

# A near-fatal case of hidradenitis suppurativa associated with sepsis and ischaemic heart disease

## Introduction

Hidradenitis suppurativa is a debilitating dermatological disorder associated with significant morbidity. The deleterious influence of smoking on prognosis is well established, and patients with hidradenitis suppurativa are more susceptible to cardiovascular complications. Although rare, sepsis has been documented in a few patients with hidradenitis suppurativa.

This article discusses a man with hidradenitis suppurativa and ankylosing spondylitis who developed cellulitis, which led to sepsis and multi-organ dysfunction. During his hospitalisation, hypertension, heart failure and ischaemic heart disease were diagnosed, which lead to the patient undergoing four percutaneous coronary interventions, achieving satisfactory outcomes. This case highlights the need for a coordinated, multidisciplinary approach to managing patients with hidradenitis suppurativa and advocates for further research to elucidate the risk factors of sepsis in these patients.

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## Case report

A 38-year-old man who was a heavy smoker was diagnosed with hidradenitis suppurativa 7 years ago after he developed chronic, painful nodules, abscesses, suppurating sinus tracts and comedones with substantial scarring on his skin (Figure 1). He was prescribed topical clindamycin, apremilast 30mg twice a day, and several courses of corticosteroids. The patient did not undergo any investigations for cardiovascular disease or associated risk factors. A year later, the patient developed back pain. Ankylosing spondylitis was diagnosed based on seronegative haematology and a pelvic X-ray showing sacroiliitis. He was offered analgesia and physiotherapy.

Six years later, the patient presented to the emergency department with cellulitis on his back secondary to the hidradenitis suppurativa lesions, fever, tachycardia and confusion. Sepsis was confirmed after blood cultures grew methicillin-resistant *Staphylococcus aureus*. Haematological and biochemical investigations revealed leucocytosis, anaemia, impaired renal function, ischaemic hepatitis and rhabdomyolysis. He developed pneumonia as diagnosed on a chest X-ray, and sputum cultures grew methicillin-resistant *Staph. aureus*. The patient was treated in the intensive care unit. Refractory respiratory failure necessitated intubation and mechanical ventilation. He recovered after 8 days and was transferred to internal medicine.

The patient described experiencing dyspnoea and leg oedema for the previous 6 months. Transthoracic echocardiography showed a globally hypokinetic left ventricle with an ejection fraction of 30%, and he was also diagnosed with hypertension. The patient was commenced on ramipril 2.5mg once a day, metoprolol 100mg twice a day, spironolactone 25mg once a day and furosemide 40mg as needed. A resting electrocardiogram revealed inverted T-waves in the lateral leads. Cardiac troponin levels were consistently negative. Invasive coronary angiography revealed high-grade lesions in the proximal segments of the left anterior descending artery, ramus medianus branch, right posterior descending artery, and a chronic total occlusion of the first obtuse marginal branch (Figure 2). The patient chose percutaneous coronary intervention rather than surgical revascularisation. His lipid panel, haemoglobin A<sub>1c</sub> level, and ultrasound of the carotid arteries were normal.

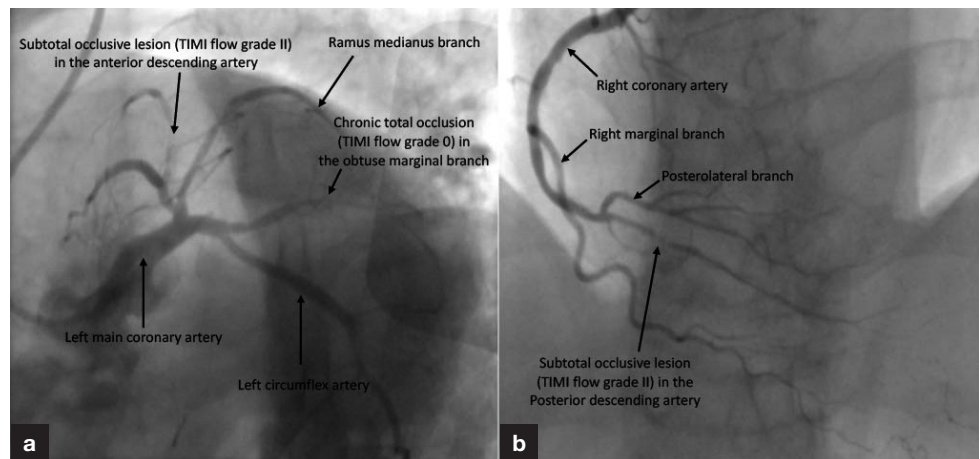
A month later, while awaiting percutaneous coronary intervention, the patient experienced another episode of septic shock secondary to a urinary tract infection. Cultures grew *Klebsiella pneumoniae*. He was treated and made an uneventful recovery. A month after this, he underwent four successful percutaneous coronary interventions with drug-eluting stents. Pre-discharge transthoracic echocardiography revealed a left ventricular ejection fraction of 45%. The patient was prescribed aspirin 75mg once a day, clopidogrel 75mg once a day, atorvastatin 20mg once a day and ivabradine 7.5mg twice a day. The rheumatologist switched apremilast to adalimumab 80mg every 2 weeks. The patient will require lifelong follow up.

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**Figure 1.** Hidradenitis suppurativa lesions.



**Figure 2.** Invasive coronary angiography of (a) the left coronary circulation viewed in the left anterior oblique 45° caudal 25° projection and (b) the right coronary circulation viewed in the anteroposterior 0° cranial 15° projection. TIMI (thrombolysis in myocardial infarction) refers to the grade of blood flow in coronary circulation.

## Discussion

Hidradenitis suppurativa is a chronic, inflammatory, debilitating skin disease that severely impairs patients' quality of life and results in significant morbidity (van Straalen et al, 2022). Patients with hidradenitis suppurativa have an elevated risk of cardiovascular disease as a result of systemic inflammation and significantly increased likelihood of experiencing major adverse cardiovascular events. To avoid unfavourable outcomes like those seen in this case, patients must be informed about their elevated risk and undergo early screening (Bailey et al, 2021). Consequently, a multidisciplinary approach is strongly advocated for the management of patients with hidradenitis suppurativa.

Infected hidradenitis suppurativa lesions leading to development of cellulitis or erysipelas and then to sepsis is a life-threatening but rare complication of hidradenitis suppurativa (Vinkel and Thomsen, 2018). The development of sepsis in this patient could have been the result of various factors, including inadequately managed disease and the use of immunosuppressive treatments. This case highlights the need for larger-scale research studies to identify the factors that elevate the risk of sepsis in individuals with hidradenitis suppurativa.

## Learning points

- The management of hidradenitis suppurativa requires a multidisciplinary approach.
- Patients with hidradenitis suppurativa must be informed about their elevated cardiovascular risk and screened earlier and more frequently.
- Patients with hidradenitis suppurativa are at increased risk of infections because of the use of immunosuppressive treatments, alterations in their immune response and compromised skin integrity.
- Sepsis is a rare, life-threatening complication of hidradenitis suppurativa; more research is needed to identify its risk factors.
- There is a strong association between cigarette smoking and hidradenitis suppurativa and clinicians should screen patients for smoking habits and refer them to smoking cessation services to improve outcomes.

As with this patient, spondyloarthritis is a frequently reported comorbidity in patients with hidradenitis suppurativa because these diseases share a similar inflammatory pattern. When patients with hidradenitis suppurativa experience back pain, conducting HLA-B27 serology and a pelvic magnetic resonance imaging scan is prudent to assess the possibility of underlying ankylosing spondylitis (Nguyen et al, 2021).

Patients with hidradenitis suppurativa are approximately four times more likely to smoke. Smoking contributes to the colonisation of *Staph. aureus*, attracts inflammatory mediators and induces epidermal hyperplasia, all of which can exacerbate hidradenitis suppurativa. Non-smokers have more favourable responses to conventional treatment (Acharya and Mathur, 2020). This patient had an extensive smoking history of 20 pack years. Patients with hidradenitis suppurativa should be actively screened for smoking and referred to smoking cessation services.

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