O249

1-hour Oral Session

Clinical aspects of mycobacterial infections

Therapy recalcitrant disseminated infection involving prosthetic heart valves and vascular grafts

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Objectives: Since 2011, we identified six patients with disseminated *Mycobacterium chimaera* infection following open-heart surgery at our institution. Patients were presumably infected by airborne contamination of the surgical site with mycobacteria originating from the heater-cooler unit of the heart-lung machine [Sax *et al.*]. We aim to describe the clinical aspects and the treatment course of this hitherto unknown infection due to *M. chimaera*.

Methods: By chart review, we determined patients' characteristics, clinical manifestations, and diagnostic procedures in the six patients. Therapeutic measures including surgical reinterventions and antimicrobial treatments were reviewed, and treatment outcome was assessed.

Results: All six patients were male with a median age of 59.5 years (range 49-64). Median latency from cardiovascular surgery to clinical manifestation of *M. chimaera* infection was 22.5 months (range 14-40). All patients presented with either a prosthetic valve endocarditis and/or aortic graft infection, although manifestation of peripheral embolization preceded cardiovascular manifestations in some cases (**Table**). *M. chimaera* infection required cardiosurgical reintervention in five patients and antibiotic therapy consisted of at least three antimicrobial agents (clarithromycin, rifabutin, ethambutol, and amikacin or moxifloxacin). Five of six patients experienced treatment failure, either due to death (two patients) and/or cultural growth of *M. chimaera* in tissue samples after prolonged antibiotic treatment (**Figure**).

Conclusion: In cardiac surgery patients with clinically suspected infection of prosthetic material, infection due to *M. chimaera* has to be considered in the differential diagnosis. Our findings suggest that this infection can present with a latency of more than two years after cardiovascular surgery, and can lead to disseminated infection with a broad spectrum of organ manifestations. Despite surgical reintervention and long-term combination antimicrobial treatment, clinical outcome is poor.

Table. Findings in six patients with disseminated *Mycobacterium chimaera* infection

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6
Mycobacterial culture or PCR						
Heparin blood	**positive**	**positive**	negative	negative	negative	negative
Cardiac tissue	**positive**	nd	**positive**	**positive***	**positive**	**positive***
Sputum	**positive**	nd	negative	nd	nd	**positive***
Urine	nd	**positive**	nd	negative	nd	**positive***
Bone marrow	nd	**positive**	nd	negative	negative	nd
Bone	nd	nd	**positive***	**positive***	nd	**positive**
Extracardiac/vascular histopathologic detection of infection	Liver, kidney	Liver, kidney, lung, spleen	Liver, pectoral muscle	Bone (wrist)	Periaortal tissue, kidney	Bone (vertebral)
Echocardiography	Mitral, aortic valve in-sufficiency	No pathology	Periaortic abscess	Mitral valve with vegetation and in-sufficiency	No pathology	Aortic valve with vegetation
Cardiovascular disease	PVE	CGI, PVE (possible)	PVE	PVE	CGI, PVE (possible)	CGI, PVE

* Patient under treatment at time of sampling

PVE, Prosthetic Valve Endocarditis; CGI, Composite Graft Infection; nd, not done

Figure. Cardiosurgical reinterventions, antimicrobial treatment, and outcome in six patients with disseminated *Mycobacterium chimaera* infection.

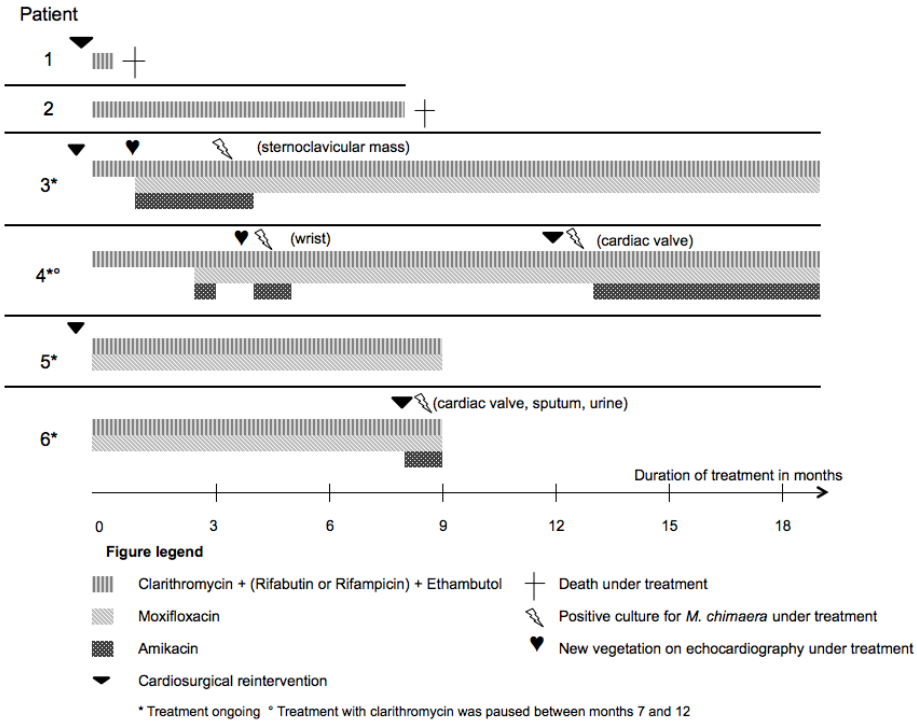

Figure legend

- Clarithromycin + (Rifabutin or Rifampicin) + Ethambutol
- Moxifloxacin
- Amikacin
- Cardiosurgical reintervention
- Death under treatment
- Positive culture for *M. chimaera* under treatment
- New vegetation on echocardiography under treatment

* Treatment ongoing ° Treatment with clarithromycin was paused between months 7 and 12