

Infection and non-healing after Achilles tendon surgery



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The Achilles tendon can become inflamed, degenerate, tear or rupture. In cases where it tears badly or ruptures, the tendon is stitched back together during surgery. This operation comes with the risk of wound healing problems and, as with all types of surgery, there is a chance of developing a postoperative infection. This case study discusses the treatment of a young patient who experienced infection and non-healing following an operation to repair her Achilles tendon.

The Achilles is the largest tendon in the body and attaches the gastrocnemius and soleus muscles to the heel bone. It is involved in plantar flexion of the foot and ankle and therefore plays an important role in walking and running. It can become inflamed due to overuse (Achilles tendonitis and tendonosis), may degenerate (tendinitis or tendinopathy) or tear or rupture. In this case study, a young patient presented with a non-healing wound after surgery to repair her Achilles tendon following a sports injury.

The patient

Miss A was a 23-year-old female who had injured her Achilles tendon while playing football. She had undergone surgery to repair her Achilles tendon, however on the seventh day after her operation pus started to discharge from the wound. At this time, all of the sutures were removed and the wound was left open. The patient was then discharged with the order that the wound be treated with

povidone iodine and the dressing be changed on a daily basis.

Two weeks later, secondary closure was performed. Three days after this, the patient presented with pain, fever and foul-smelling discharge and was readmitted. The sutures were removed and povidone iodine was applied again. Miss A was also given intravenous antibiotics (1 g of ceftriaxone for 7 days) to tackle the infection. She was later discharged from hospital with instructions for daily dressing changes.

Miss A continued using dressings for 5 further weeks. During this time, the wound gradually expanded in size and the patient was referred to the wound clinic for further care.

Physical examination

Miss A's wound was located on the posterior aspect of the ankle over the Achilles tendon. It was approximately 12 cm in height and 8 cm in diameter. The wound was superficial with slough in the wound bed and was producing a moderate amount of exudate [Figure]. There was maceration of the wound edges and discolouration in the periwound area. The anterior tibialis, posterior tibialis and dorsalis pedis pulses were intact.

Treatment and management

A swab from the wound was sent for culture and surgical debridement was carried out under local anaesthesia. *Pseudomonas aeruginosa* sensitive to ciprofloxacin and amikacin was isolated from the culture and the patient was prescribed oral ciprofloxacin for 1



Figure 1. The wound on initial presentation at the wound clinic.

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Figure 2. Epithelialisation 6 days after the application of vinegar and Hydrofera Blue.

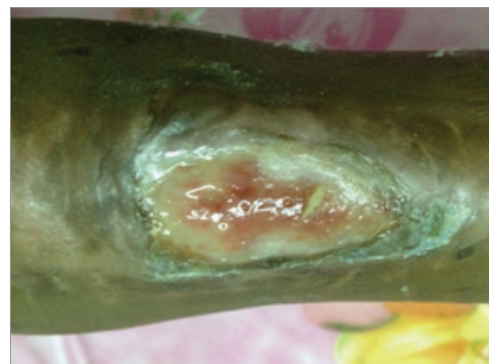


Figure 3. The wound was cleansed with sterile water and the dressing changed every 3 days.



Figure 4. The wound had totally epithelialised after 25 days.



Figure 5. There was complete healing 5 weeks later.

week. The wound was covered with a topical mupirocin dressing.

Despite this treatment, there was no improvement on 1 October. The wound was cleaned with one-quarter strength vinegar and covered with Hydrofera Blue. Hydrofera Blue is an absorbent polyvinyl alcohol foam containing methylene blue and gentian violet, which provides broad-spectrum antimicrobial activity that is effective against a variety of bacteria and yeasts. This dressing was changed every other day for 6 days.

By 6 October, epithelialisation had started to form at the wound margins [Figure 2]. The use of vinegar was stopped and the wound was cleansed with sterile distilled water then covered with Hydrofera Blue. The dressing was then changed every 3 days. The wound had visibly reduced in size by 15 October (11 x 7.5 cm and moderate exudate [Figure 3]) and was healing well on 26 October (8 x 5 cm, 25% epithelialisation and 75% granulation [Figure 4]). Complete healing occurred after 5 weeks of dressing with Hydrofera blue [Figure 5].

Discussion

The Achilles tendon is a strong, fibrous cord connecting the muscles of the calf to the heel. When it contracts the heel lifts and we stand on tiptoes or, if walking or running, are pushed forward. It can tear or rupture due to sudden strong forces, such as abrupt changes in speed, or pivoting on the foot, and is a common injury in sports such as running, gymnastics, dance, tennis and basketball. In this case, Miss A damaged her Achilles while playing football.

Damage to the Achilles tendon often results in tenderness, swelling and stiffness. There may be a snapping or popping noise at the time of injury. Partial or total rupture of the Achilles tendon can be assessed with an ultrasound or magnetic resonance image scan (Mayo Clinic,

2017). If torn or ruptured, the Achilles tendon can be stitched together during open surgery on the back of the calf or a small incision can be made on the back of the leg at the point of rupture and a series of needles with sutures attached passed through the skin and tendon before being tied together (Johns Hopkins Medicine, 2018; American Orthopaedic Foot & Ankle Society, 2018). If it is too badly damaged, some or all of the Achilles tendon might be replaced with a tendon from elsewhere in the foot (Johns Hopkins Medicine, 2018).

Following surgery, a splint or cast is put on the lower leg. Patients are not allowed to put weight on the leg and are advised to recline and keep it elevated above the heart level to reduce swelling and pain (American Orthopaedic Foot & Ankle Society, 2018). The splint or cast and stitches are usually removed 2 weeks after surgery. From 2 to 6 weeks after surgery, patients may begin weight-bearing and start physical therapy.

Wound infection and delayed healing are potential complications following Achilles tendon surgery (American Orthopaedic Foot & Ankle Society, 2018). In this case study, the patient experienced both and was treated with povidone iodine, intravenous, topical and oral antibiotics, and several different dressings. Drug resistance can contribute to delayed healing, and as the patient had already received intravenous antibiotics and healing had not progressed a swab was taken to determine which organisms were present and their sensitivity to ensure an effective antibiotic was prescribed. The combination of ciprofloxacin and the Hydrofera blue dressing, which had antimicrobial and moisture balance properties, led to successful healing. WAS

References

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