

CASE STUDY

Ayurvedic Management of Postoperative Tendo -Achilles Wound - A Case Report

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ABSTRACT

Achilles tendon, the thickest and the strongest tendon of the human body can get injured due to various reasons. In recent years the frequencies of such injuries have increased manifold. In addition to trauma, a good number of risk factors can contribute to partial or complete rupture of this tendon viz. obesity, unequal limbs, muscular weakness and prolonged use of drugs like fluoroquinolone, antimicrobial agents, corticosteroids, etc. The patient may present with an acute or chronic rupture of the tendon and is managed principally by the surgical intervention. Postoperative complications like surgical site infection and delayed wound healing may interfere with the rehabilitation schedule and outcomes of the surgery. Relative hypo-vascularity in the region around the distal-most part of the tendon not only contributes to the dehiscence of the wound but also interferes with wound healing. Such injuries are sometimes reluctant to heal for months together and may even land up in weakening or re-rupture of the tendon. The present case report is of Ayurvedic management of a case of postoperative wound dehiscence of a Tendo-Achilles repair.

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Introduction

Tendo Achilles, although the strongest tendon of the human body yet is vulnerable to get ruptured. This rupture happens due to hypo-vascularity around its insertion and tension sustained during routine activities. Break of Tendo Achilles is estimated to be the third most frequent tendon to get ruptured^[1]. Continuous strenuous overloads in sportspersons, age-related degeneration, the discrepancy in limb length, obesity, long term use of drugs like fluoroquinolone antibiotics and corticosteroids etc. constitute the principal risk factors for rupture of this tendon^{[2],[3]}. Ruptured Tendo Achilles is usually managed surgically and the type of intervention is planned according to chronicity, site, age of patient and surgeon's

choice or preference. An infected Achilles tendon is a difficult entity to treat due to the superficial location of the tendon as well as poor tendon vascularity^[4] Angiographic studies reveal that the area of about 2cm - 6cm proximal to the calcaneal insertion of the tendon is low in blood supply. This hypovascularity contributes as a risk factor for the weakness of tendon and also the postoperative complication of surgical site infection and delayed wound healing. It is estimated that there is a wound complication rate of 7% to 13% and a deep infection rate of 2% to 4% with open treatment^{[5], [6]}.

Ayurveda has a proven potential to manage chronic non-healing wounds. Topical applications and various oral medications are indicated to improve the pace of wound healing. Acharya Sushruta has given a comprehensive description of multiple types of injuries and their management. Sixty modalities of wound management termed as 'Shashti Upkrama' are attributed to his excellence in the field of wound management^[7].

Case History

A female patient aged 54 years, was brought to the hospital in the outdoor patient department of Shalya Tantra at National Institute of Ayurveda, Jaipur, Rajasthan, India. Her complaints were pain and swelling over the right heel and ankle region with difficulty in walking for the last 20 days with a history of fall. She gave the history of getting her right leg twisted around the ankle followed by fall when her foot got stuck in a pit on the road. She was treated with analgesics and anti-inflammatory drugs. On examination the swelling was found proximal to heel posteriorly. There was tenderness, and an evident gap in the continuity of Tendo Achilles was observed. Clinical tests like Thompson 'squeeze test' and the Matles tests were suggestive of complete rupture of the tendon. Her 10 days old MRI was suggestive of partial TA tear however, clinically it was found complete as the patient was continuously using the affected leg, and the partial break might have resulted in a complete one due to ignorance.

The patient was also a known case of Bronchial Asthma since childhood and was on regular medications. Her

tendon repair was done using Lindholm's Technique^[8]. The surgery was uneventful and above knee POP cast was applied with foot in plantigrade and knee in semi flexed position.

On the very next day, the surgical site was examined after making a window in the cast. There was bluish discoloration around the distal margins of the wound along with swelling, and distal sutures were found in tension. Gradually the wound status deteriorated with marked ischemic necrosis and subsequent contamination. Sutures removed from the necrosed margins on 5th postoperative day and the superficial fibres of the repaired tendon got exposed.

Local Treatment

As per the need, wound debridement and regular dressings of the wound with Jatyadi Taila done after washing it with normal saline. Dressings scheduled according to the wound status which initially was on alternate days for 2 weeks, but as the wound became healthier, the frequency of dressings reduced to twice a week. Complete healing achieved by the time of removal of the POP cast (i.e. 6 wks).

Systemic Medications

Postoperative Anti-microbial Agent therapy was stopped after one week, and afterwards, the patient completely managed with Ayurvedic oral formulations. Oral medication in the form of tablets Arogayavardhini Vati 500 mg bid and Tablet Triphala Guggulu 500 mg bid prescribed with lukewarm water. Combination of 3 g of Amalaki Churna + 500 mg of Sudhha Gandhaka + 125 mg of Rasamanikya was given with honey twice in a day. As the patient was having constipation, so Laxative-Panchashkar Churna in the dose of 5g advised at night before sleeping.

Discussion

Wound infection is one of the most annoying postoperative complications of Tendo Achilles repair. Wounds pertaining to hypo vascular regions of the body resist to heal^[9]. In the present case also, the surgical wound

underwent ischaemic necrosis and subsequent infection. The possible reasons for this include application of sutures under tension, tight plaster cast, failure to follow the instructions of limb elevation in the postoperative period etc. These factors deteriorate the vascular flow, and resultant ischemia contribute to the possibility of tissue necrosis and superadded infections. Some surgeons have described the technique of managing such wounds by serial debridements and achieving wound healing by secondary intention^[10]. Adequate surgical debridement followed by vacuum-assisted closure and skin grafting are the other ways to achieve early healing^[11]. Dautry et al. has reported rapid healing of such wounds when managed by early skin grafting^[12].

In Ayurveda, such types of wounds are treated on the line of management of Dushta Vrana (unhealthy wounds). The Vrana (wound) that is very painful, having discolouration and discharge have been termed as Ashuddha Vrana or Dushta Vrana (unhealthy wound) and requires Shodhana (cleansing) as per Acharya Charaka^[13]. The very first aim of Treatment is to convert Dushta Vrana into a Shuddha Vrana (healthy wound) to facilitate the healing process. For this wound debridement is an essential prerequisite. Repeated surgical debridement was carried out to remove the infected, necrosed and devitalizes tissues. In each dressing schedule wound irrigation with Normal Saline (NS) was carried out to decrease the microbial load and to optimize the hydration status of the wound. Adequate hydration of the exposed tendon fibres is necessary to maintain the vitality and integrity of repaired Tendo Achilles. Application of Jatyadi Taila subsequent to irrigation with injection Normal Saline was done to maintain the hydration as oil acts as a barrier against dehydration of the same. In addition to this Jatyadi Taila has Vrana Shodhana (wound cleansing) and Vrana Ropana (wound healing) properties^[14].

Although wound healing is a natural process, yet it can be enhanced by adopting various local and systemic measures. A good number of oral formulations are available in Ayurveda that are indicated to achieve un-hindered wound healing viz Triphala Guggulu^[15],

Arogyavardhini Vati^[16], Amalaki Rasayana^[17], Shuddh Gandhaka^[18], Rasmanikya^[19].

By adopting Ayurvedic management, complete wound healing was achieved within a period of days, prior to the time of cast removal. Afterwards, the rehabilitation schedule of physiotherapy was followed up in order to restore optimum functions of the affected limb.

Conclusion

Surgical site infection and wound dehiscence are most taxing complications of Tendo Achilles repair. Ayurveda carries an inherent potential poised for managing such complications. Judicious use of Ayurvedic methods of wound management principles can be helpful in managing such wounds. The management strategy adopted in this case was simple, effective and resulted in to successful outcome.

Ethics declarations

Conflict of interest

The authors declare that they have no conflict of interest.

Ethical approval

Being a case report, it does not need ethical clearance. The identity of the patient has not been revealed.

Disclosure of Funding

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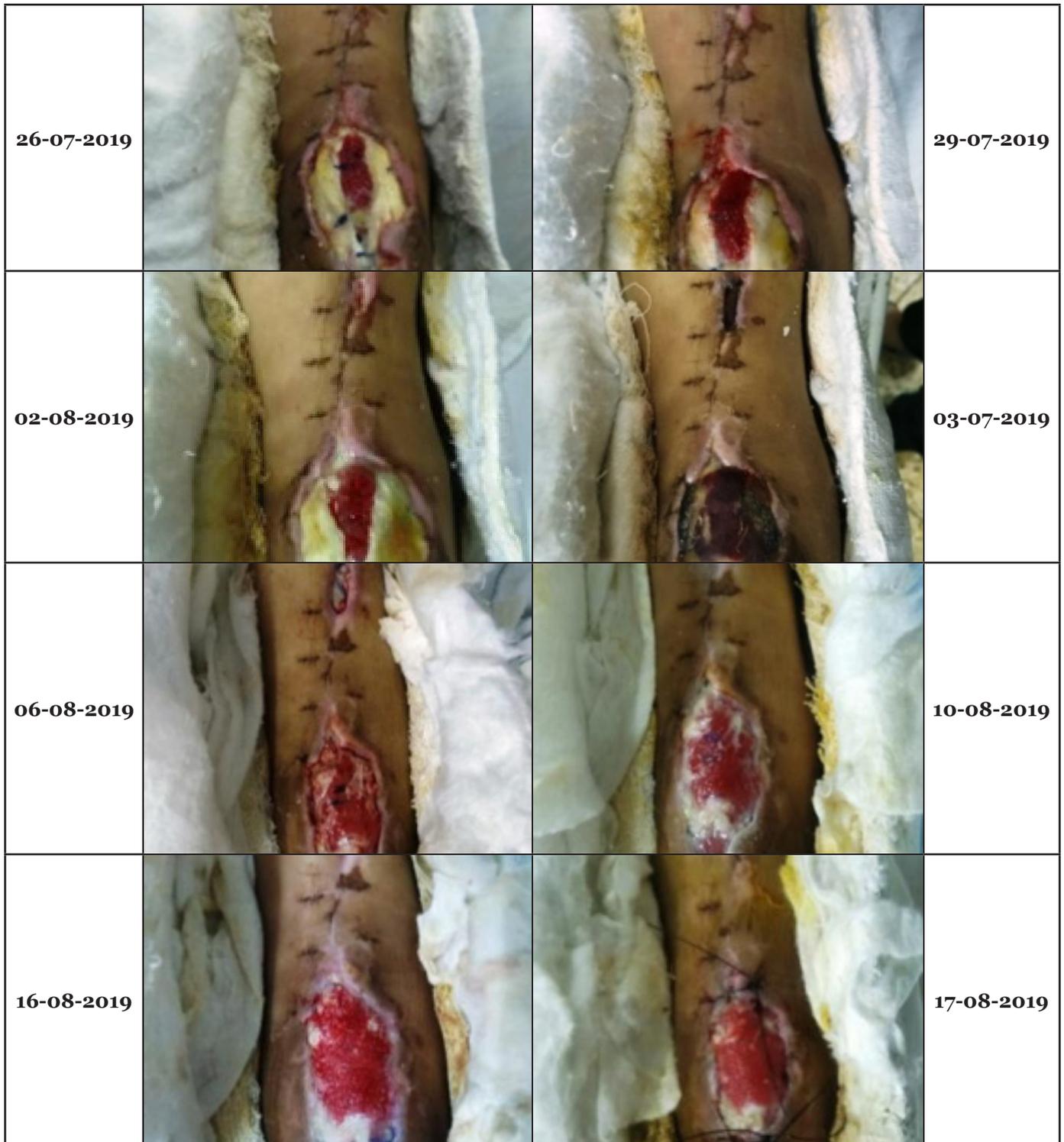
Declaration of patient consent

Authors certify that they have obtained the consent of the patient and her attendants. This consent was for the clinical history and images to be reported in the journal while maintaining confidentiality.

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<p>08-07-2019</p>		<p>Pre-operative Status</p>	
<p>11-07-2019</p>			<p>13-07-2019</p>
<p>15-07-2019</p>			<p>17-07-2019</p>
<p>18-07-2019</p>			<p>23-07-2019</p>





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सारांश:

अकिलीज टेंडन, मानव शरीर की सबसे मोटी और सबसे मजबूत कण्डरा है। जोकि विविध कारणों से क्षतिग्रस्त होती है। पिछले कुछ समय से ऐसी चोट लगने की घटना की आवृत्तियों में कई गुना वृद्धि हुई है। कण्डरा के आंशिक या पूर्ण रूप से टूटने में आघात के अतिरिक्त कुछ अन्य विपत्ति के कारक है। जैसे कि मोटापा, असमान अंग, मांसपेशियों में कमजोरी और लंबे समय तक कुछ दवाओं का सेवन करना। जैसे कि फ्लूरोक्विनोलोन, रोगाणुरोधी एजेंटों, कॉर्टिकोस्टेरोइड्स आदि है। कण्डरा के त्वरित या जीर्ण टूटने के पर्यन्त ही रोगी चिकित्सालय में उपस्थित होता है और मुख्य रूप से शल्य क्रिया (सर्जिकल प्रक्रिया) द्वारा उपचार किया जाता है। पोस्टऑपरेटिव अवधि में सर्जिकल साइट संक्रमण और घाव का देर से भरने जैसे कठिनाइयाँ मिलती हैं जिससे की रोगी के पुनः सामान्य होने में तथा शल्य क्रिया की सफलता में रुकावट आती हैं कण्डरा के बाहर के अधिकांश भाग की रक्त वाहिकाओं में रक्त का कम प्रवाह होने से व्रण में स्फुटन के साथ साथ व्रण भरने की प्रक्रिया में बाधा भी डालता है इस तरह के व्रण कभी-कभी महीनों तक नहीं भरते हैं जिससे की कण्डरा कमजोर हो जाती है एवं दोबारा क्षतिग्रस्त हो जाती है पोस्टऑपरेटिव व्रण के सफल आयुर्वेदिक उपचार का ऐसा ही एक प्रकरण यहां प्रस्तुत किया गया है।