Diabetic foot: wet gangrene, *P. mirabilis*

An 87 year old female, type 2 diabetic (DM2), suffered from an open wound on her left foot due to a transmetatarsal amputation. The DM2 was diagnosed in 1986 and she uses metformin 500mg to control the DM2. She also has hypertension for which she uses amlodipine and valsartan (Exforge 5/160) 1x/dy. The patient was treated as an out patient at first with dry dressings, ActiVac© (KCI) and hyperbaric oxygen. This seemed effective, however wound healing was slow and culture swabs showed that the wound was infected with *Proteus mirabilis*. *Proteus mirabilis* is a very commonly recovered organism, especially from urinary and wound infections; it accounts for 90% of all infections caused by the *Proteus* species (Auwaerter, 2008).

After 10 days with little progress the physician decided to change therapy to a honey based approach. The success of honey on diabetic wounds is well described in literature (Moghazy, 2010; Candeias, 2011) and is characterized by antibacterial activity, even against antibiotic resistant bacteriae (Kegels, 2011).

**Product:** L-Mesitran Soft  
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**Methods**

The ointment was applied daily and then covered with a regular absorbing dressing. After 4 weeks a collagen graft was done (Iorio, 2011) (fig. 4). Thereafter also a freeze dried collagen product was used (Prisma, J&J).

**Results**

At first review the wound measured 5.1x8.5x2.2cm and showed necrotic and sloughy tissue (fig. 1, 2). After 9 days in the treatment the wound has debrided for more than 50% (fig. 3) and the bacterial infection has subsided. Four weeks in the treatment the wound is fully debrided and the collagen graft was applied (fig. 4). The ointment was used regularly in addition and four months after the start of the treatment the wound is 2/3 closed (fig. 5). The wound progressed to full healing without adverse events and follow up 6 months after the start of the treatment, the wound was closed (fig. 6).

**Discussion**

Candeias (Candeias, 2011) cites the following qualities of treatment of DM2 ulcerations with the same honey based products as used in this case: honey-based products can play a vital role in the management of DM2 foot ulcers, their use does not influence glycaemic levels, they can prevent amputation and they promote patient compliance. We can corroborate the findings of Candeias as shown by the above explained wound healing process. In this case the wet gangrene posed a particular challenge as it is a serious limb- or life-threatening infection (Bahebeck, 2010). The debriding qualities and antibacterial efficacy were well demonstrated by the honey ointment; it prevented further amputation. The open left foot wound healed completely, without adverse effects in 6 months time.

**Declaration**

This case study was done independently and with signed patient consent.

**References**