was missed in 30.5% of cases; most of the patients were male (89.3%), with a mean age of 54.5 years. The main risk factors identified were obesity, chronic renal fail-

ure, hyperparathyroidism, atherosclerosis and gout [2].

Statins (3-hydroxy-3-methylglutaryl-coenzyme A reductase inhibitors) are the most effective therapeutic modalities for reducing serum cholesterol and low-density lipoprotein cholesterol levels. Musculoskeletal complications such as pain, myositis, rhabdomyolysis, myopathies and tendonitis are well known [3]. Tendon rupture associated with statin therapy is rare and it has been suggested that it may be related to the pleiotropic effect of statins on matrix metalloproteinase activity [4]. We present a case of bilateral, simultaneous quadriceps tendon rupture associated with simvastatin therapy.

Right knee photograph demonstrating the tendon rupture (the rupture is held by forceps).



## PATIENT DESCRIPTION

The patient was a 58 year old man, weight 75 kg (body mass index 27), with a medical history of hypertension and hypercholesterolemia who had been treated for the previous 4 years with simvastatin (the last 2 years with 80 mg per day). He presented to the emergency department with an "electric shock" type pain while walking, without trauma, in both of his legs. Initially, it was suspected that he suffered from cerebral ischemia; this was ruled out following diagnostic workup. He was then examined by an orthopedic surgeon who noticed swelling of both knees and suprapatellar gaps. The patient was also unable to extend his knees actively. Sonographic studies revealed hematoma and complete bilateral quadriceps tendon rupture.

He was admitted and underwent surgery. Intraoperatively, both tendons were completely avulsed from the cranial pole of the patella and the retinacula were ruptured [Figure]. The tendons were reattached with trans-osseous sutures and the retinacula were repaired. Postoperatively he was immobilized in a 0–15 degree flexion brace, with full weight bearing. Simvastatin treatment was discontinued.

A diagnostic evaluation was conducted to consider known risk factors of tendon rupture, including the use of anabolic steroids. Blood samples for parathyroid hormones, uric acid, renal function, anti-nuclear antibody and cholesterol were all in the normal range. Histopathology evaluation of the tendon revealed no pathological changes. Congo red staining ruled out amyloidosis.

## COMMENT

Tendon rupture associated with statin therapy is rare. Until 2006, the Food and Drug Administration's adverse-drug-effects-reporting database had collected data related to 247 cases of statin-related tendon rupture [4]. Beri and co-authors [5] published a case-control study that found no overall association between the use of statins and tendon rupture, although in subgroup analysis, statin use was found to be a significant risk factor for tendon rupture in women.

We found no reports of bilateral, simultaneous, spontaneous rupture of the quadriceps tendon associated with

statin therapy, although bilateral rupture of the Achilles tendon associated with statins had been reported. The patient was evaluated for factors known to cause tendon rupture, including histopathological evaluation for special pathological changes. We were unable to determine any alternative factors, indicating that statin-related tendinous complications may be the cause. We therefore suggest that physicians consider statin-related tendinous complications.

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