ABSTRACT

Objectives: An international clonal outbreak of *Mycobacterium chimaera* infection has been linked to contaminated Stöckert 3T heater-cooler devices (HCD) used for cardiopulmonary bypass during surgery manufactured in Germany by LivaNovo between 2008 and September 2014. Health Canada released a safety alert in October 2016 with recommendations for risk mitigation measures. Three cases of *M. chimaera* infection (2 adults, 1 pediatric) linked to the use of contaminated HCD in Canada occurred prior to the 2016 safety alert have been reported. We describe a *M. chimaera* infection in Canada closely related to the HCD *M. chimaera* outbreak strain identified after Health Canada recommendations for risk mitigation measures were made.

Methods: The patient’s medical record was reviewed to abstract clinical information. Whole genomic sequencing (WGS) of the *M. chimaera* isolate was completed and the isolate was compared to the outbreak reference strain (*M. chimaera* ZUERICH-1) as well as other strains linked to the global outbreak using single-nucleotide polymorphism analysis.

Results: An 80-year-old man presented with weight loss, chronic cough, and generalized weakness in July 2019. He had undergone a bioprosthetic aortic valve replacement in 2006 and coronary-artery bypass surgery in 2017. Investigations revealed thrombocytopenia, lymphopenia, elevated liver enzymes, and non-necrotizing granulomas on bone marrow biopsy. Transthoracic and transesophageal echocardiograms were negative for valvular abnormalities. The patient returned 3 months later with ongoing malaise. Bone marrow aspirate and biopsy cultures grew *M. chimaera*. Treatment was initiated with rifabutin, ethambutol, and clarithromycin. WGS revealed the isolate was closely related to *M. chimaera* ZUERICH-1 and other strains associated with the HCD outbreak.

Conclusions: This case highlights the importance of recognizing that the risk of *M. chimaera* infection persists in patients with a history of surgery with cardiopulmonary bypass despite recommendations for mitigation measure implementation. Further study on the effectiveness of mitigation measures is needed.