

## A red and warm abdomen. What's the matter?

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An 83-year-old woman presented to our emergency department for a fever with nausea and an itching skin rash on her abdomen for two days. She suffered from obesity, Parkinson disease, and depression in treatment with Levodopa/Benserazide and Pramipexole, respectively. She underwent mastectomy for left breast cancer ten years earlier. She denied any allergies or use of antibiotics. Her vital signs were blood pressure 120/65 mmHg, heart rate 72 bpm, peripheral oxygen saturation 94% in room air, respiratory rate 18/min, and body temperature 36.2°C. Examination of her abdomen revealed an extensive red warm rash without blisters or blebs, with a slight skin oedema confirmed by point-of-care ultrasound, that excluded a subcutaneous abscess, pneumoniae, liver and kidney damage, and cholecystitis. Laboratory findings showed WBC 12,400/mm<sup>3</sup> (N 59.5%) and CRP 131 mg/L (n.v. < 5). Procalcitonin was 0.3 ng/mL (n.v. < 0.5). SARS-CoV-2 infection was excluded.

### Question

Given the patient history and the clinical presentation, what is the most likely diagnosis?

1. Lipodermatosclerosis
2. Cellulitis
3. Papular urticaria
4. Allergic contact dermatitis

### Answer

The right answer is cellulitis. Cellulitis is a common, potentially serious bacterial infection that involves the deep dermis and subcutaneous tissue. It represents the most common reason for skin-related hospitalization,<sup>1</sup> and it can be a diagnostic and therapeutic challenge for emergency clinicians.<sup>2</sup> Specific criteria do not exist for the diagnosis, that is always clinical with an acute onset of redness, warmth, swelling, tenderness, and pain.<sup>3</sup> Patients can

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complain of fever, chills, and general malaise. Cellulitis usually affects the lower legs, but it can occur on the face, arms, and other body areas. Risk factors include skin injury (any cut, burn, scrape) or skin condition (atopic dermatitis, athlete's foot), lymphedema, venous insufficiency, overweight, immunodepression, and a previous history of cellulitis.<sup>4</sup> Treatment may include antibiotics and pain management, based on paracetamol or ibuprofen for mild to moderate pain, and morphine if severe. The majority of non-purulent, uncomplicated cases of cellulitis are caused by  $\beta$ -haemolytic streptococci, followed by methicillin-sensitive *Staphylococcus aureus*.<sup>2</sup> Failure to improve with appropriate first-line antibiotics

should prompt consideration for resistant organisms - methicillin-resistant *Staphylococcus aureus* (MRSA)<sup>5</sup> - or other conditions that can mimic cellulitis.<sup>6,7</sup> If untreated or misdiagnosed, cellulitis can become an emergency for the development of septic shock, endocarditis, osteomyelitis, gangrene, and toxic shock syndrome. In some rare cases, the infection can spread to the fascial lining, causing necrotizing fasciitis.<sup>8</sup> Our patient was admitted to the Internal Medicine Unit and treated with Piperacillin/Tazobactam, with complete resolution of the cellulitis in seven days.

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