CASE REPORT

Bilateral cellulitis

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SUMMARY

We present a case of bilateral lesions in a 50-year-old man, which were on first impression mistaken for and initially treated as bilateral cellulitis. We propose that bilateral cellulitis, as opposed to unilateral, is rare and that other aetiologies should be considered in evaluating a patient with bilateral lesions. The differential diagnosis includes stasis-dermatitis, lipodermatosclerosis, lymphoedema and vascular lesions such as Kaposi sarcoma, as was identified in this case. Early consultation with dermatology and biopsy in unclear cases mitigates the unnecessary use of prolonged antibiotics, antibiotic resistance and *Clostridium difficile* infections. HIV testing is an essential screening test in all adults who present with non-specific viral symptoms and rash.

BACKGROUND

Bilateral lesions in legs are frequently treated with antibiotics for presumed cellulitis. Biopsy is essential if the lesions are not responding to antibiotics or another diagnosis seems more likely. A broad differential, along with early consultation with dermatology and pathology, is essential in making an accurate diagnosis and treatment plan for the patient.

CASE PRESENTATION

A 50-year-old African-American man with painful, progressive, bilateral lesions in his legs, which started about 2 months earlier, presented to the hospital. He was in Cameroon for a week visiting family, about a month prior to this presentation. He reported low-grade fever and intermittent diarrhoea since returning back to the USA. He denied any chest pain, dyspnoea, abdominal pain, fatigue, malaise, night sweats, melena, haematemesis or haematochezia. His medical history was insignificant and he was not on any chronic medications. He denied any blood transfusions in the past, and was married for the past 15 years. He rarely smoked cigarettes, and did not consume ethanol or any illicit drugs. He worked as an interpreter. His father had diabetes and hypertension.

INVESTIGATIONS.

The patient's vital signs on presentation included a blood pressure of 129/83 mm Hg, heart rate 97 bpm, temperature 97.8°F (36.6°C) and respiratory rate 16/min, and his pulse oximetry was 100% on room air. On initial evaluation, he was a non-toxic appearing man with pain in his legs bilaterally. On his bilateral lower extremities, there were multiple violaceous, hyperpigmented papules coalescing into plaques covering approximately

150 cm² (figure 1). The lesions were painful but did not exhibit warmth on palpation. The patient had good capillary refill, skin turgor and 2+ pulses in his posterior tibial and dorsalis pedis arteries. A normal cardiopulmonary, neurological, abdominal and musculoskeletal examination was noted. There was no hepatosplenomegaly on palpation. His laboratory examination was notable for leucopaenia ($2.22 \times 10^3/\text{mm}^3$) with neutrophil count (28%, $480/\text{mm}^3$) and lymphocyte count (46%, $740/\text{mm}^3$). He had anaemia with haemoglobin of 10.6 g/dL, mean corpuscular volume of 89 fL and thrombocytopenia ($216 \times 10^3/\text{mm}^3$). On admission glomerular filtration rate (GFR) was 60 mL/min/1.73 m², baseline GFR of 75 mL/min/1.73 m². Urine analysis was significant for trace proteinuria but no haematuria. His peripheral smear showed few atypical lymphocytes, his liver function and coagulation studies were normal. Chest radiograph and duplex of lower extremity were unremarkable. His ECG showed normal sinus rhythm with no ischaemic changes visible.

DIFFERENTIAL DIAGNOSIS

The patient's presumptive diagnosis was bilateral cellulitis, and he was started on intravenous antibiotics (vancomycin) by the emergency department. He spiked a fever of 102.2°F few hours after admission. The antibiotic spectrum was extended to cefepime and doxycycline. Gabapentin was added to hydro-morphone to treat his painful neuropathy. A diagnostic work up including blood cultures, and dengue, malaria smear, typhoid, leptospirosis, monospot and stool studies, and *Clostridium difficile* PCR, was sent. Since he had recently returned from Africa, there was concern about ruling out Ebola, and hence Centers for Disease Control (CDC) was contacted. Since the patient had not travelled to Sierra Leone, Guinea or Liberia, the index of suspicion was low and CDC did not recommend testing for Ebola.^{1 2}

On day 3 of hospitalisation, an HIV ELISA with reflex multispot was sent to the reference laboratory. A skin biopsy of the leg lesion was obtained since the lesions did not respond to antibiotics, and a diagnosis of cellulitis was debatable. Stool studies were positive for *Shigella* and HIV-1 antibody was confirmed positive with multispot testing. An absolute CD4 count showed 15 cells/ μL and a viral load of 2545 copies/mL. The skin biopsy showed an HHV8 positive spindled vascular lesion confined to the dermis in a pattern consistent with the patch phase of Kaposi's sarcoma (figure 1). Subsequent testing showed that the rapid plasma reagin titre was non-reactive but fluorescent treponemal antibody was reactive. The patient's lumbar puncture Venereal Disease Research Laboratory was

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Figure 1 (A) On clinical examination, the legs exhibited bilateral, multiple violaceous, hyperpigmented papules coalescing into plaques covering approximately 150 cm² (B and C). On routine H&E staining, the histopathology shows a spindled vascular lesion confined to the dermis, with minimal atypia/mitoses dissecting the dermal collagen fibres, with mild associated chronic inflammation. (D) Immunolabelling for HHV8 showing nuclear positivity in the spindled vascular cells.

non-reactive. His hepatitis serology was consistent with prior immunisation (hepatitis B surface antigen negative, hepatitis surface antibody reactive and hepatitis B core antibody non-reactive). His QuantiFERON-TB Gold was negative, cytomegalovirus IgG antibody and *Toxoplasma* IgG antibody were positive.

TREATMENT

The patient was started on efavirenz, tenofovir and emtricitabine, based on his genotype, along with bacrim daily and azithromycin weekly for prophylaxis. He was given ciprofloxacin for *Shigella* diarrhoea. He was started on gabapentin and low-dose opiates to help with the pain in his legs.

OUTCOME AND FOLLOW-UP

The patient's leg pain improved with high-dose gabapentin and he was referred to dermatology and infectious disease clinic on discharge.

DISCUSSION

A few noteworthy points in this case merit discussion. We propose that lower extremity cellulitis is seldom bilateral.³ The differential diagnosis of bilateral leg lesions includes stasis dermatitis, lipo-dermatosclerosis, lymphoedema, chronic venous insufficiency, erythroderma, vascular lesions (such as Kaposi's sarcoma) and numerous other entities.⁴ Only in rare instances, such as with erysipelas, do antibiotics have any role in treatment. Many physicians treat bilateral lesions for presumed cellulitis with repeated courses of antibiotics, without improvement. An alternative diagnosis needs to be explored before mislabelling such lesions as 'bilateral cellulitis'. Skin biopsy is essential early in the course in unclear cases, for accurate diagnosis.⁵

Otherwise, this leads to no improvement in the original entity and also antibiotic resistance, as well as infections such as *C. difficile*.^{6,7}

The second teaching point is that HIV testing should be carried out in any ill-defined febrile illness, with non-specific constitutional symptoms (fevers, unexplained diarrhoea, rash, myalgia, headache), lymphadenopathy, mucocutaneous lesions, anaemia, leucopaenia, thrombocytopenia, etc. The diagnosis of HIV requires a high clinical level of suspicion and should be entertained in acute viral illnesses of unclear aetiology. Many societies, including the American College of Physicians, Centers for Disease Control and Prevention, and the US Preventive Task Force, encourage screening of HIV testing in all adults.^{8–10}

Learning points

- ▶ Lower extremity cellulitis is seldom bilateral.
- ▶ For bilateral leg lesions, the differential diagnosis is wide.
- ▶ Consider early dermatology consultation for biopsy to accurately diagnose bilateral lesions that are not improving with antibiotics or that appear suspect.
- ▶ HIV testing is essential in any ill-defined viral illness, especially if there is a peculiar rash.

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REFERENCES

- 1 Incident Management System Ebola Epidemiology Team, Guinea Interministerial Committee for Response Against the Ebola Virus, World Health Organization, *et al*. Update: Ebola virus disease epidemic—West Africa, December 2014. *MMWR Morb Mortal Wkly Rep* 2014;63:1199–201.
- 2 Borchardt RA. The Ebola virus epidemic: preparation, not panic. *JAAPA* 2015;28:48–50.
- 3 Keller EC, Tomecki KJ, Alraies MC. Distinguishing cellulitis from its mimics. *Cleve Clin J Med* 2012;79:547–52.
- 4 Hepburn MJ, Dooley DP, Ellis MW. Alternative diagnoses that often mimic cellulitis. *Am Fam Physician* 2003;67:2471.
- 5 Falagas ME, Vergidis PI. Narrative review: diseases that masquerade as infectious cellulitis. *Ann Intern Med* 2005;142:47–55.
- 6 Bartlett JG, Chang TW, Gurwith M, *et al*. Antibiotic-associated pseudomembranous colitis due to toxin-producing clostridia. *N Engl J Med* 1978;298:531–4.
- 7 Burdon DW. Clostridium difficile: the epidemiology and prevention of hospital-acquired infection. *Infection* 1982;10:203–4.
- 8 Branson BM, Handsfield HH, Lampe MA, *et al*. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. *MMWR Recomm Rep* 2006;55(RR-14):1–17; quiz CE1–4.
- 9 Qaseem A, Snow V, Shekelle P, *et al*. Clinical Efficacy Assessment Subcommittee, American College of Physicians. Screening for HIV in health care settings: a guidance statement from the American College of Physicians and HIV Medicine Association. *Ann Intern Med* 2009;150:125–31.
- 10 Moyer VA, U.S. Preventive Services Task Force*. Screening for HIV: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med* 2013;159:51–60.

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