Delayed Post-operative Infection by Staphylococcus lugdunensis Following Open Repair of Achilles Tendon Rupture

Mark A. Prissel, DPM (PGY-II); Sara L. Borkosky, DPM (PGY-III); Devin C. Simonson, DPM (PGY-I); Efthymios N. Gkotsoulias, DPM (PGY-I); Thomas S. Roukis, DPM, PhD, FACFAS

1Gundersen Lutheran Medical Foundation, 2Gundersen Lutheran Health System, La Crosse, WI

PURPOSE

With highly complex surgery requiring prolonged exposure to room air, foreign materials can provide a nidus for opportunistic infectious organisms to adhere, leading to delayed post-operative infections. 3,4 Staphylococcus lugdunensis is one such organism. Achilles tendon ruptures represent such surgical interventions where the use of soft tissue augmentation and suture material is frequently employed, leaving the patient at risk for infection. Staphylococcus lugdunensis is a gram-positive, coagulase-negative facultative anaerobic organism that forms a biofilm which allows it to adhere to foreign materials resulting in latent infection. 3,4 Staphylococcus lugdunensis infection following Achilles tendon repair has not been previously reported.

CASE STUDY

We present a 42-year old man who underwent acute open end-to-end primary repair of his ruptured Achilles tendon augmented with a Lindholm-type turn-down flap. Immediate post-operative healing was unremarkable. At greater than 3-years post-repair he presented to our department for evaluation of a “bulge” near his repair site which expressed caseous drainage multiple times daily. Clinical evaluation revealed a 2-mm x 2-mm ulceration overlying the Achilles tendon 2-cm proximal to the insertion. No cardinal signs of an acute infectious process were identified. Radiographs demonstrated increased density within the pre-Achilles fat pad and Achilles tendon. Magnetic resonance imaging (MRI) revealed a large mass to the medial aspect of the Achilles tendon repair tracking through the tendon. The Achilles tendon itself remained intact with normal signal.

Figure 1: Pre-operative evaluation. (A) Clinical photograph of posterior medial ankle ulceration with drainage 3-years following Achilles tendon repair; (B) MRI T2 fat saturated axial images demonstrating increased signal intensity identifying the sinus tract and associated tissue tethers; (C) MRI T2 fat saturated coronal images identifying the ulceration and sinus tract traversing the Achilles tendon from medial to lateral.

Figure 2: Intra-operative photographs. (A) Micro-sponge indicating involved non-absorbable suture during initial mobilization of the mass with excision of the ulceration; (B) Continued dissection of the soft tissue mass removing all affected tissues and wide resection of all involved tissues and foreign material.

RESULTS

The patient underwent excision of the ulceration and underlying mass with debridement of all infected tissue and involved suture. Intraoperative cultures revealed Staphylococcus lugdunensis that was susceptible to all drugs tested and histopathological evaluation identified fibrous soft tissue with cutaneous sinus tract and associated inflammatory tissue. The patient was placed on a short course of an oral first generation cephalosporin per Infectious Disease recommendation. He had an uneventful recovery with complete incisional healing and maintenance of his Achilles tendon repair.

ANALYSIS and DISCUSSION

As demonstrated in this case report, Staphylococcus lugdunensis represents a rare but concerning opportunistic bacteria that can cause delayed, occult post-operative infection. Despite being rare, this should be treated, as with all infections, with aggressive debridement and wide resection of all involved tissues and foreign material.

References

5. Gundersen Lutheran Medical Foundation, 2Gundersen Lutheran Health System, La Crosse, WI.