

CASE REPORT

An unusual presentation of immersion foot

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We report a case of "green foot" in a child with a plaster cast applied for a fractured metatarsal who subsequently re-presented with circulatory compromise. The foot was green and smelly and profuse *Pseudomonas aeruginosa* was cultured. The infection cleared with simple exposure to air. Perhaps this diagnosis should be considered in patients presenting with circulatory compromise in a cast as severe infection can result in amputation.

Take home message

A cast may act as a damp occlusive covering precipitating *P aeruginosa* infection. This should be considered when patients re-present with circulatory problems, pain, or odour. The skin should be inspected and a swab taken.

Trench foot¹ and warm water immersion foot (WWIF)² have been reported in soldiers and vagrants whose feet are shod in damp occlusive footwear. Hyperhidrosis may also contribute.³ *Pseudomonas aeruginosa* may be implicated in non-hospital environments⁴ and, in cases of severe damage, patients may require amputation.⁵ Although not an uncommon infection, we found only one other report, namely a 13 year old with green discoloration of the toenails and sole of the foot who had *P aeruginosa* cultured from his shoes.⁶

CASE REPORT

In August 2002 a 12 year old boy presented with a swollen, tender left foot having sustained a forced inversion injury while playing football. He was non-weight bearing but had no circulatory impairment. Radiographs demonstrated an undisplaced fracture of the fifth metatarsal shaft. In view of his pain and inability to weight bear a plaster of paris cast was applied and advise given to elevate the foot. He returned 4 days later with swelling, coldness, and paraesthesia of the toes. There was no history of immersion or other substandard care of the cast. On removal of the cast the skin was intact with no sign of maceration or ulceration and his toes rapidly re-perfused. A new fibre glass cast was applied but he returned with similar symptoms the following day. Again removal of the cast resulted in re-perfusion. On this occasion the skin of the sole of his foot was soggy, macerated, smelly, and was bright green. A skin swab was taken and subsequently showed a profuse growth of *P aeruginosa*. He was admitted for elevation, exposure, and drying of the foot and after 48 h the green colour faded, the skin dried, and the smell subsided. No other treatment was required. At follow up 1 week later the skin was intact and he was weight bearing. Radiographs showed a healing fracture. He had returned to sport 4 weeks later.

COMMENT

A cast may act as a damp occlusive covering, particularly in hot summer weather as in this case. These conditions mimic

those precipitating trench foot/WWIF and this diagnosis should be considered when patients re-present with circulatory problems, pain, or offensive odour. Standard protocol dictates that in such circumstances the cast should be removed and the skin inspected. A swab should be taken and *P aeruginosa* infection should be considered when patients present with these symptoms. Management with exposure and drying could probably be undertaken at home with suitable advice to return if there is any change in the symptoms.

We have been unable to find (Medline/Embase) any evidence of routine skin swabbing in patients representing with circulatory compromise, but perhaps this should be considered as the consequences of missed trench foot/WWIF could be serious.

It might also be prudent to consider treating such minor, stable fractures with removable splintage or crutches which would avoid the application of occlusive coverings.

Conflict of interest: none declared.

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Abbreviations: WWIF, warm water immersion foot