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Letter to Editor

Sepsis in the acute phase of Charcot requiring prompt surgical treatment

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Dear Editor,

A Charcot foot is a debilitating condition characterized by insensitivity to pain and primarily affects diabetic patients in their fifties or sixties.¹ This letter delves into a particularly complex case where a patient with acute-on-chronic Charcot foot also developed sepsis as a result of an abscess infection, primarily attributed to *Staphylococcus aureus*.² In the active phase of Charcot foot, the affected foot exhibits swelling and redness, distinct from conditions like erysipelas or cellulitis.³ As the disease progresses, the foot becomes deformed, with open wounds at pressure points. This patient's clinical presentation included dry skin with hyperkeratosis around the wound and painless joint movements, typical of Charcot foot. Key diagnostic tools included MRI scans and X-ray images, vital for assessing bone healing and identifying bone marrow edema, a hallmark of Charcot's foot.⁴ The Eichenholtz Classification helped align the clinical findings with radiological staging.³ (see [Table 1](#), [Fig. 1](#))

Charcot foot localization varies, with the tarsometatarsal joints

being the most common site.⁴ Treatment typically involves plaster dressings, two-shell orthoses, or customized rigid plastic dressings to facilitate bone healing.¹ Beyond directly addressing the Charcot foot, managing diabetes-related symptoms and laboratory findings is essential.⁵ This underscores the importance of a multidisciplinary approach in cases like this one.

The patient's medical history revealed a bilateral diabetic foot syndrome, known Charcot feet bilaterally, rheumatoid arthritis, osteoporosis, steroid-induced adrenal insufficiency, and a previous tibial fracture. Upon hospital admission, the patient presented with a plantar abscess on the left foot, leading to sepsis. While pulses on both feet remained palpable, an open wound with suppuration was evident. Laboratory findings indicated a severe infection, and imaging confirmed the diagnosis.

X-rays revealed generalized osteopenia and a probable old cuboid fracture. MRI scans detected no osteomyelitis but confirmed the typical Charcot foot deformities and bone marrow edema. Bacterial cultures revealed *Staphylococcus aureus* infection, emphasizing the gravity of the sepsis.

Surgical intervention was imperative due to the presence of an abscess. Intraoperative examination revealed no macroscopic bone injuries, and wound management included vacuum therapy and biosurgical treatments. A customized Charcot-foot-frame-orthosis was later employed to support healing. After 12 months, the patient exhibited acceptable healing.

This case highlights the complexities of Charcot foot management, especially when complicated by sepsis. A comprehensive approach involving a multidisciplinary team is paramount. Surgery

Table 1

Laboratory findings at admission and at the date of discharge.

Laboratory Findings	Admission	Discharge	Reference Values (International/Germany)
Leukocyte	28.0–10 ³ /μl	5.2–10 ³ /μl	5000–10,000/mm (Int.) 4–10 · 10 ³ /μl(Ger.)
Thrombocyte	564 · 10 ³ /μl	343 · 10 ³ /μl	150,000 to 450,000 platelets/μl (Int. + Germ.)
CRP	19.0 mg/dl	1.0 mg/dl	Less than 0.3 mg/dL (Int.) till 5 mg/l (0.5 mg/dl) (Ger.)
Blood Sugar (Glucose level)	282 mg/dl	100 mg/dl	99 mg/dl or lower (Int.) between 70 and 100 mg/dl (Ger.)
HBA1C	6.8 %	5.4 %	6.5 % or below (Int.) 4.5 till 5.7 % (Ger.)
Creatinine (Females)	3.15 mg/dl	0.81 mg/dl	0.5–1.1 mg/dL for adult females (Int.) Adult females between 0,66 and 1,09, mg/dl (Ger.)
GFR	16 ml/min	82 ml/min	60 or higher (Int.) Between 90 and 120 ml/min (Ger.)
Uric Acid	11.6 mg/dl	5,6 mg/dl	3.5–7.2 mg/dL (Int.) females 2,4 and 5,7 mg/100 ml (Ger.)

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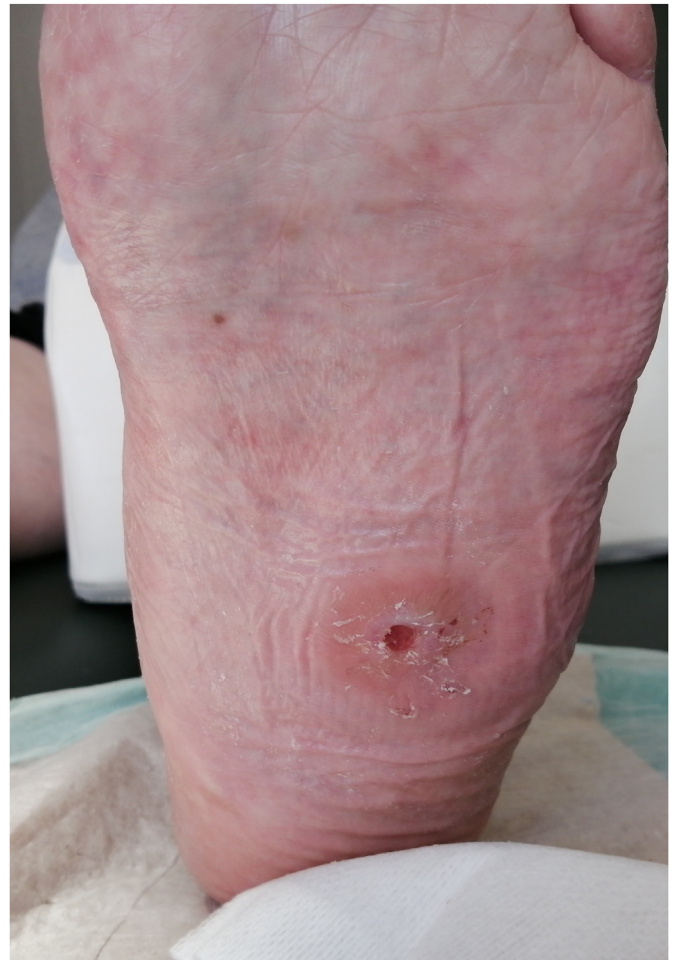


Fig. 1. (A&B). Overview of the wound stages at infection (1A) and at one year follow up (1B).

1A. Wound with abscess. Open wound with suppuration plantar on the left. The wound environment showed all signs of infection. The wound edges showed hyperkeratosis. There was a purulent secretion from the wound (left). 1B. Wound completely healed after 1 year.

should be considered as a last resort, with a focus on limb preservation whenever feasible. Early diagnosis through magnetic resonance scanning is pivotal.⁴

In summary, managing Charcot foot, particularly in the presence of complications like sepsis, necessitates a multifaceted strategy. Surgery should be a measured response, and early diagnosis and diligent monitoring are central to achieving successful outcomes.

Ethical disclosures

According to the German law and in written agreement with the rules of the Medical Ethical Board of the Ärztekammer Niedersachsen in Hannover Germany, no ethical approval was needed for this study (exemption because of study type and consent).

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Declaration of competing interest

All authors declare no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.asjsur.2023.11.127>.

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