Infectious cellulitis is mainly caused by *Streptococcus pyogenes* or *Staphylococcus aureus* (1, 2). Other less frequently isolated bacteria include *Pasteurella* from animal bites, non-typable streptococci or *Bacillus anthracis* in intravenous drug users, *Vibrio* spp. or *Aeromonas* spp. due to skin wounds in sea water (1, 2). We present here, to our knowledge, the first human case of a cellulitis caused by a new pathogen, *Streptococcus halichoeri*.

**CASE REPORT**

An 84-year-old man was hospitalized due to bacterial cellulitis of his left thigh in November 2015. His past medical history was marked by obesity, diabetes mellitus treated with glitazones, insulin and metformin, dyslipidemia treated with atorvastatin, hypertension treated with bisoprolol and perindopril, hyperuricemia treated with allopurinol, atrial fibrillation, and prostatic adenocarcinoma treated with surgery and radiotherapy. Six months earlier he had been hospitalized due to cellulitis in the same location. *Streptococcus agalactiae* was isolated from blood cultures. Cardiac ultrasonography revealed left-sided endocarditis and the patient was treated with parenteral amoxicillin (100 mg/kg) associated with gentamicin (3 mg/kg) for 15 days, followed by oral amoxicillin alone for one month. The outcome was favourable. An infected chronic ulcer of the left leg was thought to be the likely route of entry of infection.

The new hospitalization, 16 months later, was marked by cellulitis of the thigh in the same location with persisting chronic ulceration of the left leg (Fig. 1). On admission, the patient’s body temperature was 38.5°C, associated with a large erythematous skin plaque on his thigh consistent with bacterial skin cellulitis. The patient was treated empirically with intravenous amoxicillin (100 mg/kg). Blood cultures, and samples from the leg ulcer, grew non-haemolytic colonies on sheep-blood agar plates. Gram-staining revealed Gram-positive cocci, in chains. They were identified as *Streptococcus agalactiae* (score 2.21 and 2.43) by MALDI-TOF MS (Matrix Assisted Laser Desorption Ionisation Time Of Flight) mass spectrometry (Bruker™). Molecular characterization identified a capsular serotype III strain (3). Antimicrobial drug-susceptibility testing performed according to the European Committee on Antimicrobial Susceptibility Testing guidelines (http://www.eucast.org) characterized the strains as susceptible to penicillin (minimum inhibitory concentration (MIC) ≤0.25 mg/l), erythromycin, clindamycin, levofloxacin, tetracycline, and linezolid. Strains isolated from blood culture and wound sample during the second episode both grew non-haemolytic and non-pigmented colonies on horse-blood agar plates and Granada™ plates, respectively. Both bacteria were catalase-negative and Gram-positive cocci in chains. They were identified as *S. halichoeri* (score 2.21 and 2.43, respectively) by MALDI-TOF MS and as *S. suis* serotype 1 (87% probability) by VITEK 2 Gram-positive card system (bioMérieux, Marcy l’Etoile, France) characterized the strains as susceptible to penicillin (MIC≤0.25 mg/l), erythromycin, clindamycin and levofloxacin, due to *erm(T)* antibiotic-resistant genes, respectively (7). Thus, the second episode was not a recurrence of *S. agalactiae* infection, but bacteraemic cellulitis due to *S. halichoeri*.

**Fig. 1. Clinical characteristics.** Cellulitis of the left thigh, with chronic ulceration of the lower leg. doi: 10.2340/00015555-2837

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DISCUSSION

*S. halichoeri* was first reported in 2004 from UK veterinary laboratories in wounds in seals (8–11). In 2014 Foo & Chan (12) reported the first case of human infection caused by this bacterium in a 45-year-old Chinese male from Singapore who had a postoperative empyema. The current patient is retired with no known contact with seals or other sea animals. We report here the first human case of skin cellulitis. Foo & Chan (12) emphasized that other zoonotic streptococci, including *Streptococcus canis, Streptococcus equi* subsp. *zooepidemicus, Streptococcus iniae,* and *Streptococcus suis,* are emerging pathogens in humans. On the basis of phenotypic, genotypic and antimicrobial comparison of *S. halichoeri* characteristics isolated from a seal and from 6 human clinical isolates (4 from blood, 1 from osteitis and 1 from maxillary sinus), Shewmaker et al. (13) proposed in a recent study that *S. halichoeri* should be divided into 2 subspecies; *S. halichoeri* subsp. *hominis,* for the human isolates and *S. halichoeri* subsp. *halichoeri* for the grey seal isolates. In their study none of the 6 human isolates were isolated from cellulitis. The phenotypic and genetic characterization of our strains is similar to the results already obtained with *S. halichoeri* isolated from human isolates. These results lead us to suggest that these strains belong to the *S. halichoeri* subspecies *hominis.* To our knowledge, this is the first report of a human case of an infectious cellulitis and skin infection due to *S. halichoeri.* Increased vigilance is needed to evaluate the emergence of this pathogen in human medicine.

REFERENCES