This case study focuses on the postoperative care of a man with a diabetic foot ulcer. It describes the wide-ranging effects that foot ulceration can have on psychological and social wellbeing, and emphasises the need for multidisciplinary care.

INTRODUCTION

In common with many countries of the world, the prevalence of type 1 or type 2 diabetes mellitus in Saudi Arabia is increasing [1,2], and peripheral neuropathy and diabetic foot sepsis are commonly seen complications [3].

CASE REPORT

Mr S is a 76 year-old man who worked as a porter and a driver. He has had type 1 diabetes for 15 years and is receiving medication for hypertension. He is overweight and his diabetes is poorly controlled. He has peripheral neuropathy and has had right ankle Charcot joint damage for approximately one year.

He has also had an ulcer over the right lateral malleolus for about one year. It is likely that pressure from the ordinary shoes he wears has contributed to the development of the ulcer.

He is no longer able to walk and has been seen by a number of doctors who have advised amputation. Mr S has refused to accept this.

Presentation

Mr S presented at the accident and emergency department. The ulcer over the right malleolus measured 7x5cm, contained slough and had macerated wound edges. The right ankle was painful and showed classical signs of Charcot arthropathy: heat, erythema, oedema and joint deformity [4]. Pulses were present in both feet, but sensation was lacking on the sole of the right foot. Laboratory
investigations revealed raised HbA1C levels and random blood glucose.

An X-ray of the right ankle showed a Charcot joint with a piece of bone underlying the ulcer site. MRI revealed a collection of fluid in the right ankle joint, but no sequestrated osteomyelitis.

After a detailed explanation of the cause of his problems, Mr S agreed to surgical removal of the bone fragment. Under general anaesthesia, the bony fragment was removed, the ankle joint was washed out and the wound debrided. Postoperatively, he was fitted with a below-knee slab and admitted to a surgical ward. As the patient's diabetes was poorly controlled, Mr S was referred to the endocrinology team, diabetic educator and dietitian.

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Two days after surgery

Two days later, the wound was discharging a large amount of malodorous haemoserous exudate. Culture showed methicillin-resistant *Staphylococcus aureus* (MRSA) that was sensitive to vancomycin. A nasal swab was also MRSA positive.

The infection control practitioner was informed and strict infection control procedures were put in place according to hospital protocol. Mr S was commenced on intravenous vancomycin for 10 days and transferred to an isolation room.

One week postoperatively

Mr S was referred for postoperative wound management one week after surgery. All wound assessments were documented on a wound assessment chart.

The wound had increased in size as a result of the surgery. It was exuding large amounts of haemoserous exudate, the wound edges were macerated and the surrounding area was oedematous (Fig 1).
It was decided that negative pressure wound therapy (NPWT) was the best therapeutic option as it has been shown to remove excessive wound fluid, along with factors that impede healing such as matrix metalloproteinases (MMPs) and bacterial toxins, to protect the wound edges and enhance granulation tissue formation [5].

NPWT was applied for three weeks and the dressings were changed twice weekly. The wound was photographed and measured weekly. Gradually, the right foot oedema improved and the wound reduced in size (Figs 2 and 3) with formation of healthy granulation tissue.

Following completion of the course of vancomycin, culture of three consecutive wound swabs was found to be negative for MRSA.
Post-NPWT management

After three weeks of NPWT, the rate of exudate production had reduced sufficiently for the device to be removed. Absorbent foam dressings (Allevyn Non-Adhesive, Smith & Nephew) were applied to the ulcer and a total contact cast was applied. The dressings and the cast were changed once weekly. However, the wound was still not completely healed and a collagen/oxidised regenerated cellulose dressing (Promogran, Systagenix) was added [6].

Two weeks later the wound was healing well. The collagen/oxidised regenerated cellulose dressing was stopped and treatment continued with the absorbent foam.

DISCUSSION

In Saudi Arabia, the cultural expectation is that men should provide for their family. Due to his health problems, Mr S had to retire from his work with the loss of his income. This affected his role within his family and society, and had a negative effect on his self image.

His immobility and fear of being rejected by his wife because of the appearance and smell of his wound affected his relationship with her. Immobility and fear of rejection also isolated him from his friends and further fuelled his poor body image and sense of loss.

Urgent referrals were made to a physiotherapist and an occupational therapist. To increase his mobility Mr S was given a wheelchair and a walker, which improved his mood and outlook, and had beneficial effects on his compliance with treatment, diet, personal hygiene and relationships with his
family, friends and health carers.

In addition, the ankle wound affected Mr S's ability to perform religious observances in accordance with his Muslim faith, eg praying whilst standing. This further contributed to his loss of self-worth. A referral was made to the religious department of the hospital where Mr S was educated about different ways he could pray during his illness and was given the opportunity to discuss his worries.

RECOMMENDATIONS FOR FUTURE CARE

The surgeons are planning to discharge Mr S and readmit him once the wound has healed for the joint to be restructured and fixed. Social workers have assessed the patient’s financial and social status and ensured that most of the equipment that he will need at home is available, for example a wheelchair and suitable bed.

Before Mr S is discharged home from hospital a clear and effective care plan will be required to ensure adequate follow-up of his foot problems and to enhance his compliance with treatment. This should include:

- A care plan that involves a multidisciplinary team including wound care nurses, orthopaedic and vascular surgeons, diabetic educator, dietitian, endocrinologists, podiatrist, physiotherapist, occupational therapist and social worker.
- Booked follow-up appointments at the diabetic foot care clinic, orthopaedic clinic, diabetic clinic and with other services as appropriate.
- Evaluation of healing progress and Mr S's compliance with treatment at each contact with a member of the multidisciplinary team. The care plan should be dynamic and modified as required.
- Education of Mr S, his family and any caregivers about his problems and the prevention of future complications. This could be on an individual or group basis and should be ongoing.
- Follow-up to check that Mr S maintains a blood glucose within the normal range and eats a suitable diet.
- Continued contact with social services to ensure suitable housing and eventually to assist Mr S in finding suitable work to help him regain financial independence.

CONCLUSION

Diabetes is one of the growing health problems in the Middle East region in general and the Gulf region in particular. Increasing population numbers in the region exposes a large number of the population to diabetes and its complications [2].
Effective healthcare of patients with diabetic foot problems requires awareness of the influence of patients' cultural background and understanding of their disease on their physical and psychosocial status. Efforts to address cultural and psychosocial needs are important aspects of treatment, and require the concerted input of a multidisciplinary team.

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References