Immunosuppressed gardener pricked by roses grows *Legionella longbeachae*

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A 78-year-old gardener presented to our hospital with a fever and a painful swollen right hand. She had started to feel pain in both her ring and little finger 4 days earlier, which spread to her wrist. She also said she had been feverish but did not report having rigors. Notably, she said she frequently handled manure and had puncture wounds from repeatedly pricking herself on the thorns on her rosebushes. She had a history of temporal arteritis and was being treated with prednisolone 40 mg daily.

On examination, she was febrile (39°C) but haemodynamically stable. Both the ring finger and little finger on her right hand were swollen and tender; pain and the tenderness spread to her forearm when she flexed all her fingers. However, no signs of any abnormality were seen on her skin or other systems—specifically the respiratory system. Full blood count showed raised white blood cell count $14{\cdot}5\times10^9$ per L (normal range 4·3–10·8) and C-reactive protein (39 mg/L).

We did an extensive debridement of the patient's hand and forearm, which showed purulent material in all the tendon sheaths; these, along with the carpel tunnel, were opened and washed (figure). We started the patient on amoxicillin–clavulanate, after taking samples for microbiological analysis. However, the woman remained febrile and her condition did not improve after 12 h and a second debridement done a further 12 h later. Blood cultures and culture of intraoperative samples on standard bacterial media grew nothing after 48 h. We then increased the net of investigation and did PCRs for a wide range of bacterial, mycobacterial, and fungal organisms on the specimens obtained intraoperatively and had a positive result for *Legionella longbeachae* (figure). A further culture of the intraoperative specimens—this time on selective charcoal yeast extract agar—grew typical colonies (figure) showing *L longbeachae* on matrix-assisted laser desorption–ionisation time-of-flight mass spectrometry analysis, confirming the result of the PCR. Amoxicillin–clavulanate was changed to levofloxacin 500 mg twice daily, and the prednisolone dose was reduced to 30 mg daily. The patient improved rapidly, and the levofloxacin was stopped after 21 days of treatment (video).

L longbeachae is a gram-negative rod of the Legionellaceae family—of which *Legionella pneumophila* is best known for causing Legionnaires' disease and Pontiac fever—found in soil and compost and reported to be acquired while gardening or by soil or compost inhalation. Since it was first reported, in 1980, in a patient with pneumonia in Long Beach, CA, USA, *L longbeachae* has been found to be the primary cause of legionellosis—or Legionnaires' disease—in Australia and New Zealand. Previously under-diagnosed and under-recognised in Europe, numbers of reported cases are now rising.

L longbeachae does not grow on classic blood agar, but can be detected by a broad-range bacterial PCR. If suspected, it can be grown in 4–8 days on the selective charcoal yeast extract agar medium, on which colonies appear iridescent. Skin infection with any *Legionella* species is rare and is associated with immunosuppression—which we assumed to be the case in our patient because of the long-term treatment with high-dose prednisolone—in about half of reported cases.

Contributors

We were all involved in the diagnosis, management, and treatment of the patient. We were all involved in writing the manuscript. Written consent for publication was obtained from the patient.

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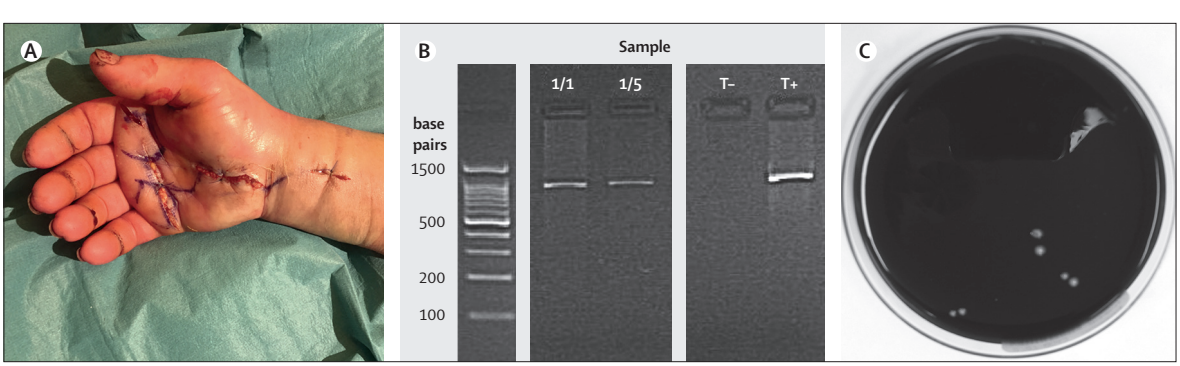

Figure: **Gardener's right hand and forearm grows *Legionella longbeachae***
Right hand and forearm after extensive debridement (A). PCR shows positive amplification; sequencing identified *L longbeachae* (1/1 and 1/5 are different dilutions of the clinical specimen; T- and T+ are PCR negative and positive controls; B). Typical *L longbeachae* colonies grown on selective charcoal yeast extract agar identified using matrix-assisted laser desorption–ionisation time-of-flight mass spectrometry analysis (C).