



Native mitral valve IE with a large vegetation: an interactive (and interesting) case

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How to manage a left-sided 'large vegetation'?

- Risk → Systemic embolism
- Particularly concerning those in the CNS!!!!
- Other organs: emboli (abscesses/infarctation) in spleen, kidneys, other organs...
- Right-side IE → lung emboli. Bigger vegetation tolerated.

What is a large???

- G- > 10 mm?
- B- >15 mm?
- R- >30 mm?
- Y- Depends on location, valve disfunction, movility and pathogen

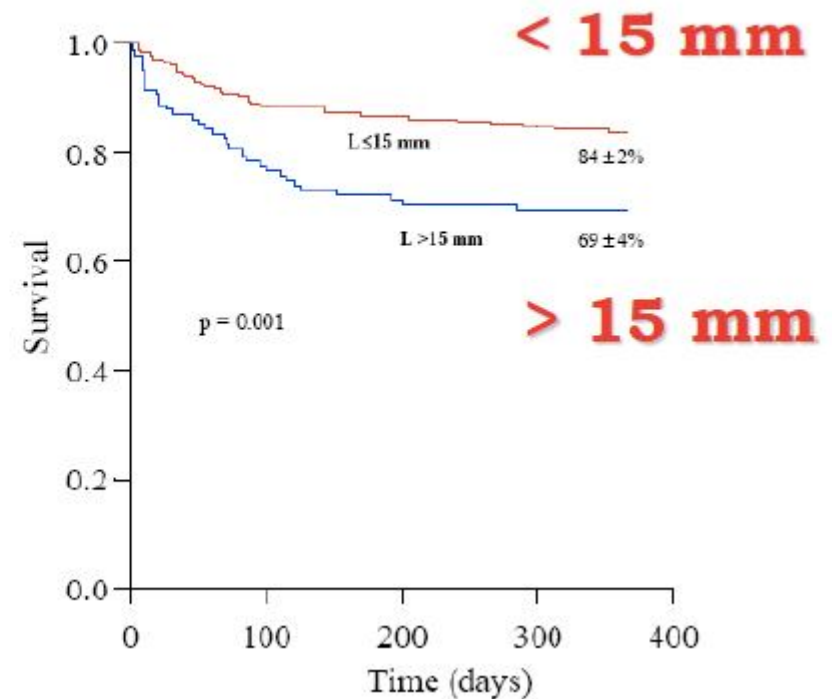
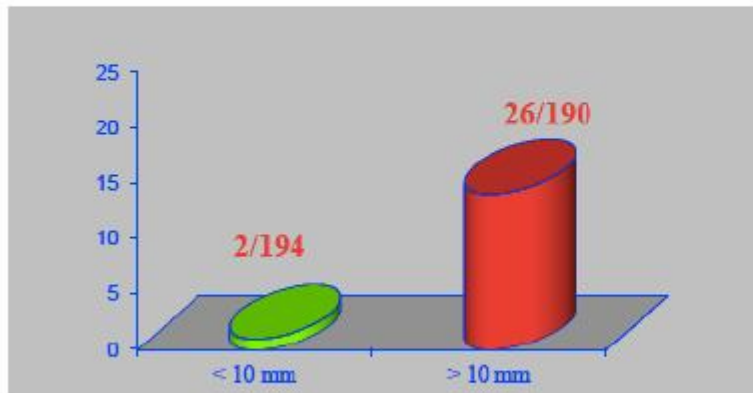
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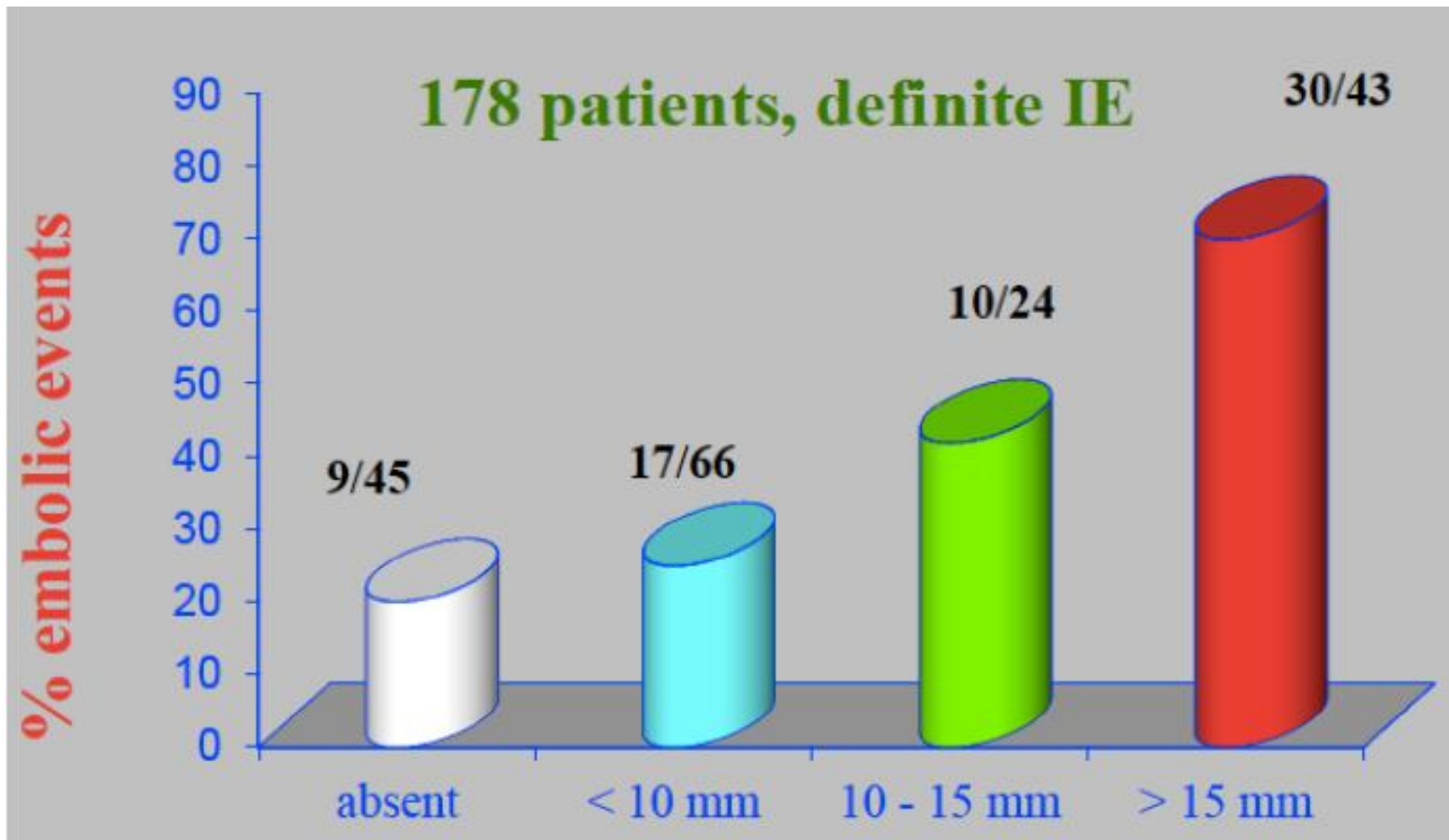
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Size matters... ;-)

- 384 IE , multicentre European study
- 131 (34%) EE, 28 (7.3%) EE under therapy
- 20 (71.4%) during the first 15 days

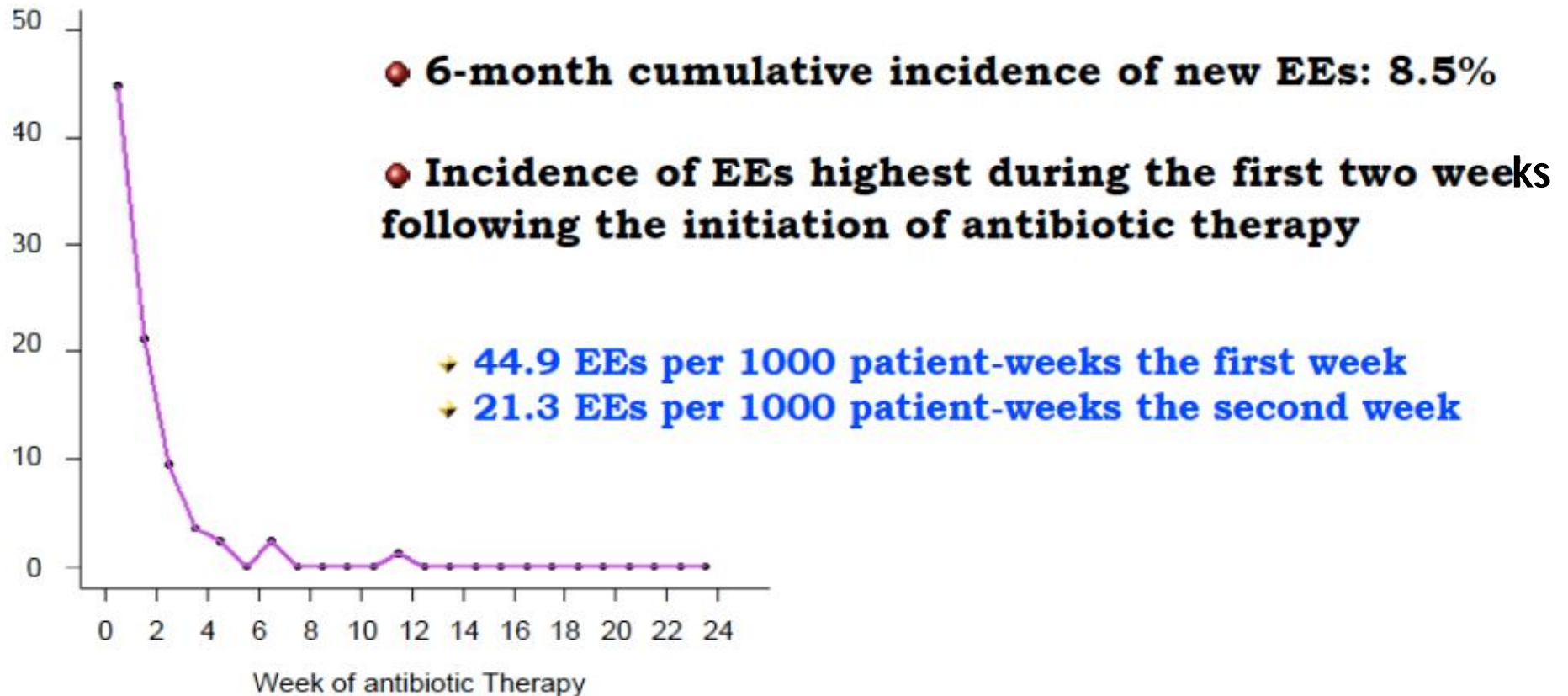
% new embolic events

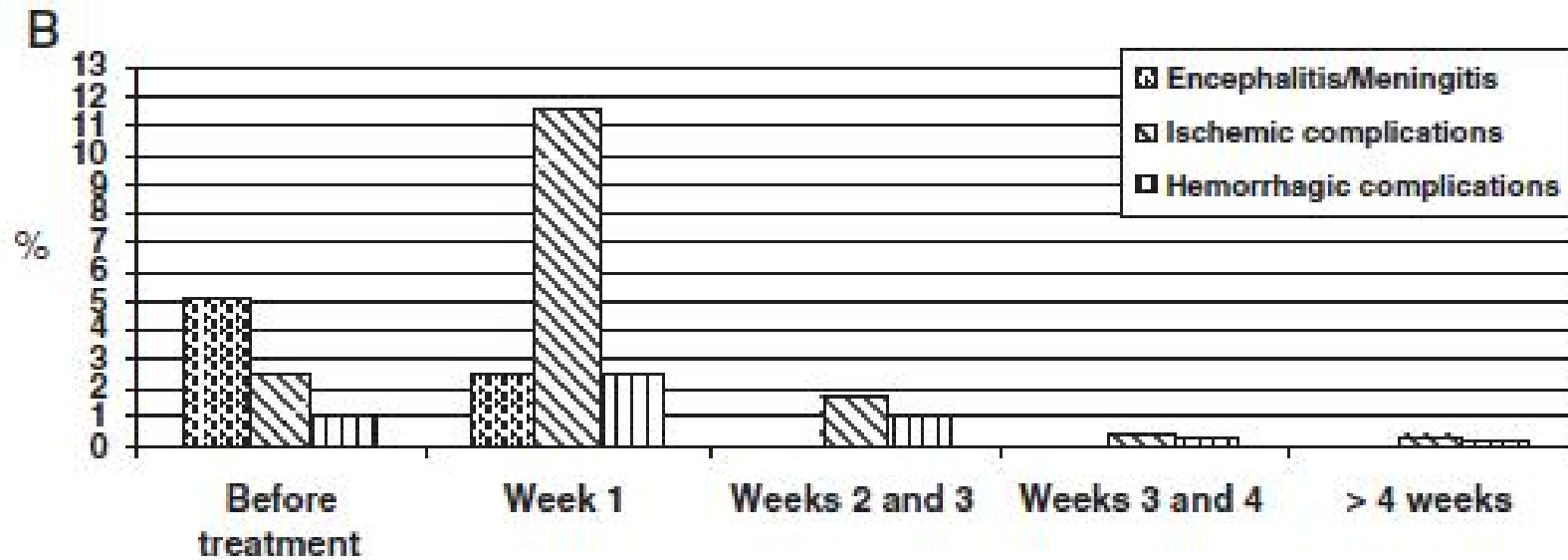




Di Salvo et al. JACC 2001

ATB duration matters too...





Risk factors (overall NC):

- Vegetation >30 mm: HR 1.91 (2.02 for ischemic stroke)
- S aureus*: HR 2.47
- Anticoagulant therapy: HR 1.31 (2.71 for hemorrhage)

Reduction of 74% of ischemic strokes and 33% of bleedings with >7 days of ATB

Table 2. Risk Factors for Embolism in Left-Sided Infective Endocarditis

Risk Factors	Reference
Vegetation size >10 mm or >13 mm	Wilbring et al ²⁵
	Rizzi et al ²⁶
	Mylonakis et al ²⁷
	Mugge et al ²⁸
	Vilacosta et al ²⁹
	Thuny et al ³⁰
Vegetation mobility	Thuny et al ³⁰
Infective agent: <i>Staphylococcus aureus</i>	Dereix et al ¹⁸
	Baddour et al ³¹
	Rizzi et al ²⁶
	Thuny et al ³⁰
Infective agent: <i>Streptococcus bovis</i>	Thuny et al ³⁰
Infective agent: fungal	Baddour et al ³¹
Location: anterior mitral valve > aortic valve	Dereix et al ¹⁸
	Rohmann et al ³²
	Anderson et al ³³
Prior history of embolism	—

CNS is the most frequent site of systemic embolism

Higher size, higher risk

→ More aggressive

→ Less aggressive

Interactive Case

- 70 y.o female patient
- Hypertension, morbid obesity (BMI=38), psoriatic arthropathy on biological therapy
- Admitted on Aug 24th to ER Htal Plató for: fever and chills evolving rapidly to septic shock of unknown source
- BC: *S pyogenes* (1/2, only at 4th day of incubation, no previous ATB)
- Persistence of fever despite ATB (penicillin 12M + clindamycin 10d)
- TTE: large vegetation 2cm on mitral valve, mild valve dysfunction
- Call to 'IE Team of Clinic Htal'. - Should we transfer this patient for surgery?

What do you think???

- G- No, too many co-morbid conditions to consider surgery... Moreover, more than 1 week of ATB with decreased risk for emboli and no severe valve dysfunction. Perform TEE to better evaluate surgical indication.
- B- Yes, really large vegetation, only 1 week of ATB (dose?), young woman and self-dependent
- R- Not now, consider surgery at the end of medical therapy (4-6 weeks)
- Y- Ask him →



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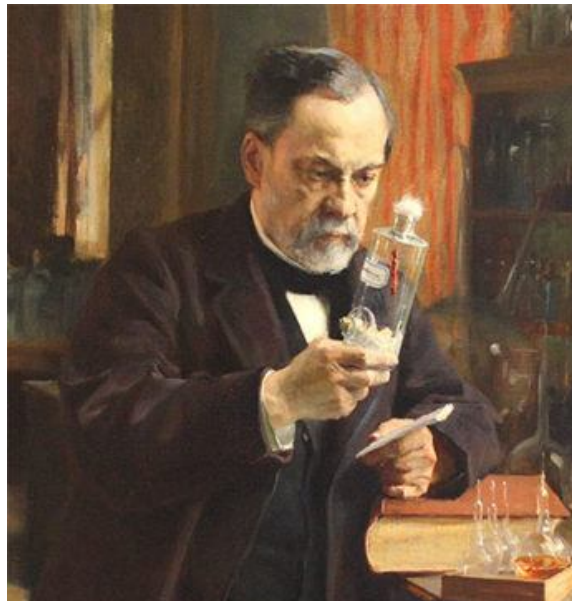


Interactive Case

- 24hs later... Transferred to Ictus Unit of Htal Clinic for septic emboli (right middle cerebral artery)
- Fibrinolysis treatment: desestimated (IE); Mechanical thrombectomy (P20 SEICAV, R1 in *Clin Infect Dis*): desestimated (rapid neurological recovery)
- Weeks of debate about surgery yes or not, about aetiology, about effectiveness or therapy.
- Neurological improvement, but no vegetation regression despite adequate therapy (peni increased to 24 millions)...
- Surgery performed on Oct 10th (admission Aug 24th), both to prevent 2nd stroke and to confirm/exclude diagnosis

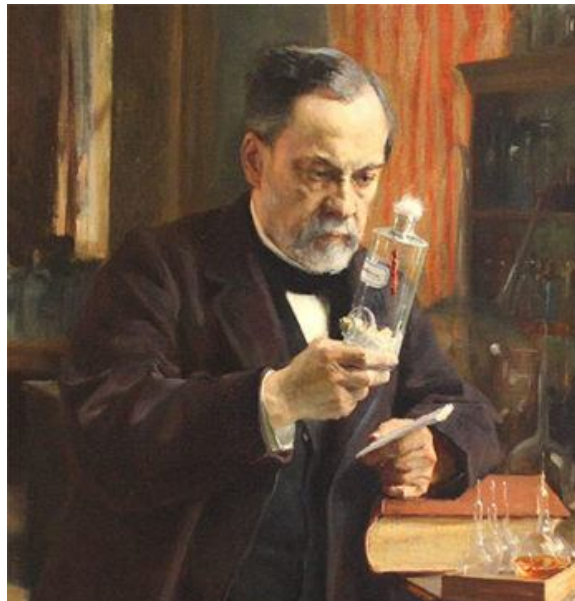
What do you think???

- G- Culture and molecular microbiology (16sRNA seq) positive for other pathogen
- B- Culture negative and molecular microbiology (16sRNA seq) positive for *S pyogenes*
- R- Culture and molecular microbiology (16sRNA seq) both negative
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Interactive Case

- Retained diagnosis of IE due to *S pyogenes* with large mitral vegetation (Intra-vegetation ATB penetration???)
- Several complications, but overall improvement of clinical status and discharged to rehabilitation centre on Nov 28th.

NC in IE

Neurological complications:

- Common (30%) and frequently life threatening
- Prognosis of IE cases with NC is worse
- As a complication of an already diagnosed IE or as the initial clinical presentation
- Its presence and severity impact and modify the clinical management of the valvular disease (Surgery)
- Individual approach, no RCT to guide recommendations

Table 1. Neurological Sequelae of Infective Endocarditis and Approximate Proportion

Complication	Approximate Proportion	Reference
Ischemic stroke	70%	Snygg Martin et al ¹⁴
		Cooper et al ¹³
		Barsic et al ¹⁵
		Thuny et al ¹⁶
		Ting et al ¹⁷
Intracerebral hemorrhage	10%	Derex et al ¹⁸
		Diab et al ¹⁹
		Garcia Cabrera et al ¹¹
		Okita et al ¹⁰
Subarachnoid hemorrhage	5%	-
Meningoencephalitis	5%	Sonneville et al ²⁰
		Garcia-Cabrera et al ¹¹
		Lucas et al ²¹
Intracerebral abscess	5%	Garcia Cabrera et al ¹¹
		Sonneville et al ²⁰
Infectious intracranial aneurysm	5%	Peters et al ²²

Yanagawa et al. Circulation 2016.

Table 22 Indications and timing of surgery in left-sided valve infective endocarditis (native valve endocarditis and prosthetic valve endocarditis)

Indications for surgery	Timing ^a	Class ^b	Level ^c	Ref. ^d
1. Heart failure				
Aortic or mitral NVE or PVE with severe acute regurgitation, obstruction or fistula causing refractory pulmonary oedema or cardiogenic shock	Emergency	I	B	111,115, 213,216
Aortic or mitral NVE or PVE with severe regurgitation or obstruction causing symptoms of HF or echocardiographic signs of poor haemodynamic tolerance	Urgent	I	B	37,115, 209,216, 220,221
2. Uncontrolled infection				
Locally uncontrolled infection (abscess, false aneurysm, fistula, enlarging vegetation)	Urgent	I	B	37,209, 216
Infection caused by fungi or multiresistant organisms	Urgent/ elective	I	C	
Persisting positive blood cultures despite appropriate antibiotic therapy and adequate control of septic metastatic foci	Urgent	IIa	B	123
PVE caused by staphylococci or non-HACEK gram-negative bacteria	Urgent/ elective	IIa	C	
3. Prevention of embolism				
Aortic or mitral NVE or PVE with persistent vegetations > 10 mm after one or more embolic episode despite appropriate antibiotic therapy	Urgent	I	B	9,58,72, 113,222
Aortic or mitral NVE with vegetations > 10 mm, associated with severe valve stenosis or regurgitation, and low operative risk	Urgent	IIa	B	9
Aortic or mitral NVE or PVE with isolated very large vegetations (>30 mm)	Urgent	IIa	B	113
Aortic or mitral NVE or PVE with isolated large vegetations (>15 mm) and no other indication for surgery ^e	Urgent	IIb	C	

HACEK = *Haemophilus parainfluenzae*, *Haemophilus aphrophilus*, *Haemophilus paraphrophilus*, *Haemophilus influenzae*, *Actinobacillus actinomycetemcomitans*, *Cardiobacterium hominis*, *Eikenella corrodens*, *Kingella kingae* and *Kingella denitrificans*; HF = heart failure; IE = infective endocarditis; NVE = native valve endocarditis; PVE = prosthetic valve endocarditis.

^aEmergency surgery: surgery performed within 24 h; urgent surgery: within a few days; elective surgery: after at least 1–2 weeks of antibiotic therapy.

^bClass of recommendation.

^cLevel of evidence.

^dReference(s) supporting recommendations.

^eSurgery may be preferred if a procedure preserving the native valve is feasible.

Take-home messages

- Management of large left-sided vegetations is challenging
- Multidisciplinary approach of the IE-teams
- Indication for surgery should consider the size, the location and the movility of vegetation, the level of valvular dysfunction, as well as the microorganism and duration of effective therapy
- Even considering all that... we are frequently wrong...

Questions and discussion

- Open to questions...
- Thank you very much for your attention

