

# Here we go again: remission and re-ulceration in the diabetic foot

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## Article points

1. Individuals 'in remission' from foot disease require ongoing, personalised education.
2. Patient education should promote recognition of hyperkeratotic lesions.
3. Patients should be able to identify sites most likely to ulcerate.

## Key words

- Diabetes foot education
- Diabetes foot ulcer recurrence
- Diabetes foot ulcer remission
- Health literacy
- Teachable moments.

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**A case report of an individual presenting with a self-inflicted diabetes foot ulcer following inappropriate over-the-counter corn plaster use was published in the October 2016 issue of this journal (Bullen and Young, 2016). The role of low health literacy was discussed in order to optimise diabetes foot education. This update documents recurrent ulceration 1 year following initial presentation, illustrating a need for ongoing, personalised diabetes foot education for those 'in remission' from foot disease. The importance of patient recognition of the signs and symptoms of benign hyperkeratotic lesions and active diabetes foot disease is discussed, facilitating early presentation to podiatry services and prevention of further complications.**

The Scottish Diabetes Foot Action Group (SD-FAG) have recently updated their Diabetic Foot Risk Stratification and Triage Tool to consider individuals with "previous ulceration, amputation or consolidated Charcot" as 'in remission' from diabetic foot disease (Stang and Leese, 2016). This remission analogy compares intensive care provision and high foot ulcer recurrence to cancer treatment (Armstrong, 2012; Armstrong and Mills, 2013; Miller et al, 2014). Armstrong (2014; 2015) has further developed this analogy to equate extravasation into foot callus to a suspicious breast lump.

Diabetes foot ulcers recur among approximately 40% of individuals within 1 year and nearly 60% within 3 years (Armstrong et al, 2017). While some authors consider a remission analogy overly simplistic (Levy, 2013), stratification of individuals with a history of diabetes foot disease above those considered at 'high risk' reflects significantly greater future risk (Crawford et al, 2015). Early recognition of signs and symptoms and timely presentation to podiatry services have recently been associated with improved clinical outcomes (Healthcare Quality Improvement Partnership, 2017). Tailored diabetes foot education for such individuals should,

therefore, routinely reinforce advice concerning when and how to contact podiatry services in the event of re-ulceration.

## Case history

This case report describes the ongoing podiatric management of a 65-year-old male, who provided written consent for publication of the accompanying images, illustrating the concept of remission for diabetes foot disease. The gentleman in question previously presented to a community podiatry teaching clinic on February 9, 2016, with a neurovascular ulcer lateral to his right fifth distal interphalangeal joint (DIPJ) (Bullen and Young 2016) (*Figure 1*). Despite regular input from podiatry and vascular services, this individual did not seek early review, instead attending a pre-scheduled appointment with a painful toe, of several weeks duration. Pain had increased over the preceding 3 days after his wife had applied an over-the-counter corn plaster. A resultant foot ulcer eventually healed 115 days following initial presentation.

Nearly a year to the day, on February 21, 2017, this gentleman again attended a pre-scheduled community podiatry teaching clinic appointment

with a painful right fifth toe, this time, of 1 week duration. Rather than immediately contacting the podiatry service as previously advised, this individual applied a non-medicated plaster to the affected toe. At his podiatry appointment, a 3 mm<sup>2</sup>, uninfected, superficial and sloughy wound was discovered (*Figure 2*). This wound progressed to healing within 17 days, almost seven times faster than previously, with non-adherent dressings and offloading, including a lateral semi-compressed felt shaft pad (*Figure 3*), and sandal.

### Health literacy

As previously discussed (Bullen and Young, 2016), low health literacy was initially determined with the Single Item Literacy Screener (SILS; Morris et al, 2006) by asking “how often do you need to have someone help when you read instructions, pamphlets, or other written material from your doctor or pharmacy?” The ‘teach-back’ method (NHS Lothian, 2011; Scottish Health Council, 2014), however, was employed throughout every interaction, with the patient repeating advice and instructions in their own words, to continually evaluate understanding. A key educational message involved the need to contact the podiatry service immediately should future signs of diabetes foot disease present.

As we have previously discussed within this journal (Bullen et al, 2017), incorporating visual and kinaesthetic approaches may further personalise information provided and improve patient appreciation of the clinical signs and symptoms of diabetes foot disease. Several patient education tools are available to support patient recognition, including written leaflets (Scottish Diabetes Group Foot Action Group, 2010) and The Diabetic Foot Screening App (The College of Podiatry, 2016; 2017), involving multimedia elements. At first glance, it would appear preventative advice was not followed, despite routine discussion at each therapeutic intervention.

### Recognising the signs and symptoms of diabetes foot disease

While considering why this individual did not engage with podiatry services sooner, it was noted that, on both occasions, ulceration was mistaken for benign hyperkeratotic lesions, considered to be a



*Figure 1. Previous neurovascular ulcer over the lateral right fifth distal interphalangeal joint.*

‘corn’ and ‘hard skin,’ respectively. The individual, therefore, felt it unnecessary to contact the podiatry service before his pre-scheduled appointments. On reflection, failure to follow prescribed advice more closely reflects misunderstanding, rather than a lack of information retention or worse, intentional discordance. These incidents illustrate the importance of patient differentiation between benign lesions and diabetes foot disease, particularly for previous wound sites.

In September 2016, this individual’s partner fatefully treated what they believed to be a ‘corn’ with an over-the-counter corn remedy. When presenting again the following year, painful ‘hard skin’ was described, that ‘came away’ after applying a non-medicated plaster. This is precisely why a distinction between individuals at ‘high risk’ and ‘in remission’ for diabetes foot disease is important. While foot callus carries a relative ulceration risk of 11.0, this increases to 56.8 for previous ulcer sites (Murray et al, 1996). The provision of targeted diabetes foot education, therefore, must specifically identify not only those individuals, but also those sites most likely to ulcerate, in this case the right fifth toe.

### Discussion

While the reader may have initially believed this individual had not learned from previous



Figure 2. (Above, top). Recurrent ulceration of the lateral right fifth distal interphalangeal joint.

Figure 3. (Above, bottom). Lateral semi-compressed felt shaft pad.

experience and clinical education, several factors suggest this may not be true. Firstly, at a previous appointment on December 19, 2016, this individual did present to his local podiatry clinic for management of a heloma durum (corn) lateral to the left fifth metatarsal head and had learned not to apply an over-the-counter remedy to this lesion. Secondly, when ulceration recurred over the lateral right fifth DIPJ, a non-medicated plaster was this time applied further suggesting behaviour change. Rather than chastising this individual for not contacting the podiatry service sooner, the avoidance of corn plasters was praised, distinctions made between signs and symptoms

of benign lesions and ulceration and a vulnerable site identified.

Information concerning the signs and symptoms of diabetes foot disease and the importance of early podiatric management were continually dispensed and understanding checked with the 'teach-back' method. Signs and symptoms of hyperkeratotic lesions, however, may not have been discussed or understanding assessed in the same manner, potentially leading to misunderstanding. Earlier presentation, within a week rather than several weeks, appeared to be by chance, however, this 'teachable moment' (Lawson and Flocke, 2009) was seized to improve personal engagement. A reduced time to healing was attributed to earlier podiatric management and the vulnerability of the right fifth toe discussed. Time will tell whether this learning will translate into earlier presentation to podiatry services should further signs and symptoms of diabetes foot disease present.

## Conclusion

This case report illustrated the concept of remission and the recurrent nature of diabetes foot disease. It is easy to become disheartened at the frequency with which certain individuals re-ulcerate and, perhaps, assume preventative advice is ignored. This case report described two instances where an individual failed to engage with podiatry services in a timely manner due to simple, and avoidable, misunderstanding. While we may not necessarily prevent future ulceration, by personalising information dispensed and ensuring understanding, poor clinical outcomes associated with delayed management may be avoided. ■

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