Escherichia vulneris associated suppurative lymphadenopathy

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DESCRIPTION

A woman in her fifties with a medical history of gastro-oesophageal reflux disease, hypertension, type 2 diabetes mellitus presented after noticing a painful lump in her right axilla. Despite her primary care physician prescribing antibiotics and anti-inflammatories, she noticed that the lump continued to grow, and she developed subjective fevers and severe night sweats along with vomiting and diarrhoea. At this point, she was directed to seek hospitalisation.

She presented with right axillary painful lymphadenopathy. On physical examination, the patient was afebrile, appeared acutely ill and had tender adenopathy in the right axilla. The rest of the physical exam, including abdominal examination and breast exam, was unremarkable. Diabetes was well controlled with the most recent HbA1c being 6.7%. She denied any sick contacts or unusual exposures, such as contact with dead animals, fleas or rabbits. She recalled eating seafood and homecooked barbecue but denied any abnormal taste. Baseline laboratory parameters are as follows: CBC $6.4 \times 10^9/L$, haemoglobin 12.7 g/L, platelet count $139 \times 10^9/L$. Complete metabolic profile revealed mildly elevated glucose at 118 mg/dL and slightly elevated total protein at 8.2 g/dL, but was otherwise normal. C-reactive protein was 2.9 mg/dL (upper range of normal 0.744 mg/dL). CT of the chest performed in the emergency department revealed adenopathy in the right axilla with some inflammatory stranding (figure 1). Lidocaine patch was applied and empiric cefepime, vancomycin and ciprofloxacin were initiated for broad-spectrum coverage including tularaemia.

Blood cultures that were collected before starting broad-spectrum antibiotics on admission to the hospital revealed a non-lactose fermenting gram-negative rod (NLFGNR) later identified to be *Escherichia vulneris* (figure 2), and ciprofloxacin and vancomycin were discontinued. The isolate was susceptible to all beta-lactams, fluoroquinolones, trimethoprim-sulfamethoxazole and aminoglycosides. Given the unusual characteristics of this presentation, fourth-generation HIV testing was done and was found to be negative. Testing for toxoplasmosis was considered, however, was not done as it was decided to monitor the patient's status as she was treated for the bacteraemia as there was a convincing alternative aetiology for the lymphadenopathy. The painful axillary lymphadenopathy improved significantly while hospitalised, and the patient was discharged on levofloxacin 500 mg every 24 hours for 7 days. Symptoms were

Figure 1 CT chest of patient depicting right axillary lymphadenopathy.

found to be completely resolved on 2 week outpatient follow-up, with complete resolution of the right axillary adenopathy. Diarrhoea improved, abdominal pain resolved and there was no further fever or chills. Therefore, aspiration and biopsy of the lymph node and further testing were not pursued. The source was unclear but was suspected to be foodborne.

E. vulneris, formerly called enteric group 1, was described as a new species of *Escherichia* in 1982, found mainly in human wounds.¹ *E. vulneris* is an opportunistic gram-negative bacterium, typically observed as an invasive infection in the immunosuppressed.² *E. vulneris* strains have been found to

Figure 2 Gram stain of *Escherichia vulneris* recovered from patient's blood culture.

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be resistant to one or more antimicrobial agents, including ampicillin, tetracycline and trimethoprim/sulfamethoxazole.³

Cases of invasive *E. vulneris* infections are few and include meningitis,⁴ osteomyelitis,⁵ urosepsis,⁶ bacteraemia,⁷ peritonitis^{8,9} and septic shock.^{2,10} A review of the English-language literature revealed no other accounts of *E. vulneris* associated with suppurative lymphadenopathy. The majority of patients were adults, and invasive infections were seen in the immunosuppressed, including patients with type 2 diabetes mellitus.¹¹

Learning points

- ▶ The source of *Escherichia vulneris* is often unknown, though it has been found in association with urinary and peritoneal catheters, wooden foreign bodies, and PICC lines. It is important to investigate other sources of the bacterium, including foodborne.
- ▶ *E. vulneris* should be considered in patients that present with gram-negative bacteraemia and lymphadenopathy and should undergo susceptibility testing due to antimicrobial resistance.
- ▶ Infection with *E. vulneris* has been increasingly described in immunocompromised patients but may rarely cause bacteraemia in the seemingly immunocompetent.

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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REFERENCES

- 1 Brenner DJ, McWhorter AC, Knutson JK, et al. *Escherichia vulneris*: a new species of enterobacteriaceae associated with human wounds. *J Clin Microbiol* 1982;15:1133–40.
- 2 Jain S, Nagarjuna D, Gaiand R, et al. *Escherichia vulneris*: an unusual cause of complicated diarrhoea and sepsis in an infant. A case report and review of literature. *New Microbes New Infect* 2016;13:83–6.
- 3 Chaudhury A, Nath G, Tikoo A, et al. Enteropathogenicity and antimicrobial susceptibility of new *Escherichia* spp. *J Diarrhoeal Dis Res* 1999;17:85–7.
- 4 Mohanty S, Chandra SP, Dhawan B, et al. Meningitis due to *Escherichia vulneris*. *Neurol India* 2005;53:122–3.
- 5 Levine WN, Goldberg MJ. *Escherichia vulneris* osteomyelitis of the tibia caused by a wooden foreign body. *Orthop Rev* 1994;23:262–5.
- 6 Awsare SV, Lillo M. A case report of *Escherichia vulneris* urosepsis. *Rev Infect Dis* 1991;13:1247–8.
- 7 Spaulding AC, Rothman AL. *Escherichia vulneris* as a cause of intravenous catheter-related bacteremia. *Clin Infect Dis* 1996;22:728–9.
- 8 Arslan U, Cosar M, Tuncer I, et al. *Escherichia vulneris* peritonitis in a patient on CapD. *Perit Dial Int* 2008;28:681–2.
- 9 Senanayake SN, Jadeer A, Talaulikar GS, et al. First reported case of dialysis-related peritonitis due to *Escherichia vulneris*. *J Clin Microbiol* 2006;44:4283–4.
- 10 Horii T, Suzuki Y, Kimura T, et al. Intravenous catheter-related septic shock caused by *Staphylococcus sciuri* and *Escherichia vulneris*. *Scand J Infect Dis* 2001;33:930–2.
- 11 Añón MT, Ruiz-Velasco LM, Borrajo E, et al. *Escherichia vulneris* infection. Report of 2 cases. *Enferm Infecc Microbiol Clin* 1993;11:559–61.

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