practice guidelines by Freedberg et al[4] do not recommend monitoring of serum magnesium levels in patients receiving long-term PPI therapy; however, clinicians should be aware of this association. At this point in time, serum magnesium levels should absolutely be checked in patients with any of the aforementioned symptoms or findings as well as patients with weakness or renal failure.

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Statin-Associated Achilles Tendon Rupture and Reproducible Bilateral Tendinopathy on Repeated Exposure

To the Editor: Recent reports have linked statin use with tendon rupture, but these results are inconsistent. A retrospective study revealed that 34% of patients with statin-associated tendon complications experienced tendon rupture,[1] yet population-based studies have found no association of statins with rupture.[2,3] Importantly, little is known regarding statin reinitiation after tendinopathy or rupture. We describe a patient who experienced severe tendinopathy on restarting statin therapy after presumed statin-associated Achilles tendon rupture, which had recovered fully while the patient was not receiving statin therapy. The patient had severe and additive bilateral tendon symptoms on rechallenge with 2 different statins, suggesting that statins have clinically important effects on healing tendons.

Report of Case. A 40-year old man who had participated in competitive athletics since childhood and was in good health apart from an elevated lipid profile and hypertension was prescribed rosuvastatin (5 mg/d orally) in September 2014 (Figure A). In March 2015, while participating in an indoor soccer match, the patient had a complete rupture of the left Achilles tendon, above insertion. Previously, the patient experienced pain on exertion and palpation of the right Achilles tendon, above insertion. The left Achilles tendon was surgically repaired, along with discontinuation of rosuvastatin. By August 2015, the patient had completed an 18-week physical therapy program, was pain free, and returned to unrestricted exercise.

In December 2015, the patient restarted rosuvastatin (2.5 mg/d orally), and after 7 weeks, he experienced severe tightness and pain upon standing and walking in both Achilles tendons, especially in the repaired side. After 2 more weeks, bilateral tendon pain had worsened considerably, and he discontinued rosuvastatin and initiated coenzyme Q10, 100 mg/d orally. By March 2016, bilateral pain and tightness were unresolved, and the patient underwent physical therapy with slow symptom relief. In July 2016, statins were again recommended, and based on his experiences with rosuvastatin, the patient declined this therapy and initiated the hydrophilic agent pravastatin (20 mg/d orally). After 5 days, he again experienced severe and debilitating bilateral tightness in both Achilles tendons, necessitating statin discontinuation and initiation of colestipol, 4 g/d orally. Over the next 2 months, both distal Achilles tendons appeared severely thickened, particularly at the musculotendinous junction, with the previously repaired left side having a greater degree of thickening (Figure B) than the right. Currently, the patient is limited only by the inability to stand for long durations (>20 minutes), and walking can be performed with minimal discomfort. The patient has not attempted running or more vigorous activities or restarted statin therapy.

Discussion. Reports on the effects of statins on previously ruptured tendons or patients with underlying disease remain elusive. Substantive to this case, post-rupture symptom onset upon the first challenge with rosuvastatin may have been coincidental. However, additive symptomology on further challenge with pravastatin suggests a more conclusive role for statins in this situation. The chronology of symptoms is also highly suggestive of a drug-induced effect, which occurred at lower doses than typical for both agents. Indeed, the Adverse Drug Reaction Probability Score[4] equals 11 in this case, suggesting a definitive association between statin therapy and the adverse event. Given the 77-hour half-life of pravastatin, the patient likely had substantial concentrations for weeks following discontinuation of the drug, consistent with

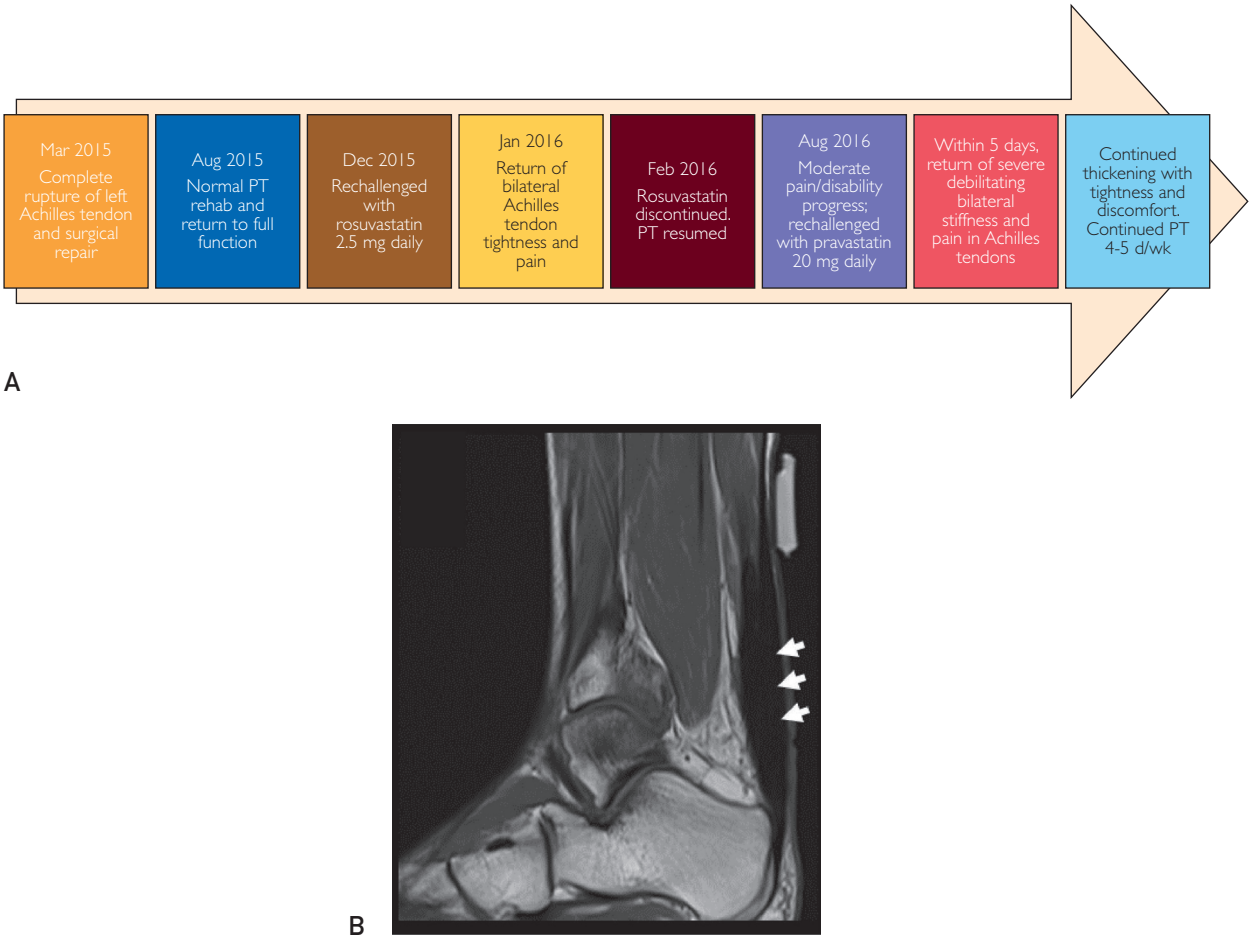

FIGURE. A, Timeline of patient's course. B, Magnetic resonance image of the left ankle taken in December 2017 shows severe thickening and tendinosis of the previously repaired Achilles tendon (arrows). The imaging marker denotes the site of greatest pain as reported by the patient, consistent with thickening at the musculotendinous junction.

continuation of symptoms and tendon thickening, particularly at both musculotendinous junctions.

Conclusion. We present novel case evidence for severe tendinopathy induced by multiple statins following successful tendon rupture repair. Practitioners should be thoughtful when considering reinitiation of statin therapy in patients with previous tendinopathy or tendon rupture. Patients should be engaged in a risk-benefit discussion, and individualized decisions regarding statin use in patients with tendon disorders should be reached.

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