



Aseptic drainage associated with polyglactine sutures used for repair of Achilles tendon ruptures

Aşil tendonu tamirlerinde poliglaktinin yol açtığı aseptik akıntılar

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Aşil tendonu yaralanmalarının cerrahi tedavisinde amaç tendonu yeniden sağlamlaştırmaktır. Bu amaçla çeşitli dikiş teknik ve malzemeleri kullanılabilir. Dikiş malzemesi çok ya da tek lifli, emilebilir veya emilemez olabilir. Bu yazıda, Aşil tendonunun cerrahi onarımından sonra süregelen akıntı gelişen dört olgu sunuldu. Bu olguların hepsinde kalın poliglaktin (Vicryl) kullanılmıştı. Olgulara, dikiş malzemelerini temizlemek için açık cerrahi girişim uygulandı. Hastalar sorunsuz iyileşti. Aşil tendonu onarımlarında gereğinden kalın dikiş malzemesi ve büyük düğüm kullanmaktan kaçınılmalıdır. Çok lifli emilebilir cerrahi iplikler de bakteri yerleşimine ve doku reddine yakınlıkları nedeniyle ek sorun yaratabilirler.

Anahtar sözcükler: Aşil tendonu/yaralanma/cerrahi; ameliyat sonrası komplikasyon; dikiş tekniği.

The aim of surgical treatment of Achilles tendon ruptures is to restore stability of the tendon. Various suture techniques and materials can be used for this purpose. Suture materials may be polyfilament or monofilament, absorbable or nonabsorbable. We presented four patients who developed severe chronic discharges associated with thick polyglactine (Vicryl) used during open repair of acute Achilles tendon ruptures. Surgical removal of suture materials and debridement resulted in complete improvement without any complications. The use of thick suture materials and large knots should be avoided in the repair of Achilles tendon ruptures. Polyfilament and absorbable sutures may pose problems due to their tendency to cause bacterial colonization and tissue rejection.

Key words: Achilles tendon/injuries/surgery; postoperative complications; suture techniques.

Operative wounds, superficial and deep inflammations potentially emerging after Achilles tendon surgery are the most disturbing problems both for the patient and the surgeon. Poor vascularization of the Achilles tendon and extremely thin mass of the soft tissue surrounding the tendon are the main reasons for the development of these wounds and inflammations.

Dalton et al.^[1] reported that wound complications were seen at a rate 7-13,6 % after injuries of the Achilles tendon, and 2.5-4% of them were deep inflammatory processes.

In another study its incidence was found to be 4.7 %, and it was stated that smoking and steroid usage

had increased its incidence and that its side-effects were higher in women^[2] In this article four cases manifesting with chronic discharge and swelling due to reaction against suture material after surgical repair of Achilles tendon were presented.

Case report

Case 1- A 44 year-old male patient referred to our clinics with chronic serous discharge from posterolateral aspect of the left ankle. We learned that the patient had undergone open surgery for his Achilles tendon injury incurred during sportive activity one year ago. At postoperative sixth month, a 2 x 3 mm dermal erythema formed on the area of the operative wound scar just above the ankle on the posterolateral aspect.

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With time this erythematous lesion turned into a weeping wound resulting in skin defect measuring 3 cm in length and 4 mm in width. Hemorrhagic and serous discharge from the wound could not cease despite all surgical cleansing, dressing and antibiotherapies. Antibiofilms on wound discharge material could not demonstrate any bacterial growth (Figure 1). On magnetic resonance imaging (MRI) performed to investigate the last state of the Achilles tendon, suture material inside the Achilles tendon, fluid surrounding the material and fistulous tract were fully observed (Figure 2a-c). The etiology of the discharge was considered to be associated with rejection reaction related to the suture material and thus surgery was decided upon. Under spinal anesthesia and application of a tourniquet, following required cleaning procedure, stoma of the fistulous discharge tract was excised and removed circumferentially with an incision done on the previous operative scar (Figure 3a). When the discharge was traced down to deeper layers, polyglactine suture material and relatively bulky suture knot were encountered. The discharge fluid observably coursed along the whole length of the suture filament without any infiltration into the tendon (Figure 3b). The knot was cut and the surgical suture filament was removed (Figure 3c). Any regional necrotic tissue or alike which would require additional debridement were not encountered and the wound was rinsed with copious amounts of serum. The skin was closed with 3/0 polypropylene suture. The drain was removed on the second postoperative day upon non-observance of



Figure 1. Granulomatous wound at the left cruris.

any discharge. The wound healed at 14th day without any complication (Figure 4). The patient who was an office employee could return to his work at the end of the first week.

Case 2— A 27 year-old male patient had undergone open surgical repair in another center with the diagnosis of the left ankle Achilles tendon injury on the postoperative 4.week firstly erythema, then open wound and occasionally serosanguineous discharge emerged on the medial edge of the Achilles tendon corresponding to the operative wound area. Afterwards, a weeping wound occurred on the lateral edge of the Achilles tendon, while the oozing from the medial aspect decreased, and closed with time even frequent recur-

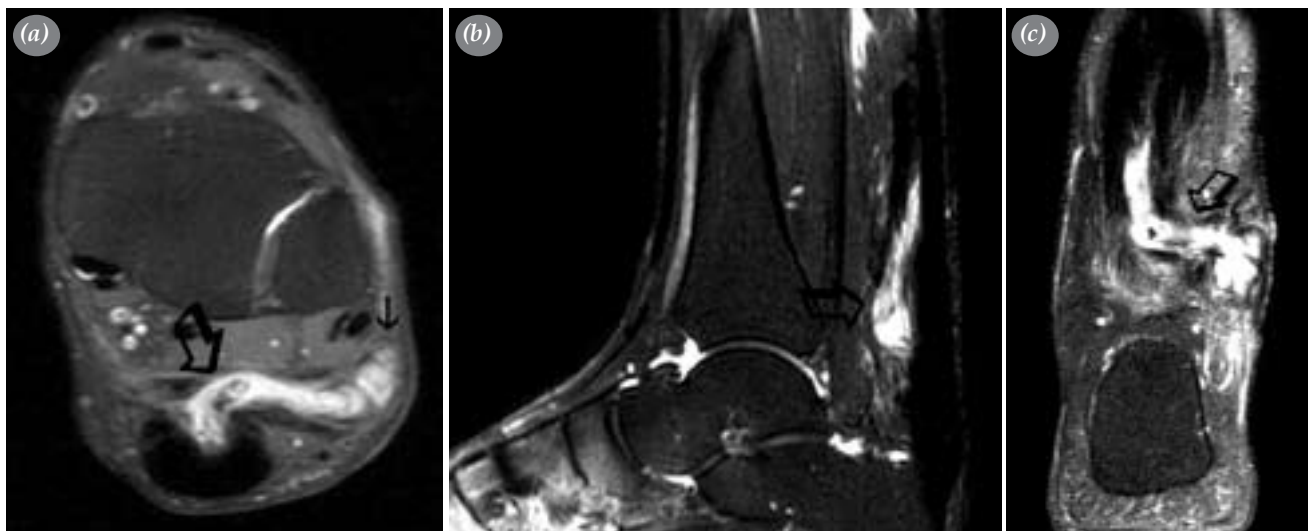


Figure 2. (a) Sagittal MRI view of the drained tract; bold arrow show suture material, thin arrow show outlet. (b) Fluid collection and tract. (c) Frontal MRI image of tract and suture material.



Figure 3. (a) Resection of tract outlet. (b) Suture material causing collection. (c) Removed sutures.

rences. The wound of the patient was cleaned twice under local anesthesia. Cultures obtained revealed the growth of *Staphylococcus epidermidis*. Oozing did not decrease despite surgical cleansing, dressing and antibiotherapy. A deeper surgical cleansing was decided for the patient who consulted to our clinics at 12. month postoperatively. Under spinal anesthesia and tourniquet application, incision on the previous surgical scar was deepened through layers. Within the repair site an extremely thickened Achilles tendon, multiple, some of them broken 2.0 polyglactine suture material and 2/0 prolene suture residues were encountered. Fluid collection and foreign body reaction were observed around the suture material. All residues of the suture material were removed, the tendon was flushed with sterile water and all reactive material was eliminated without impairing integrity of the tendon. The wound was closed only with 3/0 polypropylene skin suture and a Penrose drain was placed inside the wound. Any fixation method was not applied besides surgical dress-

ing, and the drain was removed on the 2nd postoperative day. The wound closed without any problem, and healing process was achieved without any recurrence or complication.

Case 3– A 38 year-old male patient experienced widespread inflammation, and aseptic serous discharge and later on 20th postoperative day wound dehiscence developed following surgical repair performed for the rupture of the Achilles tendon. Surrounding tissues and tendon ends thought to be led to inflammation are debrided and surgical repair was repeated. Following these surgical procedures, upon persistence of serous discharge the patient was operated on by us. Any finding which might be suggestive of the etiology of serous discharge around surgical field was not encountered, integrity of the tendon was preserved and healing was complete. Polyglactine suture material which conceived to be the cause of the discharge was removed. The patient improved without any complication.

Case 4– A 32 year-old male patient was operated on for the rupture of the Achilles tendon occurred during sportive activities. Ten days after surgical repair, inflammation of the wound was developed. Inflammation around polyglactine suture material used for the repair of the Achilles tendon was observed. The material was removed and the wound repaired with polydioxanone. Any discharge was not seen after the second operation.

Discussion

The suturing method and the strength of the material to be used for the repair of the Achilles tendon are extremely important. Anatomic characteristics of the



Figure 4. Wound completely healed

tendon makes the technique used and the selection of the suture material to be used much more important factors.^[3-7] For the repair of the injuries of the Achilles tendon polyglycolic acid, polyglactine and polypropylene are widely used suture materials. For newly onset ruptures, peritendinous suture in addition to Kessler or Bunnell core suture is the most frequently used suture.

In this method core suturing is done using 2.0 or thicker suture material and tags present on the wound area are rectified with peritendinous sutures. The last step is the repair of the tendon sheath. If the material used has a multifilamentous structure like polyglactine, low level of bacterial contamination proceeds easily through filaments and can cause inflammation of mild severity with the aid of the tissue response. In a comparative study done by Gabrielli et al.^[8] authors reported much more severe tissue reaction with polyglactine than polyglycolic acid. In the same study thickness of the suture material was reportedly more important with respect to tissue reaction. In another study, the incidences of abscess, granuloma and fistula formation were 6.5 % and 11.3 % for polyglycolic acid and polyglactine, respectively.^[9] Monofilamentous suture material like polypropylene was found to be more reliable and safe.^[10] Bacterial contamination and its related problems were reported to be much more higher for multifilamentous suture materials than monofilamentous ones.^[11] The physical findings of our 4 patients with wound secretions resistant to the treatment after the repair of Achilles tendon were similar. Serous discharge and regional swelling were the main complaints. Discharge onsetting 10 days-6 months after the surgery persisted with the development of fistulous opening, and resisted against every medical treatment employed. In culture specimens retrieved, any growth of microorganisms excluding natural flora did not occur. Any systemic finding of inflammation was not encountered in our patient. In the light of our experience we gathered from these four cases, we take attention to the use of polyglactine

suture material should be discarded from the selection of the suture material to be used in the surgical repair of the injuries of the Achilles tendon and the number of knots should not be above limits.

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