BARCELONA

JUNE 18TH - 20TH

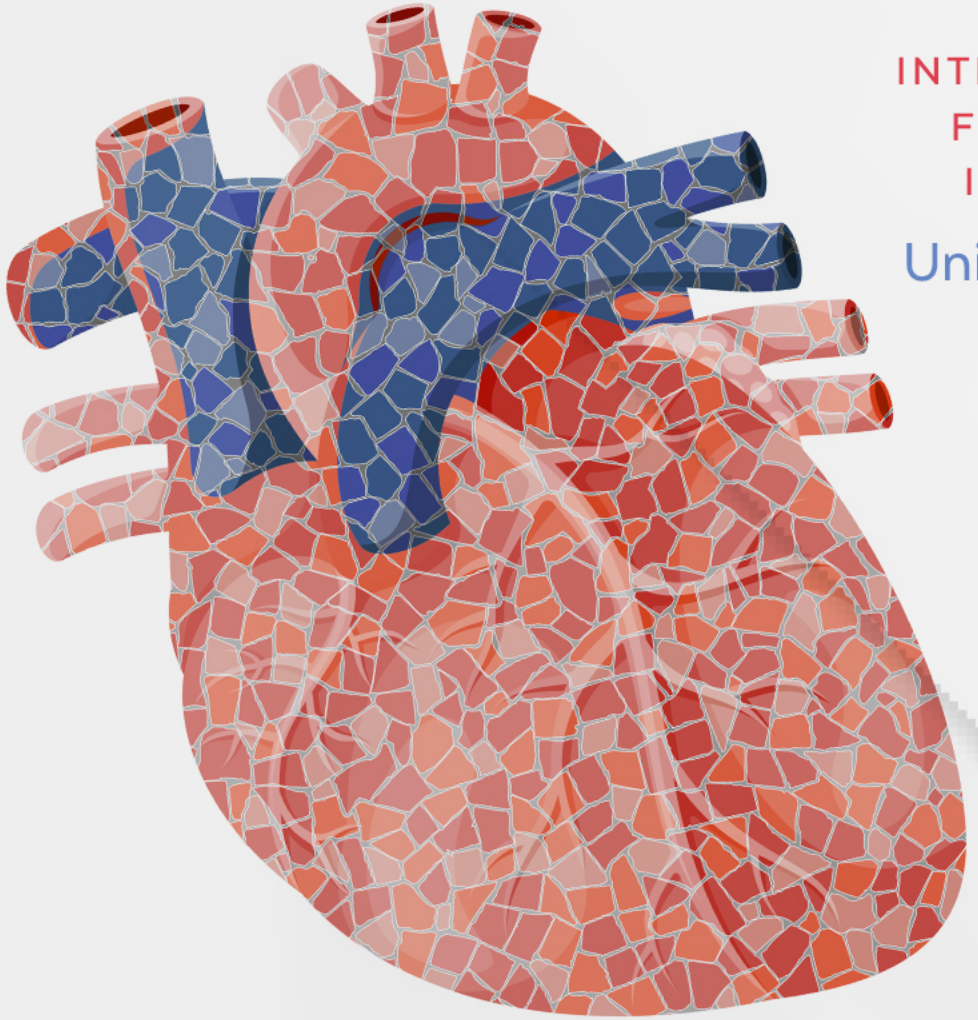
2022

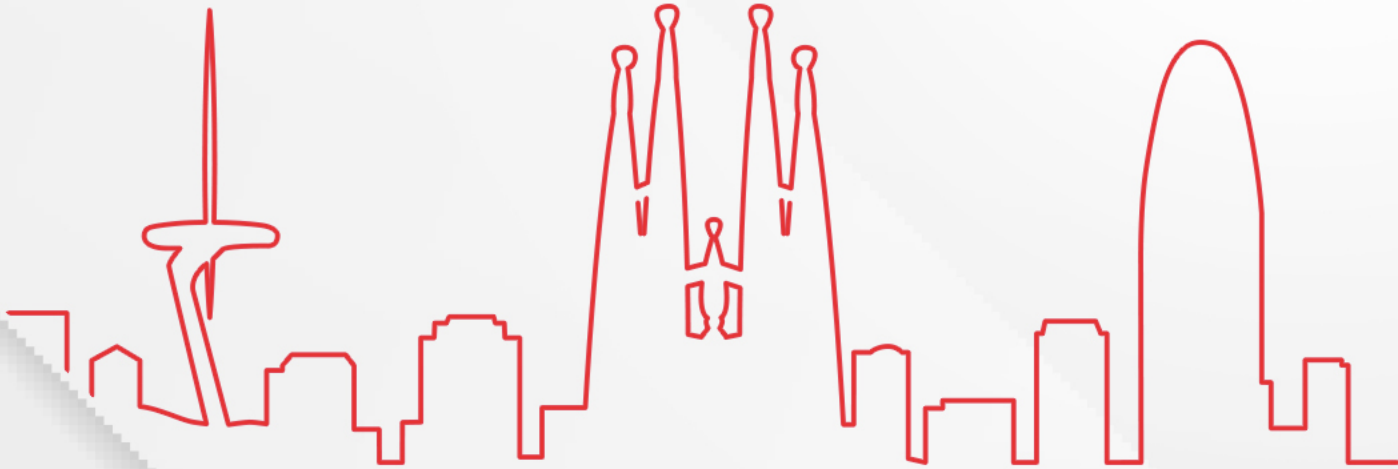
INTERNATIONAL SOCIETY
FOR CARDIOVASCULAR
INFECTIOUS DISEASES

University of Barcelona
Faculty of Medicine

16TH SYMPOSIUM

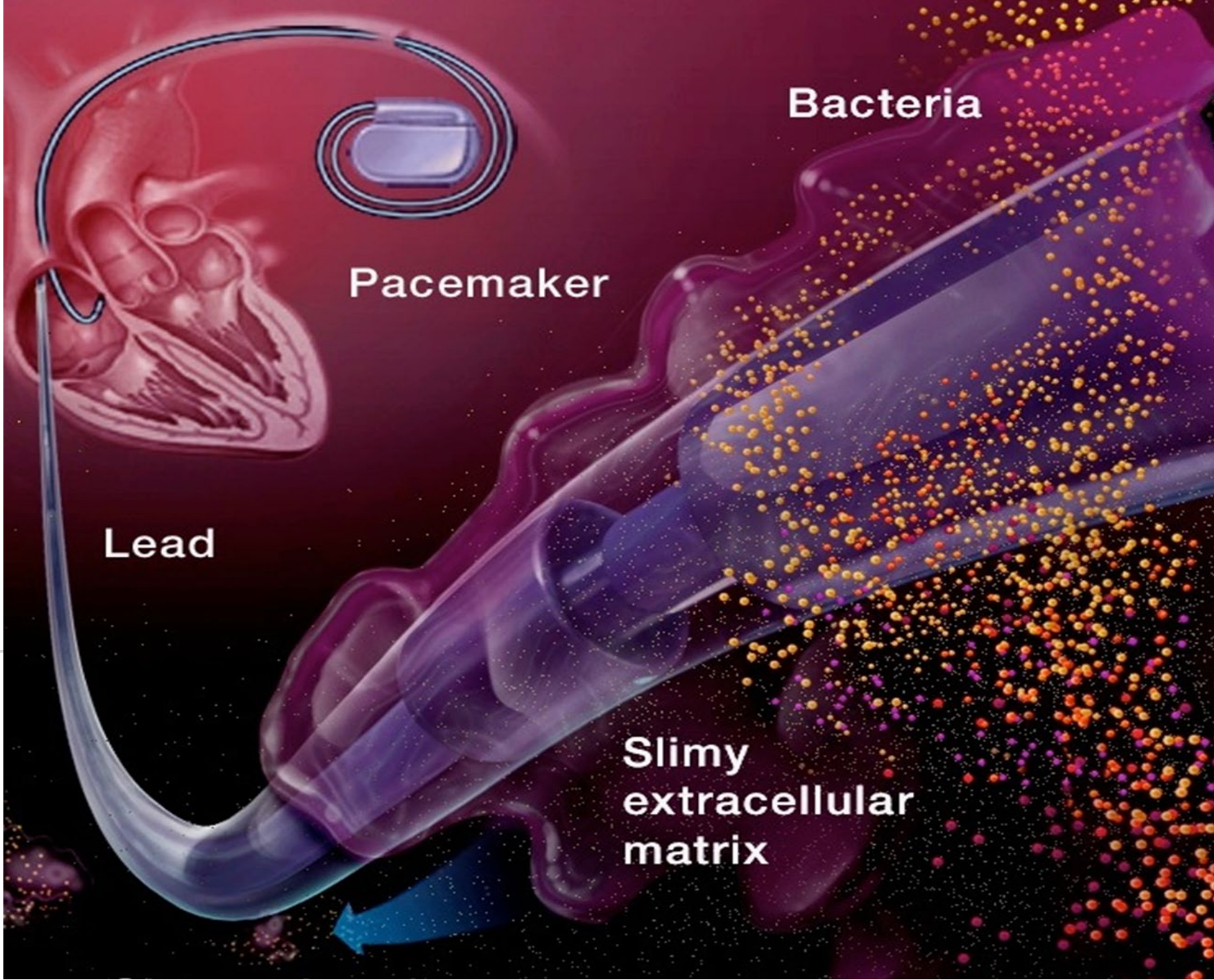
ISCVID





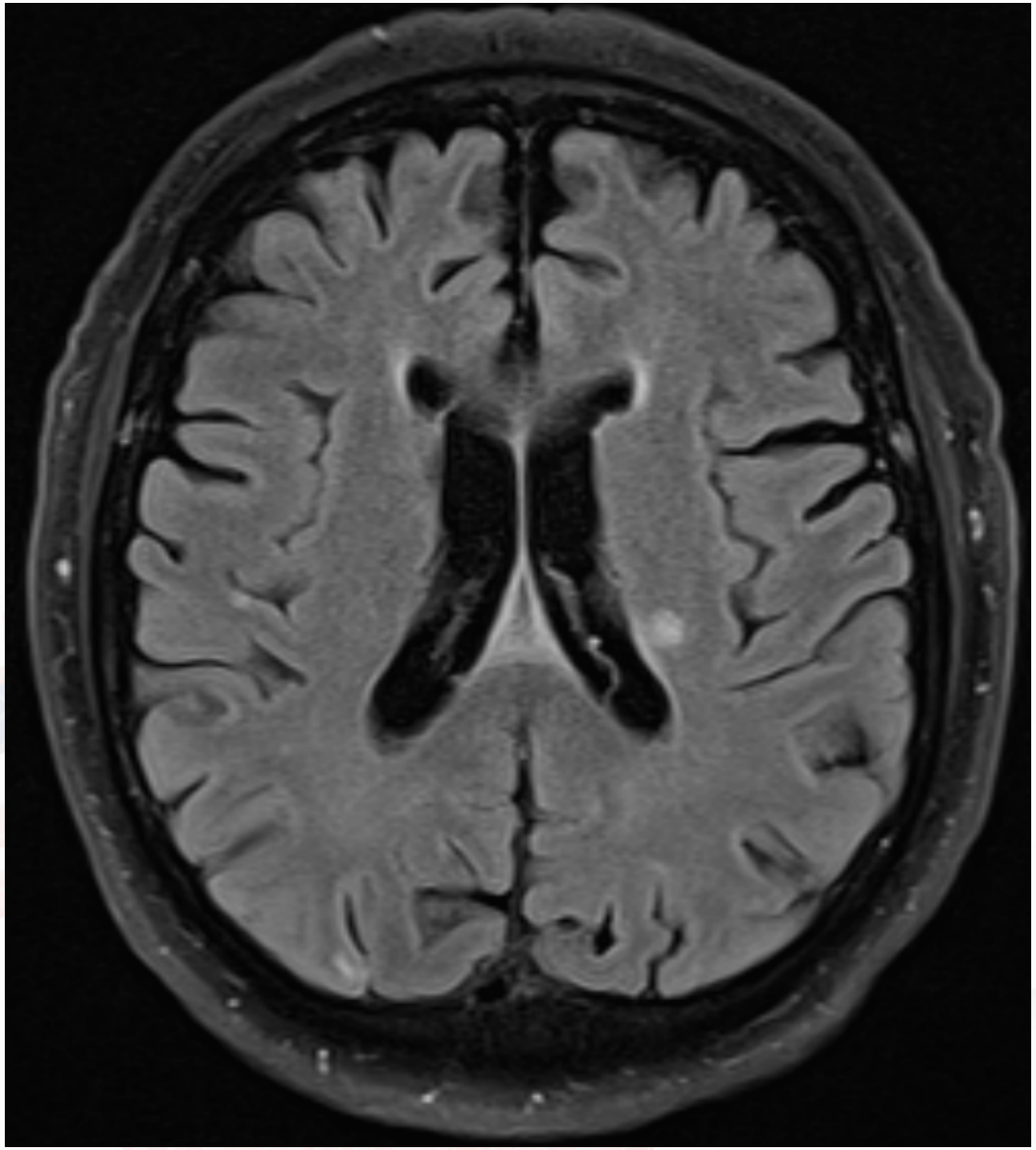
www.iscvid2022.com

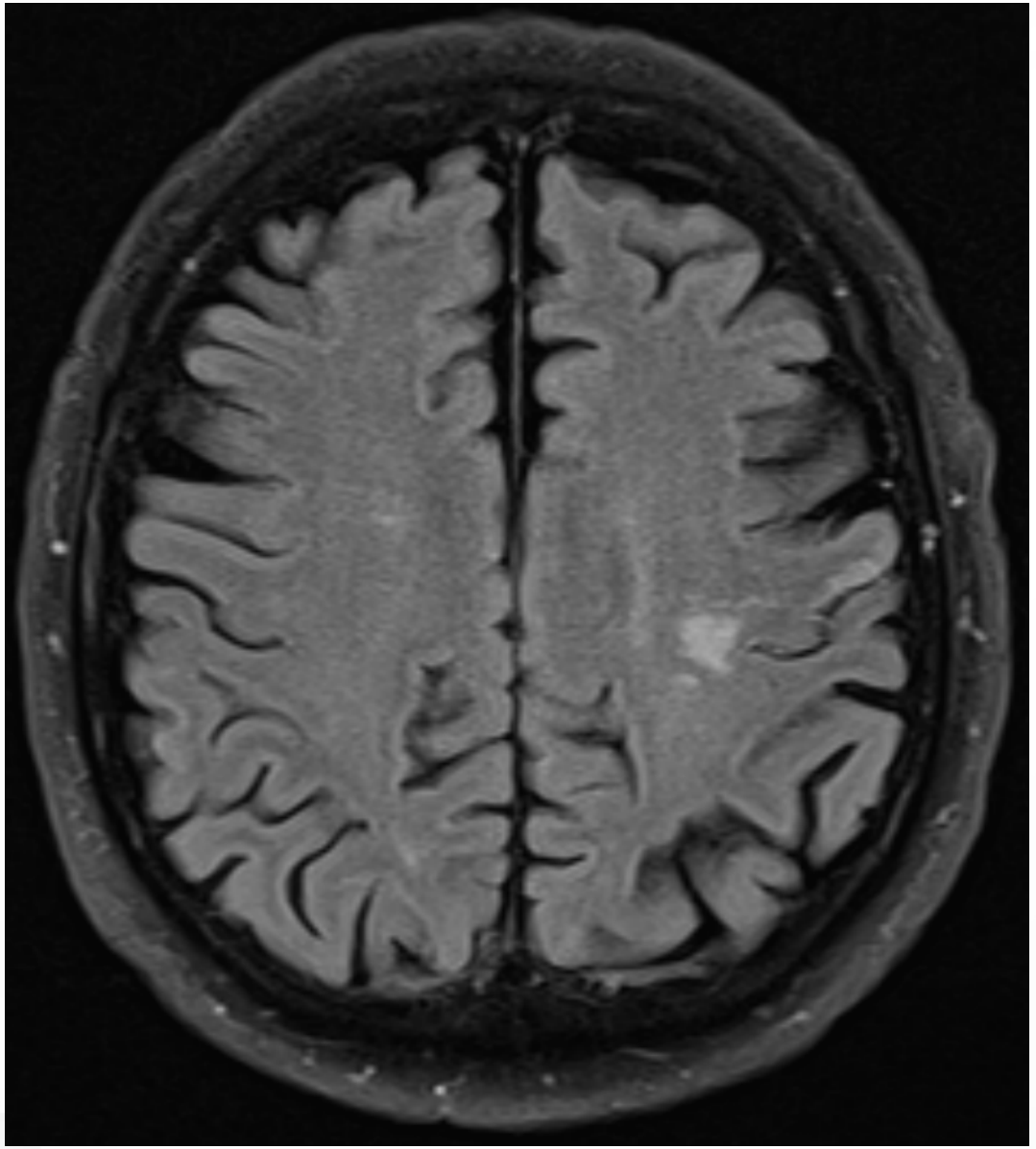
CIED-associated IE



- 82-year-old male with a 2-week history of daily fevers, chills, fatigue, presents to local ED with acute onset Right sided weakness, aphasia
- PMHx:
  - 2009 MV replacement
  - 2012 AV replacement s/p TAVR March 2020
  - 2013 CRT-D implantation
  - Type 2 diabetes mellitus, Left TKA, AFIB, CKD stage 3
- Admitted; blood cultures, MRI brain, echo
- Transferred to Mayo Clinic Rochester, Minnesota

- Physical Exam
  - Mental status: drowsy; aphasic
  - Neuro: right hemibody weakness
  - Heart: irregularly irregular, holosystolic murmur; PPM pocket without erythema or swelling or tenderness
  - Lungs: bibasilar crepitus
  - Skin: no rash, stigmata of IE
  - Extremities: mild Left TKA erythema, decreased ROM
- Labs: WBC 18.5, Cr 1.68 (baseline 1.5), ESR 73, CRP 254





Peripheral blood cultures:

Enterococcus faecalis at 9 hours

2/2 sets

6/6 bottles

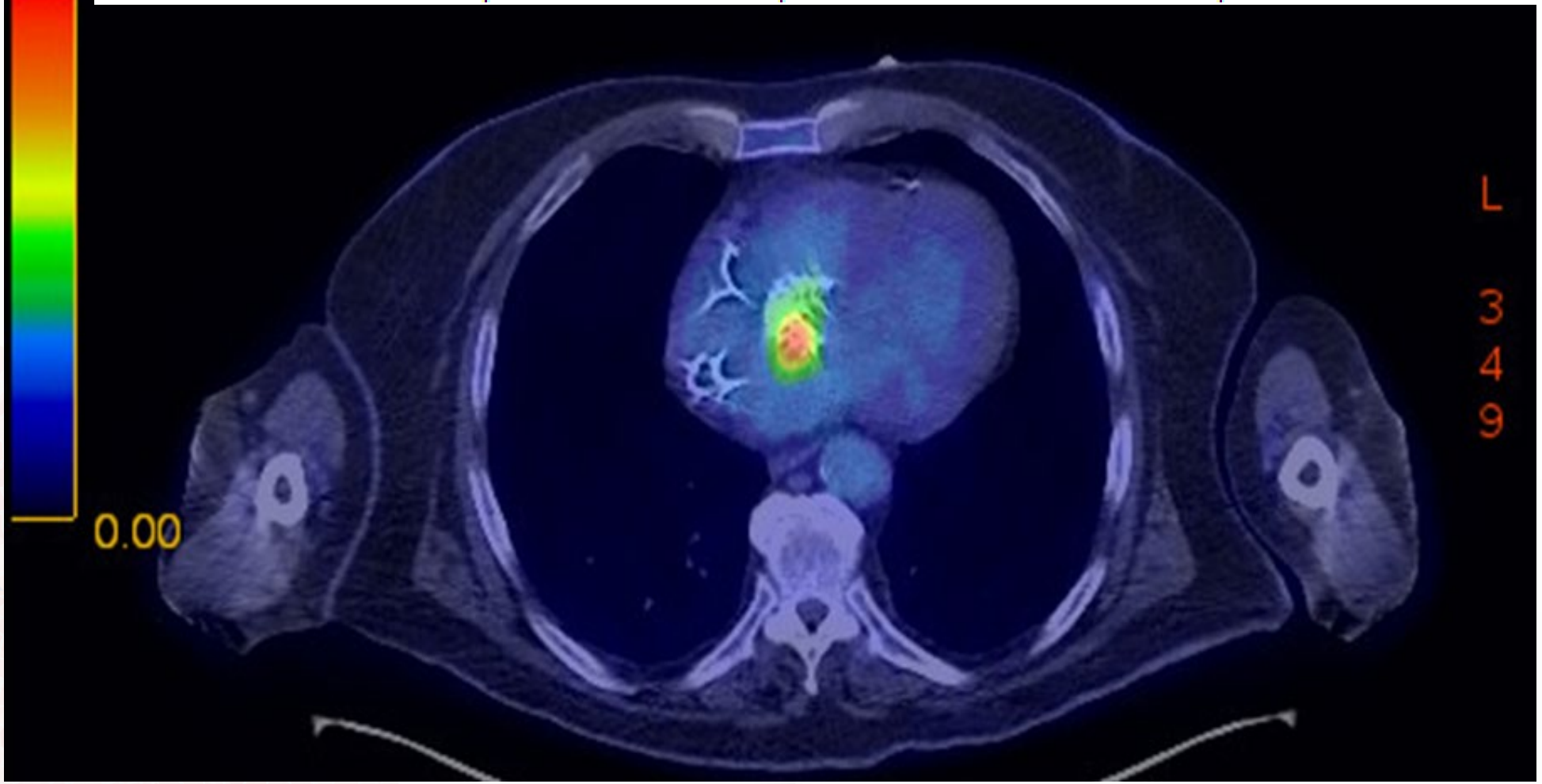
	Enterococcus faecalis			
	SUSCEPTIBILITY, MIC (MCG/ML) (Preliminary)		SUSCEPTIBILITY, BP (MCG/ML) (Preliminary)	
Ceftriaxone				
Daptomycin			1 mcg/mL	Susceptible
Erythromycin				
Gent Synergy	>500 mcg/mL	**Resistant**		
Levofloxacin				
Linezolid	<=2 mcg/mL	Susceptible [2]		
Meropenem				
Penicillin	2 mcg/mL	Susceptible		
Vancomycin	<=2 mcg/mL	Susceptible		

Transesophageal echocardiogram

Final Impressions

1. Device lead (s) identified in right atrium and right ventricle. There are 2 independently mobile masses: one attached to the right ventricular device lead (10 x 2 mm - see clip 23) and the other to the right atrial device lead (long thin and filamentous measuring 14 x 1 mm - see clip 32). While the echocardiographic appearances would be consistent the typical fibrin/thrombus seen on such leads, infected fibrin/thrombus or vegetation would have the same echocardiographic appearance and so cannot be excluded in the setting of bacteremia.
2. No evidence of native or prosthetic valve endocarditis. Normal intervalvular fibrosa thickness without evidence of aortic root abscess.
3. Status post 29 mm Medtronic CoreValve Evolut PRO transcatheter pericardial aortic valve prosthesis (10-MAR-20; valve in valve procedure). Normal prosthetic leaflet(s) motion. Mean gradient 6 mmHg. Trivial periprosthetic regurgitation (posteromedially). No prosthetic regurgitation.
4. Status post 29 mm mitral valve Medtronic Mosaic prosthesis (Mar-9-2009). Diastolic mean gradient 5 mmHg (HR 87 BPM). Trivial prosthetic regurgitation. No periprosthetic regurgitation.
5. Moderate tricuspid valve regurgitation. in the setting of tricuspid annulus dilatation (50 mm). There is\.br\ no definite evidence of leaflet impingement by the traversing right ventricular device lead.
6. Enlarged left ventricular chamber size with regional wall motion abnormalities (see graphics). Left ventricular ejection fraction 35%.
7. Enlarged right ventricular chamber size with mild-moderately reduced systolic function.

IMPRESSION:
1. Moderate to intense uptake at the aortic prosthetic valve favors to represent endocarditis



Question 1

Patient was initially started on IV vancomycin, cefepime, and gentamicin at outside ED. What antibiotic regimen would you recommend now (assuming no known drug allergies)?

1. **IV ampicillin monotherapy**
2. **IV ampicillin and ceftriaxone**
3. **IV ampicillin and gentamicin**
4. **IV vancomycin and gentamicin**

IV ampicillin and ceftriaxone

Comparative Study > J Infect. 2018 Nov;77(5):398-404. doi: 10.1016/j.jinf.2018.06.013.
Epub 2018 Jun 30.

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ıfective
Retrospective

Comparison of Dual β-Lactam therapy to penicillin-aminoglycoside combination in treatment of Enterococcus faecalis infective endocarditis

Abdelghani El Rafei [1], Daniel C DeSimone [2], Aalap D Narichania [3], M Rizwan Sohail [4], Holenarasipur R Vikram [5], Zhuo Li [6], James M Steckelberg [2], Walter R Wilson [2], Larry M Baddour [4]

Ampicillin Plus Ceftriaxone Is as Effective as Ampicillin Plus Gentamicin for Treating *Enterococcus faecalis* Infective Endocarditis

Nuria Fernández-Hidalgo,[1] Benito Almirante,[1] Joan Gavaldà,[1] Mercè Gurgui,[2] Carmen Peña,[3] Arístides de Alarcón,[4] Josefa Ruiz,[5] Isidre Vilacosta,[6] Miguel Montejo,[7] Nuria Vallejo,[8] Francisco López-Medrano,[9] Antonio Plata,[10] Javier López,[11] Carmen Hidalgo-Tenorio,[12] Juan Gálvez,[13] Carmen Sáez,[14] José Manuel Lomas,[15] Marco Falcone,[16] Javier de la Torre,[16] Xavier Martínez-Lacasa,[17] and Albert Pahissa[1]

- Orthopedics recommend L TKA joint aspiration

Fluid Type	Left knee synovial
Gross Appearance	Bloody
Total Nucleated Cells	139646
Neutrophils	87
Monocytes/Macrophages	13
Comment	SeeComment
Reviewed by:	Tech

- Taken to OR: 40 cc of bloody fluid drained, no purulence. Underwent DAIR with polyethylene component exchange
- Multiple cultures positive for *E. faecalis*

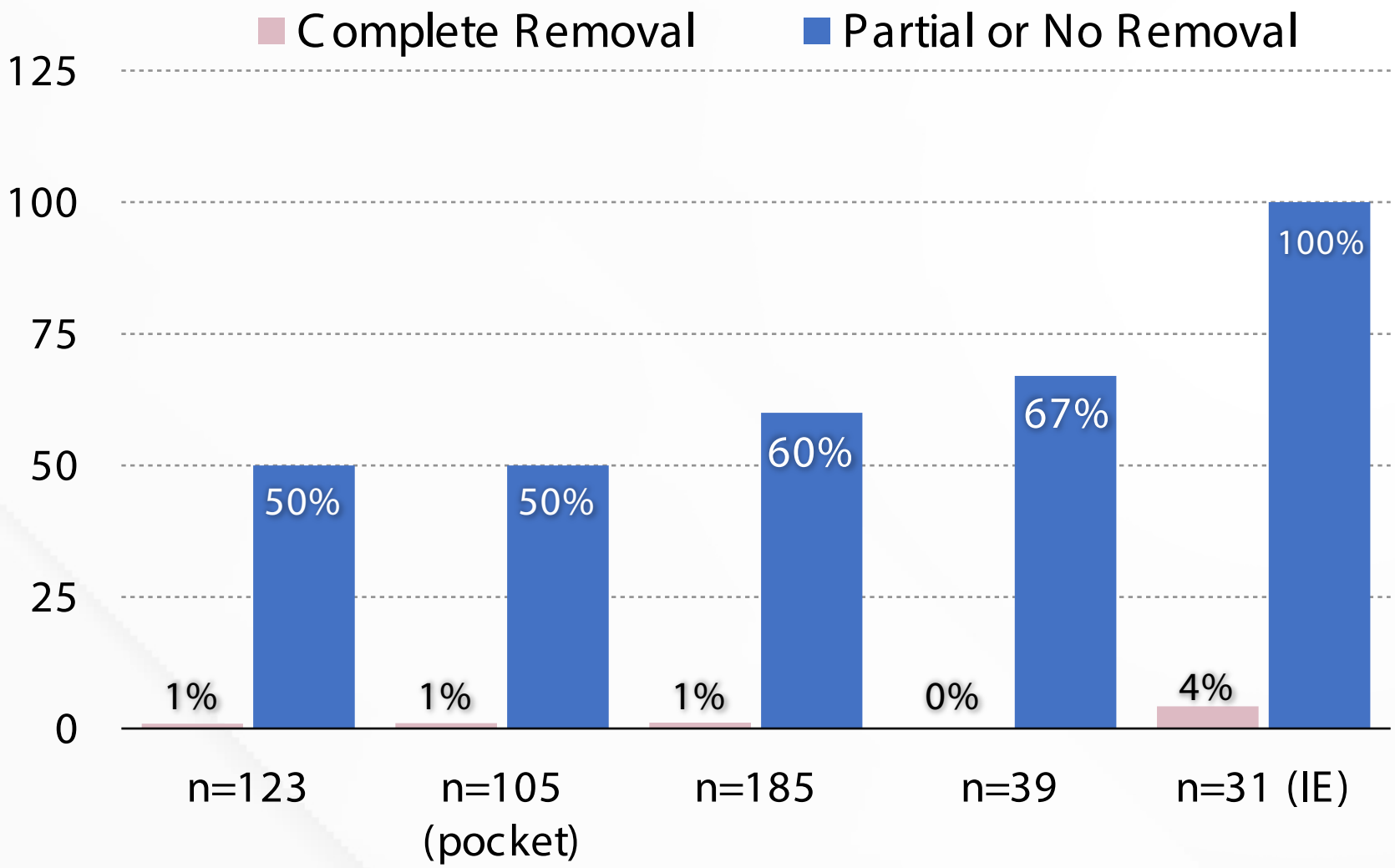
- Blood cultures cleared within 72 hours of antibiotic therapy
- CV surgery did not offer surgery for valvular IE or if emergent surgery was needed during CRT-D extraction; acute stroke
- Electrophysiology consulted for consideration of CRT-D extraction
  - Estimated mortality risk from extraction 6-9%, risk of serious complication 14-16%
  - No plan to reoperate on prosthetic knee or surgically manage prosthetic valves
  - Negative uptake of CIED on PET/CT

Question 2

Would you still pursue CRT-D extraction in this patient with prosthetic valve endocarditis, left TKA prosthetic joint infection s/p DAIR and chronic antibiotic suppression, with significant risk of serious complication or death from device removal?

1. **Yes**
2. **No, but if he relapses on antibiotic suppression, then reconsider**
3. **Never, even if relapses**
4. **It depends**

No, but if he relapses on antibiotic suppression, then reconsider



1. Chua, J.D. Annals of Internal Medicine (2000), 133(8): 604-608
2. Klug, D. Heart (2004), 90(8), 882-886.
3. Sohail, MR. J Am Coll Cardiol (2007), 49:1851–1859
4. Margey, R. Europace (2010), 12 (1): 64-70
5. del Rio, A, Chest (2003), 124:1451–9.

Device Retention = A Fatal Choice

- Mortality up to **47%** if device not removed vs **16%** in patients with complete extraction in patients with CIED-SAB
- Treatment failure (death, recurrence) was more common in cases with device retention (52% vs. 25%)

Chamis, et al. *Circulation*, August 2001 (104): 1029-33

- Mortality rate in patients with CIED related endocarditis:
  - Antibiotics alone: **66%**
  - Combined abx + electrode removal: **18%**

Cacoub et al. *Am J Cardiol* 1998;82:480–484

Clin Infect Dis. 2017 Jun 1;64(11):1516-1521. doi: 10.1093/cid/cix181.

Outcomes in Patients With Cardiovascular Implantable Electronic Device Infection Managed With Chronic Antibiotic Suppression

Eugene M Tan [1], Daniel C DeSimone [1], M Rizwan Sohail [1 2], Larry M Baddour [1 2], Walter R Wilson [1], James M Steckelberg [1], Abinash Virk [1]

Affiliations + expand

- Reviewed 660 CIEDI cases 2005 - 2015
- 48 patients prescribed CAS
- At 1 month after hospitalization, 25% had died
- Overall survival was 1.43 years
- 18% of survivors had infection relapse within 1 year

Question 3

Prior to TAVR, what perioperative antibiotic prophylaxis do you recommend (assuming no β-lactam allergy)?

1. IV cefazolin
2. IV daptomycin
3. IV ampicillin/sulbactam
4. IV vancomycin

Multicenter Study > J Am Coll Cardiol. 2020 Jun 23;75(24):3020-3030.
doi: 10.1016/j.jacc.2020.04.044.

Infective Endocarditis After Transcatheter Aortic Valve Replacement

Stefan Stortecky [1], Dik Heg [2], David Tueller [3], Thomas Pilgrim [1], Olivier Muller [4], Stephane Noble [5], Raban Jeger [6], Stefan Toggweiler [7], Enrico Ferrari [8], Maurizio Taramasso [9], Francesco Maisano [9], Rebeca Hoeller [1], Peter Wenaweser [10], Fabian Nietlispach [11], Andreas Widmer [12], Christoph Huber [5], Marco Roffi [5], Thierry Carrel [1], Stephan Windecker [13], Anna Conen [14]

- 47.9% of patients with early TAVR-IE from the SwissTAVI Registry-- pathogen not susceptible to ABX prophylaxis administered preoperative
  - *Enterococcus* spp most common (30.1%) of early TAVR-IE

- Should prophylaxis with an IV dose of amoxicillin/clavulanic acid, ampicillin/sulbactam, or vancomycin in patients allergic to penicillin be considered?

- Patient did not undergo CRT-D extraction
- He was placed on 6 weeks of IV ampicillin and ceftriaxone, followed by oral amoxicillin 500 mg TID lifelong suppression
- If he has a relapse, then we will reevaluate, likely recommend CRT-D extraction and reengage orthopedics as to whether the L TKA can be explanted via 2-stage procedure
- Patient seen 1-week ago
  - Tolerating oral amoxicillin; surveillance blood cultures remain NGTD

Thank you

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