

Mycobacterium chimaera and cardiac surgery

Reminder for NSW Clinicians

H22/44818

KEY POINTS:

1. Consider *M. chimaera* infection in patients presenting up to 12 years after cardiac surgery with symptoms of unexplained infection.
2. Seven cases of *M. chimaera* infection have been identified in NSW following exposure to contaminated heater-cooler devices during cardiac surgery since 2015.

BACKGROUND

Seven confirmed cases of *M. chimaera* infection have been reported in cardiac surgery patients in NSW. All patients had cardiac surgery at the Prince of Wales Hospital in 2015.

This is part of a global outbreak of *M. chimaera* infections linked to exposure to contaminated heater-cooler devices during cardiac surgery. Infections have presented up to 12 years after cardiac surgery.

PATIENTS AT RISK

Cardiac surgery patients exposed to Stöckert 3T heater-cooler devices (HCD) made by Sorin/LivaNova and contaminated during manufacture before September 2014 are at risk.

The overall risk to patients is very low but is increased for patients whose surgery included heart valve replacements, prosthetic implants or vascular grafts.

The relevant periods of risk when contaminated HCDs were in use at particular hospitals can be found in the [Communicable Diseases Factsheet: Mycobacterium chimaera – information for open-heart surgery patients](#).

M.CHIMAERA RECOMMENDATIONS

Suspect Case Definition:

1. Clinical criteria – one or more of the following:

- Prosthetic valve endocarditis
- Sternal wound infection
- Manifestations of disseminated infection including embolic and immunologic manifestations [1] and negative routine bacterial cultures and serological tests for Q fever, bartonellosis and legionellosis.
- Prosthetic vascular graft infection
- Mediastinitis

2. Exposure criteria:

- A patient who had surgery requiring cardiopulmonary bypass at one of the hospitals listed on the NSW Health [M. chimaera and surgery alert page](#) during the time periods of concern

Testing:

- Collect mycobacterial blood cultures. Collect other tissue specimens as appropriate.
- Request mycobacterial culture in addition to routine MC&S on any tissue specimens collected.
- Tissue samples from suspect cases can be tested for *M. chimaera* by PCR at the NSW Mycobacterial Reference Laboratory at NSWHP-ICPMR, if required.
- Please ensure that surgical date, details, and current pathology are included in microbiology requests.

Treatment:

- Once the diagnosis is suspected, seek expert infectious diseases advice about empiric treatment and referral to a specialist centre for multidisciplinary management.
- Regimens used to date are combination anti-mycobacterial agents, e.g. clarithromycin, rifabutin, ethambutol, sometimes including a fluoroquinolone or amikacin, and bedaquiline. Treatment should be guided by an Infectious Diseases physician.
- Following initiation on a multi-agent antimicrobial regime consideration can be given to surgical reduction of the infectious burden, long-term multi-agent antimicrobial therapy is usually required.

FURTHER INFORMATION

- ❖ Clinical Excellence Commission on (02) 9269 5500 or email: cec-hai@health.nsw.gov.au.
- ❖ NSW Health: www.health.nsw.gov.au/Infectious/alerts/Pages/m-chimaera-and-surgery-alert.aspx
- ❖ *International Society of Cardiovascular Infectious Diseases guidelines for the diagnosis, treatment and prevention of disseminated Mycobacterium chimaera infection following cardiac surgery with cardiopulmonary bypass*. Hasse B, Hannan MM, Keller PM et al. J Hosp Infect. 2020 Feb. doi:10.1016/j.jhin.2019.10.009 .
- ❖ *Longest incubation period of Mycobacterium chimaera infection after cardiac surgery*. Vendramin I et al. Eur J Cardiothorac Surg. 2021 Feb. <https://doi.org/10.1093/ejcts/ezaa292>

Dr Richard Broome

A/Executive Director, Health Protection NSW May 2022

[1] Including splenomegaly, arthritis, osteomyelitis, bone marrow involvement with cytopenia, chorioretinitis, hepatitis, nephritis, myocarditis. Some cases have presented with a sarcoidosis-like illness.