

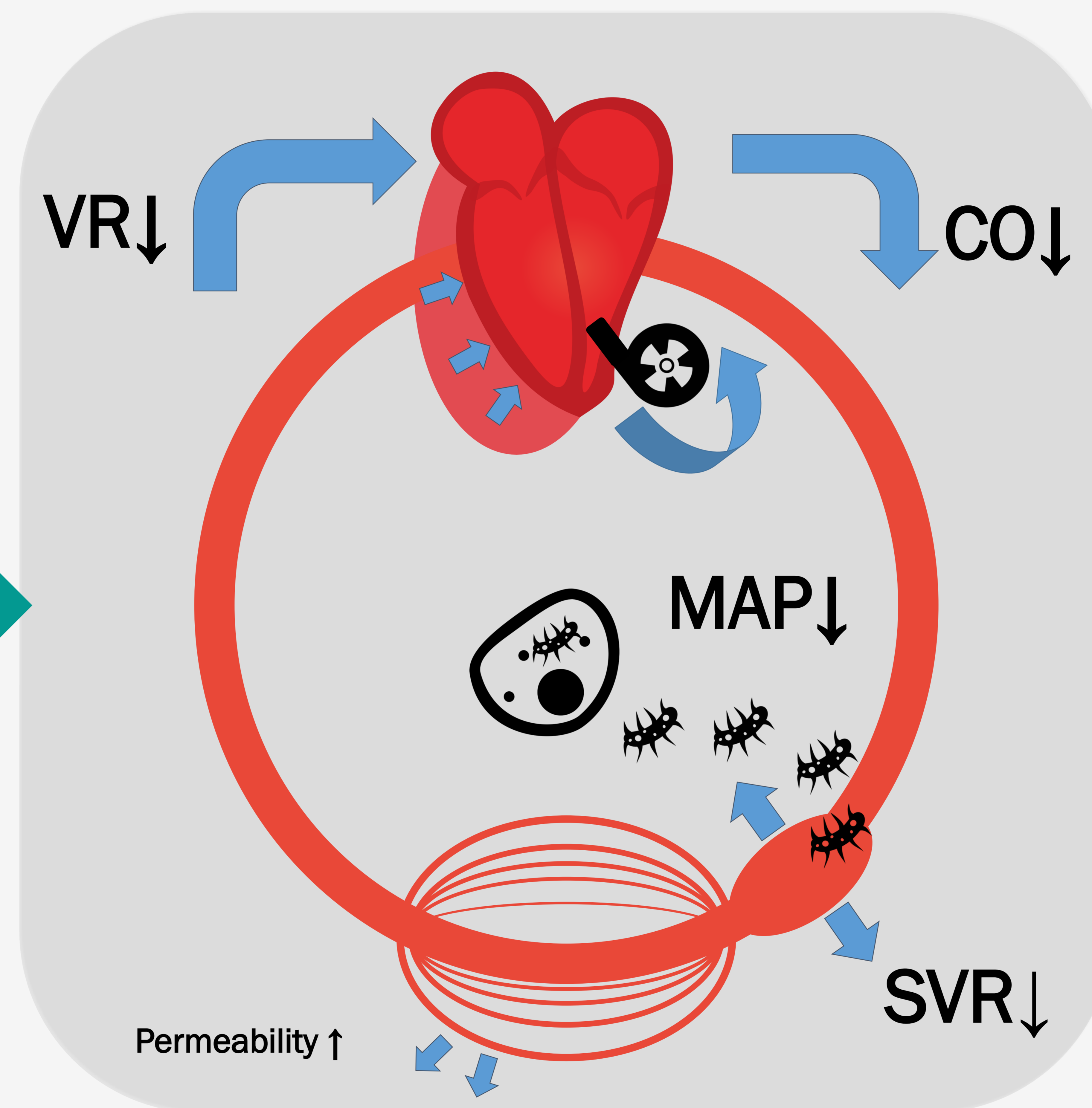
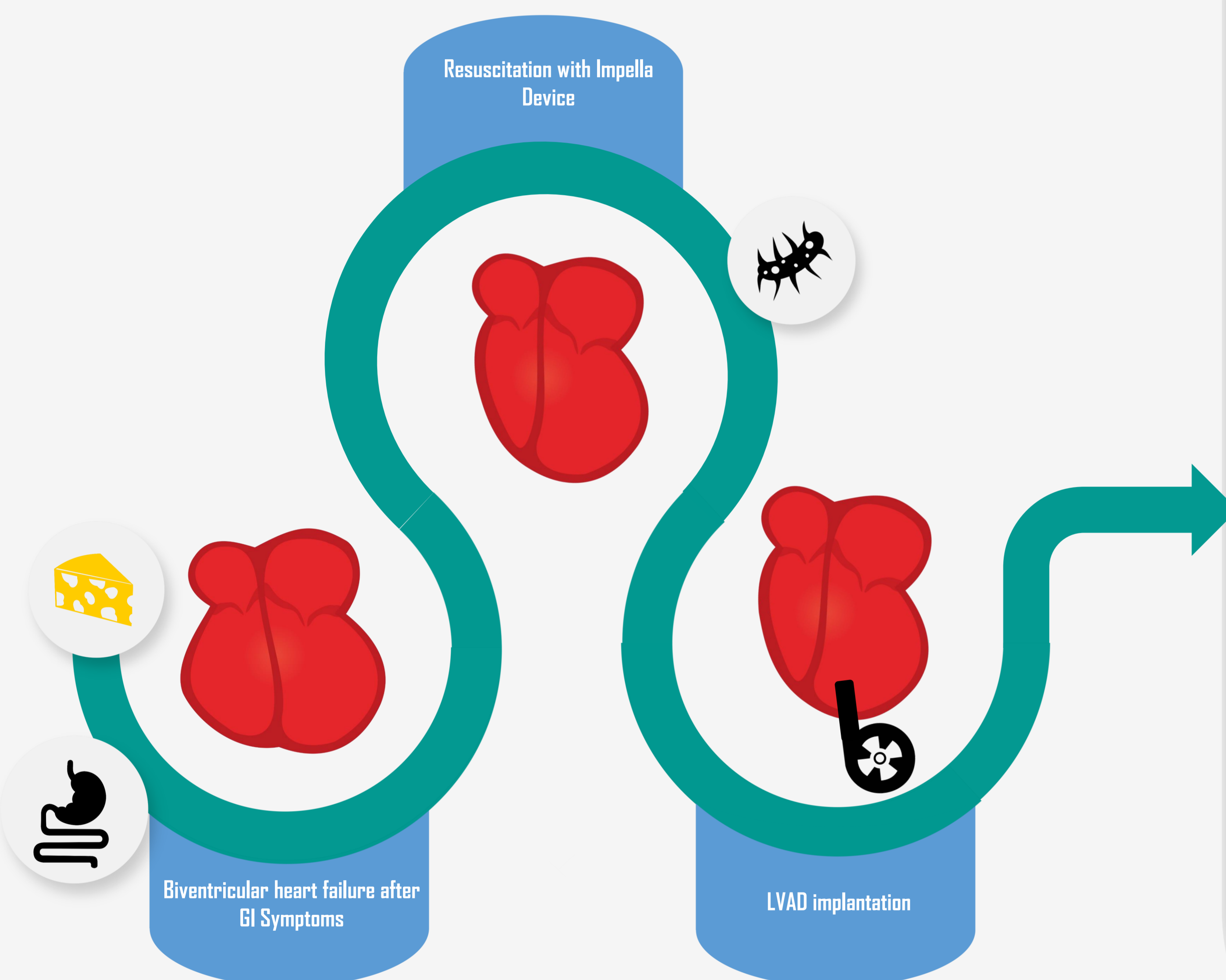
INFLOW CANNULA MALPOSITION AND LISTERIA SEPSIS: A DOUBLE HIT ON HEMODYNAMICS

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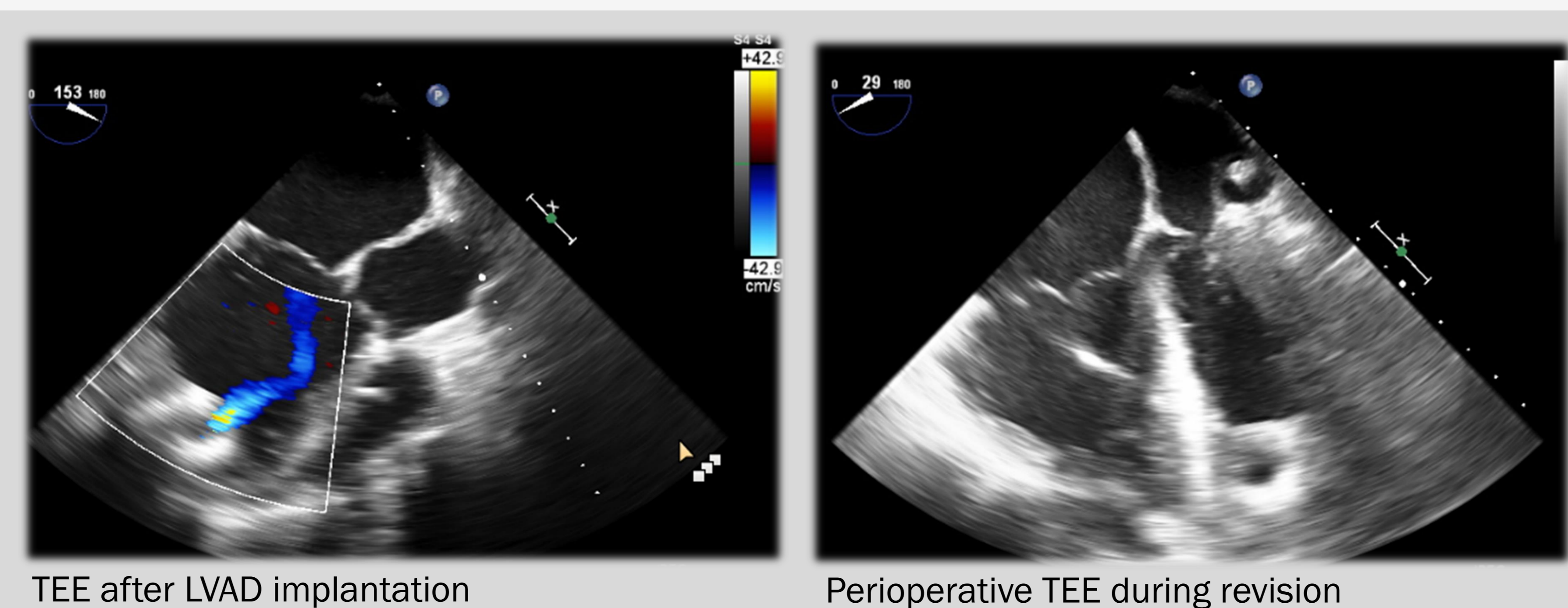
Introduction

- Left ventricular assist devices (LVAD) usually provide limited flow reserve to respond to exercise and pathological hemodynamic states.
- Interaction of adverse hemodynamic events may precipitate right ventricular and LVAD dysfunction.



Case

- A 67-year-old male with known non-ischemic DCM presented with gastrointestinal symptoms and worsening exercise tolerance. Echo confirmed biventricular heart failure (LVEF 15%).
- Optimized medical therapy and mechanical circulatory support (Impella®) led to successful compensation, and a cardiac resynchronization device (CRT-D) was inserted.
- Three days after CRT-D insertion the patient became febrile. Blood cultures were positive for *Listeria monocytogenes*, but became negative during a 2-wk course of amoxicillin. The patient recovered and was discharged home after 17 days.
- Readmission became necessary after 18 days due to persistent arrhythmia and worsening LV function (LVEF 10%). A LVAD (HeartMate III) was implanted.



Case

- From POD 4 after LVAD implantation the patient experienced recurrent low-flow alarms. A rise of inflammatory markers was accompanied by pericardial effusion.
- On POD 6, blood cultures returned positive again for *Listeria*, while tamponade required surgical revision. Perioperative TEE showed that the initially well-positioned LVAD inflow cannula now pointed towards the antero-septal LV wall. After delayed chest closure, the patient stabilized during two subsequent weeks.
- On POD 24, hemodynamics and neurological status deteriorated due to a new episode of sepsis, and the patient died from multi-organ failure.

Discussion

- Both pericardial tamponade and infection (22%) are common postoperative complications after LVAD implantation. Nearly 50% of LVAD infections are associated with bloodstream infection, which increases risks of stroke and mortality.^{1,2}
- *Listeria* sepsis in an LVAD patient has not been reported to our knowledge. Since *Listeria* had been cultured from the patient's blood prior to LVAD implantation, postoperative reactivation appears likely. The ability of these foodborne bacteria to invade cells could have helped it evade the patient's immune system.
- A vicious circle was initiated by sepsis-associated hypovolemia, low afterload and pericardial tamponade, while suboptimal angulation of LVAD inflow cannula occurred due to changing LV morphology, impeding LVAD function.^{3,4}

References

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