รายงานการรักษาแผลติดเชื้อบริเวณส้นเท้าทั้งสองข้างในผู้ป่วยเบาหวานโดยการตัดกระดูกส้นเท้า

ทวีศักดิ์ ศรีคำมูล พบ.
กลุ่มงานศัลยกรรม โรงพยาบาลเทพธารินทร์

บทคัดย่อ

แผลติดเชื้อบริเวณส้นเท้าโดยเฉพาะหากผู้ป่วยเป็นโรคเบาหวานร่วมด้วยเป็นแผลที่หายได้ยากต้องอาศัยการดูแลแบบสหสาขา บทความนี้รายงานความสำเร็จของการรักษาผู้ป่วยแผลเบาหวานติดเชื้อที่บริเวณส้นเท้าทั้งสองข้างในผู้ป่วยเบาหวานโดยการทำการผ่าตัดกระดูกส้นเท้า พบว่าสามารถช่วยในการหายของแผลและสามารถหลักเลี่ยงการถูกตัดขาจากการติดเชื้อได้ในผู้ป่วยรายนี้ และบาดแผลหายเป็นปกติ

คำสำคัญ แผลติดเชื้อระดับลึก, เบาหวาน, แผลที่ส้นเท้า

A case report of the bilateral heels necrotizing fasciitis in diabetic type II patient: surgical management

Taweesak Srikummoon
Department of Surgery, Theptarin hospital

Abstract

The heel ulcer itself is usually need special care for healing. When complicated with diabetic disease, the severity heel ulcer will more. Multidisciplinary treatment approach is needed to heal the chronic diabetic heel ulcer patient. While most of the cases were and up with primary limb amputation, we reported a successful case management of the bilateral chronic diabetic heels ulcer. To report a successful management of the bilateral heels necrotizing fasciitis in diabetic type II patient. A case report by history taking and patients' chart review

Amputation of heel is significantly end up with limb amputation, because of the inadequate blood circulation and infection. Superimposed on diabetes contribute to more serious complication of heel ulceration. A good assessment of affected limb vascular supply and a good blood sugar control are critical success factors in heel ulcer healing. Multidisciplinary team approach is necessary in caring this group of patients. Simple surgical techniques such as debridement, partial bone excision, and primary wound closure are enough to headle heel wound in a good vascular supply and good blood sugar control patient.

Key words: necrotizing fasciitis, diabetic type II, heel wound

Introduction

Even a minor trauma, which causes a break in the dermal barrier in heel area in diabetic patients, may lead to chronic heel ulcer[1, 2]. Diabetic foot ulceration, including heel ulceration, is a major complication of diabetes mellitus[2]. The lifetime incidence of heel ulcer in diabetic patient is about 15 percent[2]. Heel ulcer is also the second common site of pressure ulcers after the sacrum in bed ridden patients[3]. The severity of heel ulcer may be a small ulcer up to the large defect of muscle and bone. Chronic heel ulcer usually leads to morbidity and mortality in patients[4, 5]. Hospital-acquired heel pressure ulcers represent a significant morbidity and often result in limb loss[5].

The heel ulcer itself is usually need special care for healing such as of loading, wound debridement, and flap coverage[6]. When complicated with diabetic disease, the severity heel ulcer will more. Chronic diabetic heel ulcer are complicated by three factors; vascular compromization, neuropathy, and immunocompromization by uncontrolled blood sugar[7, 8]. Multidisciplinary treatment approach is needed to heal the chronic diabetic heel ulcer patients; such as, off loading, a good nursing care, tight blood sugar control by internist, debridement by surgeon, rehabilitation by physiotherapist[9, 10].

The purpose of this report is to demonstrate a clinical history of one chronic diabetic bilateral heels ulcer with a successful healing of chronic diabetic heel ulcer by underwent partial calcanectomy in Theptarin hospital. Partial calcanectomy provide an adequate debridement together with allow enough flaps to cover the heel with primary closure.

Material and method

A case report by review the patient's chart and operative record in one patient with infected heels wound on both legs with diabetic type II who transferred to Theptarin hospital. The eight months hospital history was reported. Patient was consented to report of this paper.

A Case report

A Thai paraplegia 52 years old man referred to Theptarin hospital with infected bilateral heels wounds (Figure 1).

Figure 1a, b. infected heels wounds on 1a right leg and 1b left leg.

He went to hospital with chronic wounds on his bilateral heels and low grade fever. He has underlying of diabetic type II and he is paraplegia for more than 10 years which resulted from spondylolithiasis and spinal surgery. After a period of bed ridden, He developed wound on his bilateral heels and superimposed with infection. The Wagner classification if his wounds were Wagner 2 (exposed tendon and bone without osteomyelitis) on bilateral heels.

During his course in Theptarin hospital, he had undergone many investigations and controlled his underlying diseases. His laboratory studies were as followed;

CBC: Hct 31.7 % Hgb 11.2mg% WBC 11,540 cumm (N 83%, Lym 15%)

Bun 42 mg/dl, Cr 1.70 mg/dl Na^+ 136 mmol/l, K^+ 3.6 mmol/l, Cl^- 97 mmol/l, CO_2 26 mmol/l

Urine exam: no cells, WNL

EKG: HR 100/min, Normal sinus rhythm

CXR: WNL

Hemoculture: Negative

Wound swab culture: Multi-drug resistence Staphylococcus aurius (MRSA)

Conclusion for her diagnosis were

1. Necrotizing fasciitis of bilateral heels
2. Diabetic mellitus type II
3. Spondylolithiasis with paraplegia

He had been treated for infection and supportive measures such as compressive dressing, and passive exercise. The surgery was planned after

the infection and blood sugar were well controlled. The patient was luckyly to have a good blood suply to the both limb.

Stages surgery and debridement were done for several times. Figure 2a ,b showed patients' heels immediate after calcanectomy.

Figure 2a, b. Patient's heel after calcanectomy surgery; 2a left heel, 2b right heel.

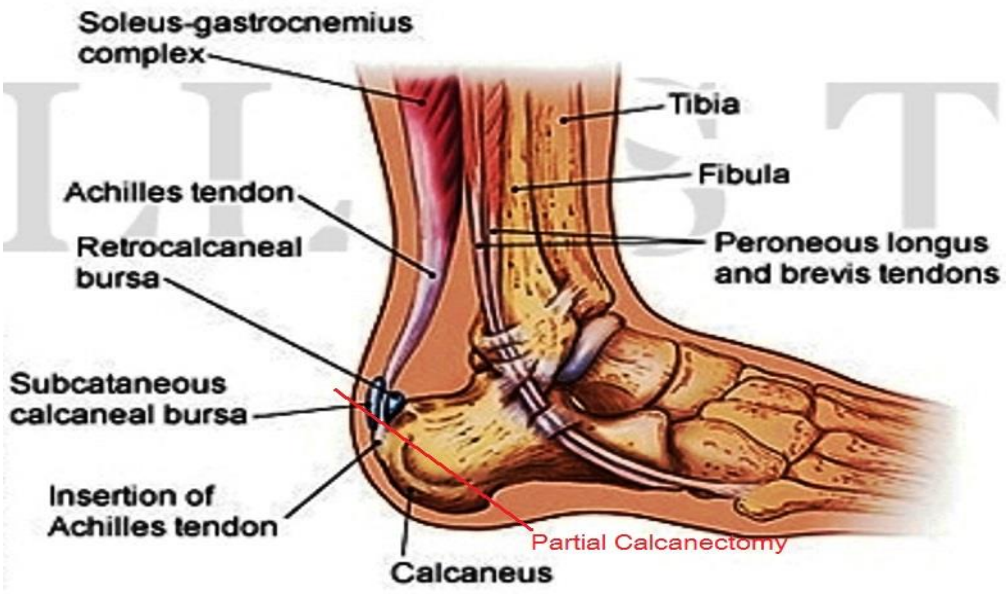

Figure 3. Partial calcanectomy

Surgical technique for heels wounds debridement, partial calcanectomy with primary skin closure procedure

1. Pre-operative planning

Preoperative planning, patient's physical status check up and medical consultation were done. Patient is fit for operation. Physiotherapist designed to do rehabilitation before and after surgery. The tight blood sugar control and local wound control was about one week before surgery.

2. Operative procedure

The operation was planned after evaluation of the lower limb circulation to avoidance vascular compromised problems. Heel wound debridement, partial calcanectomy with primary skin closure procedure were done at once during the surgery.

Surgical technique

The patient was in supine position under bilateral ankle block. Aseptic and antiseptic technique was prepared to the affected lower extremity. After resection of the necrotic tissue, partial calcanectomy was done as figure 3, the tissue flap was mobilized around the resection area. Primary closure was done by simple reapproximate the wound flap with insertion of Radivac drain number 12. The operation was done on both heels during the same surgery. The calcanectomy was done below the endoarchillis tendon insertion area.

3. Post-operative care

The wounds and drainage system checked everyday. After 2 weeks of each surgery, stitch off was done. The Radivace drainage system was taken off after minimal fluid was detected.

4. Complication

There was no immediate complocation after surgery. Patient was safe after surgery and the result is good. Patient's heels wounds was healed after two weeks after surgery. Fig4a-d demonstrates the patients' heels at 0.5, 1, 3, and 6 months after surgery.

Figure 4a. Patient heel after surgery 2 weeks

Figure 4b. Patient heel after surgery 1 month

Figure 4c. Patient heel after surgery 3 months

Figure 4d. Patient heel after surgery 6 months

Discussion

Amputation of heel is significantly end up with limb amputation, because of the inadequate blood circulation and infection. Superimposed on diabetes contribute to more serious complication of heel ulceration. A good assessment of affected limb vascular supply and a good blood sugar control are critical success factors in heel ulcer healing. Multidisciplinary team approach is necessary in caring this group of patients[9]. Even a successful heal of the ulcer, the long term care is still important, because of the recurrence rates may be as high as 70 percent at three years[4]. The supportive measures after the ulcer healing include mechanical reduction of pressures, blood sugar control, and rehabilitation. In a vascular compromised patient, vascular reconstruction may be applicable in fitted patients which reported a success rate of about 13%[7, 11]. Three main problems of the heel ulcer; neuropathy, uncontrolled blood sugar, and ischemia, result in most of the chronic diabetic heel ulcer ends up with limb amputation[4].

Due to the serious morbidity and mortality of the foot ulcer[4, 5, 12], prevention of foot ulcers is the most effective tool to reduce the chance of limb amputation[13, 14]. The prevention measures include 1) podiatric care, which allows for early detection and aggressive treatment of new lesions; 2) off loading, which may include cushion insoles, padded hosiery; 3) protective shoes; 4) control of the underlying diseases such as diabetes; and 5) regularly check up and preventative education, which includes daily inspection of feet[14, 15].

Conclusion

This report a successful case mangement of bilateral chronic diabetic heels ulcer, luckyly that this patient had a good vascular supply to his limbs. After a good supportive care such a good nursing and wound care, good blood sugar control, rehabilitation, and antibiotics, only simple surgical technique could heal the chronic diabetic heel ulcer. The serious morbidity and mortality of the foot ulcer which may cause of limb lost. The prevention measures are still the most effective tool to prevent patient from limb amputation.

References

1. Bakheit HE, Mohamed MF, Mahadi SE, Widatalla AB, Shawer MA, Khamis AH, et al. Diabetic heel ulcer in the Sudan: determinants of outcome. J Foot Ankle Surg 2011; 51(2): 152-5.
2. Price J, Boulton Z. Case 13: chronic painful ulcer on the heel of a diabetic foot. J Wound Care 2016; 25(3 Suppl): S21.
3. Vanderwee K, Clark M, Dealey C, Gunningberg L, Defloor T. Pressure ulcer prevalence in Europe: a pilot study. J Eval Clin Pract 2007; 13(2): 227-35.
4. Pedras S, Carvalho R, Pereira MG. Quality of Life in Portuguese Patients with Diabetic Foot Ulcer Before and After an Amputation Surgery. Int J Behav Med 2016.
5. Demarre L, Van Lancker A, Van Hecke A, Verhaeghe S, Grypdonck M, Lemey J, et al. The cost of prevention and treatment of pressure ulcers: A systematic review. Int J Nurs Stud 2015; 52(11): 1754-74.
6. Clarkson A. Managing a necrotic heel pressure ulcer in the community. Br J Nurs 2003; 12(6 Suppl): S4-12.
7. Forsythe RO, Hinchliffe RJ. Assessment of foot perfusion in patients with a diabetic foot ulcer. Diabetes Metab Res Rev 2016; 32 (Suppl 1): 232-8.
8. Parisi MC, Moura Neto A, Menezes FH, Gomes MB, Teixeira RM, de Oliveira JE, et al. Baseline characteristics and risk factors for ulcer, amputation and severe neuropathy in diabetic foot at risk: the BRAZUPA study. Diabetol Metab Syndr 2016; 8: 25.

9. Pinzur MS, Cavanah Dart H, Hershberger RC, Lomasney LM, O'Keefe P, Slade DH. Team Approach: Treatment of Diabetic Foot Ulcer. JBJS Rev 2016; 4(7).
10. Amin N, Doupis J. Diabetic foot disease: From the evaluation of the "foot at risk" to the novel diabetic ulcer treatment modalities. World J Diabetes 2016; 7(7): 153-64.
11. Faglia E, Clerici G, Caminiti M, Vincenzo C, Cetta F. Heel ulcer and blood flow: the importance of the angiosome concept. Int J Low Extrem Wounds 2013; 12(3): 226-30.
12. Chammas NK, Hill RL, Edmonds ME. Increased Mortality in Diabetic Foot Ulcer Patients: The Significance of Ulcer Type. J Diabetes Res 2016; 2016: 2879809.
13. Russell L, Reynolds TM. Heel ulcer prevention. J Wound Care 2001;10(6): 222.
14. Dunk AM, Carville K. The international clinical practice guideline for prevention and treatment of pressure ulcers/injuries. J Adv Nurs 2015; 72(2): 243-4.
15. Iraj B, Khorvash F, Ebneshahidi A, Askari G. Prevention of diabetic foot ulcer. Int J Prev Med 2013; 4(3): 373-6.