Le Diagnostic d'Endocardite en Images

Chirine PARSAI
Jean-Paul GIORGI
Cardiologie
Polyclinique Les Fleurs

Imagerie et Endocardite

Recommendations	Class[a]	Level[b]	Ref.[c]
A. Diagnosis			
• TTE is recommended as the first-line imaging modality in suspected IE.	I	B	64,65
• TOE is recommended in all patients with clinical suspicion of IE and a negative or non-diagnostic TTE.	I	B	64, 68–71
• TOE is recommended in patients with clinical suspicion of IE, when a prosthetic heart valve or an intracardiac device is present.	I	B	64,71
• Repeat TTE and /or TOE within 5–7 days is recommended in case of initially negative examination when clinical suspicion of IE remains high.	I	C	

Recommendations	Class[a]	Level[b]	Ref.[c]
B. Follow-up under medical therapy			
• Repeat TTE and/or TOE are recommended as soon as a new complication of IE is suspected (new murmur, embolism, persisting fever, HF, abscess, atrioventricular block).	I	B	64,72
• Repeat TTE and/or TOE should be considered during follow-up of uncomplicated IE, in order to detect new silent complications and monitor vegetation size. The timing and mode (TTE or TOE) of repeat examination depend on the initial findings, type of microorganism, and initial response to therapy.	IIa	B	64,72
C. Intraoperative echocardiography			
• Intraoperative echocardiography is recommended in all cases of IE requiring surgery.	I	B	64,73
D. Following completion of therapy			
• TTE is recommended at completion of antibiotic therapy for evaluation of cardiac and valve morphology and function.	I	C	

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Imagerie et Endocardite

Critères de Duke

Definite IE

Pathological criteria

- Microorganisms demonstrated by culture or on histological examination of a vegetation, a vegetation that has embolized, or an intracardiac abscess specimen; or
- Pathological lesions; vegetation or intracardiac abscess confirmed by histological examination showing active endocarditis

Clinical criteria

- 2 major criteria; or
- 1 major criterion and 3 minor criteria; or
- 5 minor criteria

Possible IE

- 1 major criterion and 1 minor criterion; or
- 3 minor criteria

Rejected IE

- Firm alternate diagnosis; or
- Resolution of symptoms suggesting IE with antibiotic therapy for ≤4 days; or
- No pathological evidence of IE at surgery or autopsy, with antibiotic therapy for ≤4 days; or
- Does not meet criteria for possible IE, as above

ESC modified Criteria 2015

Major criteria

1. Blood cultures positive for IE

a. Typical microorganisms consistent with IE from 2 separate blood cultures:
- *Viridans streptococci, Streptococcus gallolyticus (Streptococcus bovis), HACEK group, Staphylococcus aureus;* or
- Community-acquired enterococci, in the absence of a primary focus; or

b. Microorganisms consistent with IE from persistently positive blood cultures:
- ≥2 positive blood cultures of blood samples drawn >12 h apart; or
- All of 3 or a majority of ≥4 separate cultures of blood (with first and last samples drawn ≥1 h apart); or

c. Single positive blood culture for *Coxiella burnetii* or phase I IgG antibody titre >1:800

2. Imaging positive for IE

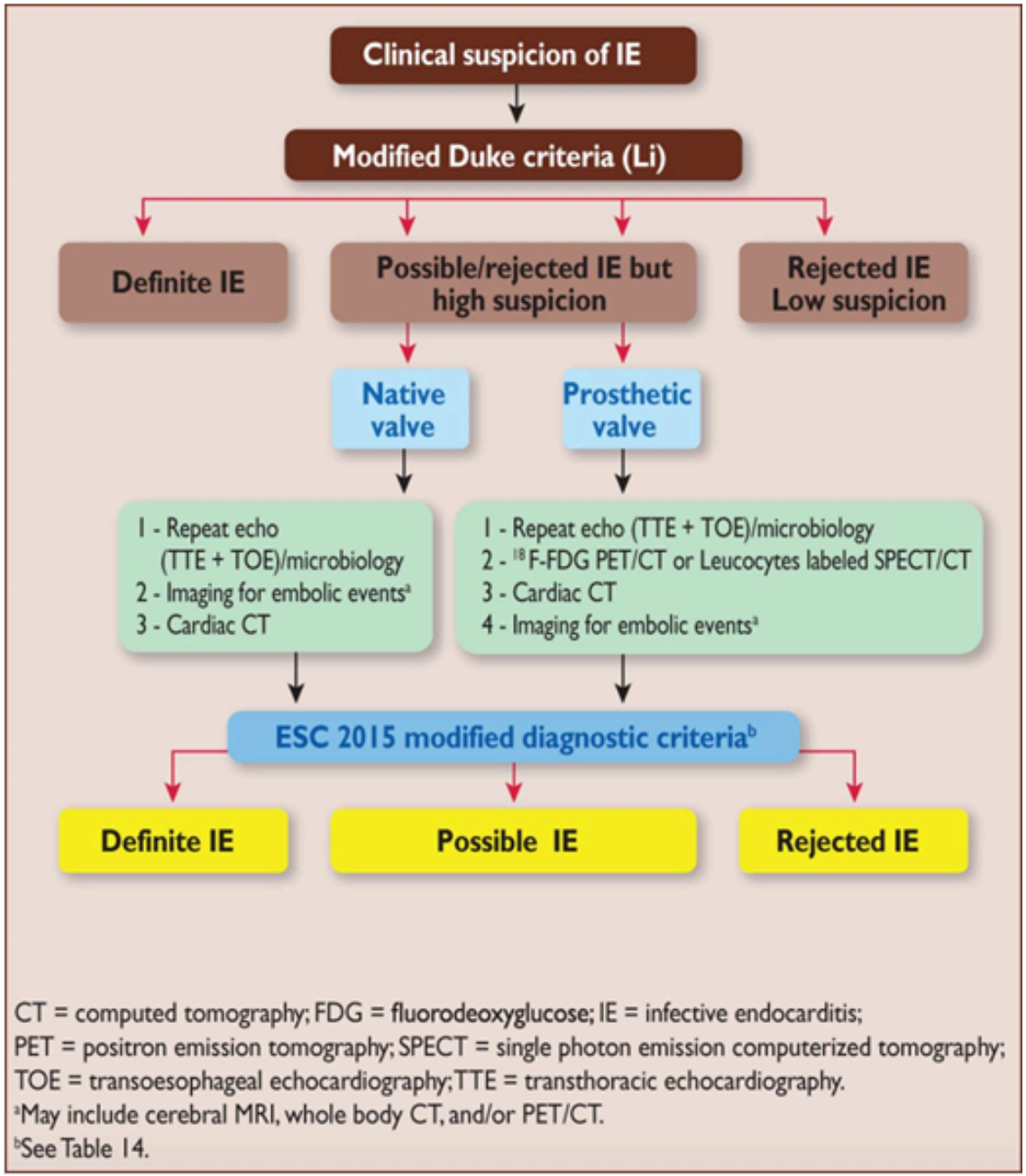
a. Echocardiogram positive for IE:
- Vegetation;
- Abscess, pseudoaneurysm, intracardiac fistula;
- Valvular perforation or aneurysm;
- New partial dehiscence of prosthetic valve.

b. Abnormal activity around the site of prosthetic valve implantation detected by ^{18}F-FDG PET/CT (only if the prosthesis was implanted for >3 months) or radiolabelled leukocytes SPECT/CT.

c. Definite paravalvular lesions by cardiac CT.

Minor criteria

1. Predisposition such as predisposing heart condition, or injection drug use.
2. Fever defined as temperature >38°C.
3. Vascular phenomena (including those detected by imaging only): major arterial emboli, septic pulmonary infarcts, infectious (mycotic) aneurysm, intracranial haemorrhage, conjunctival haemorrhages, and Janeway's lesions.
4. Immunological phenomena: glomerulonephritis, Osler's nodes, Roth's spots, and rheumatoid factor.
5. Microbiological evidence: positive blood culture but does not meet a major criterion as noted above or serological evidence of active infection with organism consistent with IE.



CT = computed tomography; FDG = fluorodeoxyglucose; IE = infective endocarditis; PET = positron emission tomography; SPECT = single photon emission computerized tomography; TOE = transoesophageal echocardiography; TTE = transthoracic echocardiography.

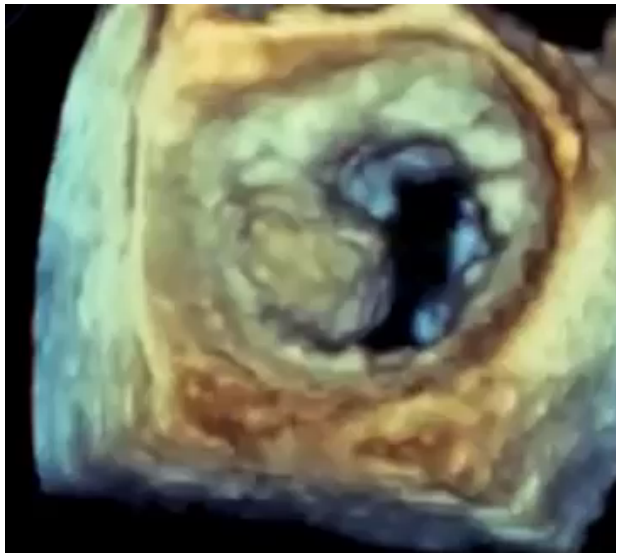
[a]May include cerebral MRI, whole body CT, and/or PET/CT.

[b]See Table 14.

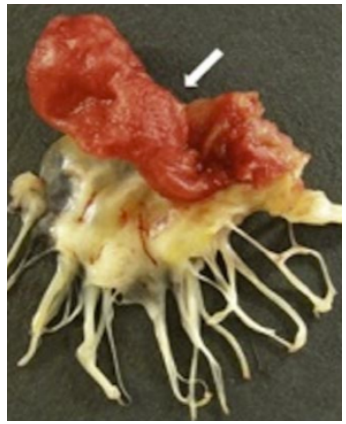
Echocardiographie
Trans-thoracique et Trans-Oesophagienne

- **3 critères Majeurs:**
- Végétation
  - ETT
    - Valve native: Sens: 70%,Spécif.:90%
    - Prothèse: Sens: 50%, Spécif: 90%
  - ETO
    - Valve native: Sens: 96%,Spécif.:90%
    - Prothèse: Sens: 92%
- Abcès
- Pseudo-anévrisme et déhiscence prothétique

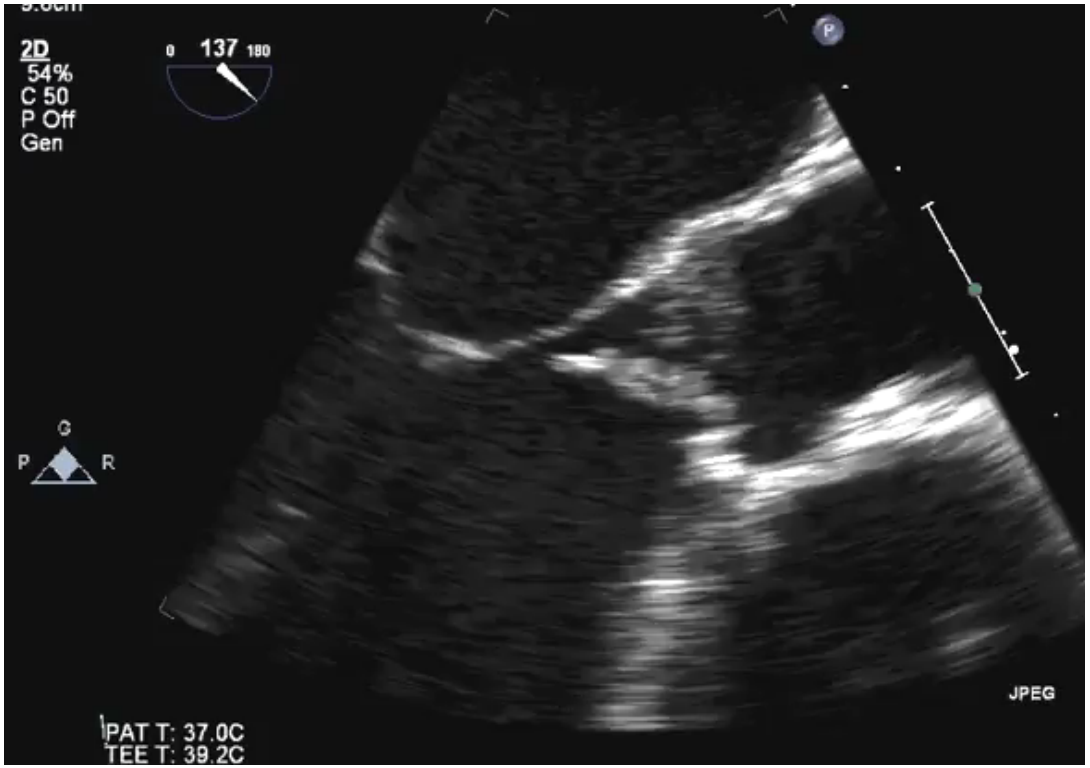
Végétations



Bactériémie
Staph. Aureus

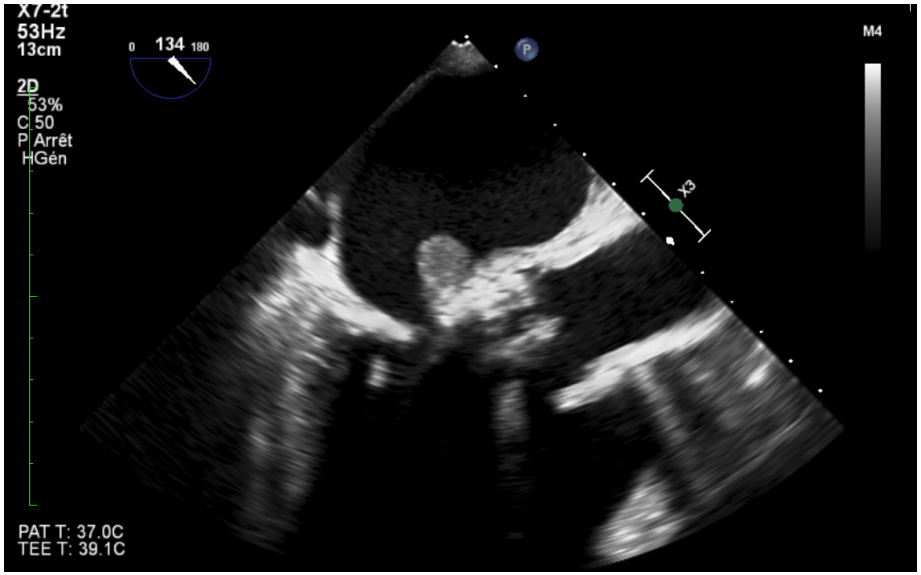


Végétations

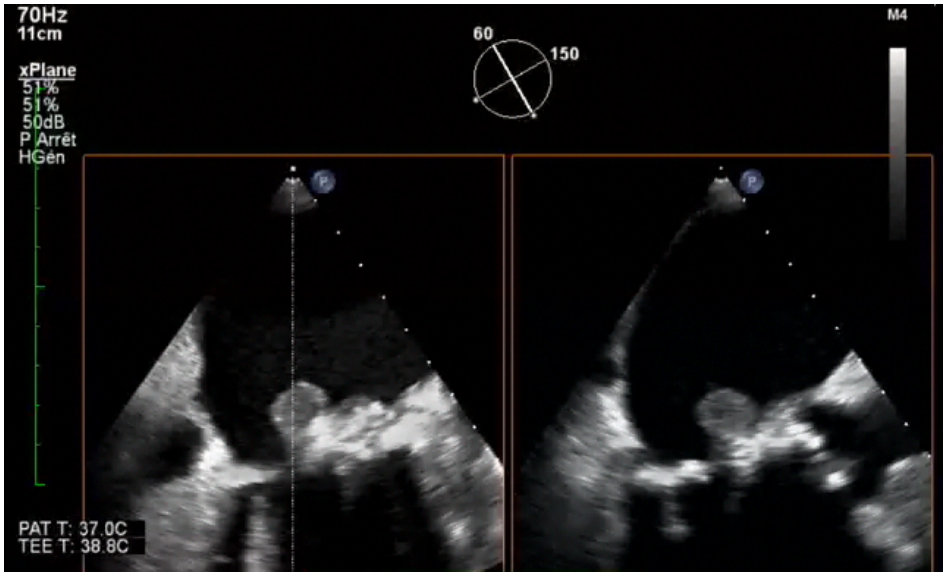


Abcès

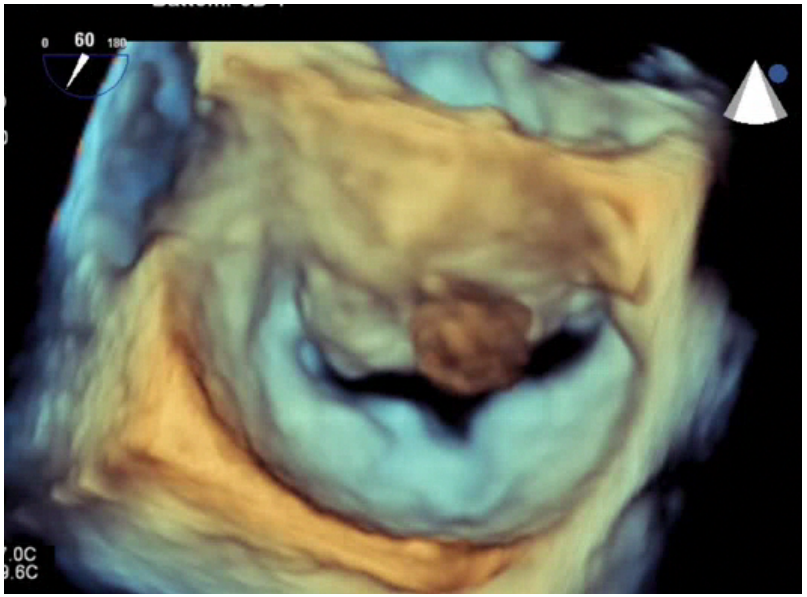
2D



Biplan

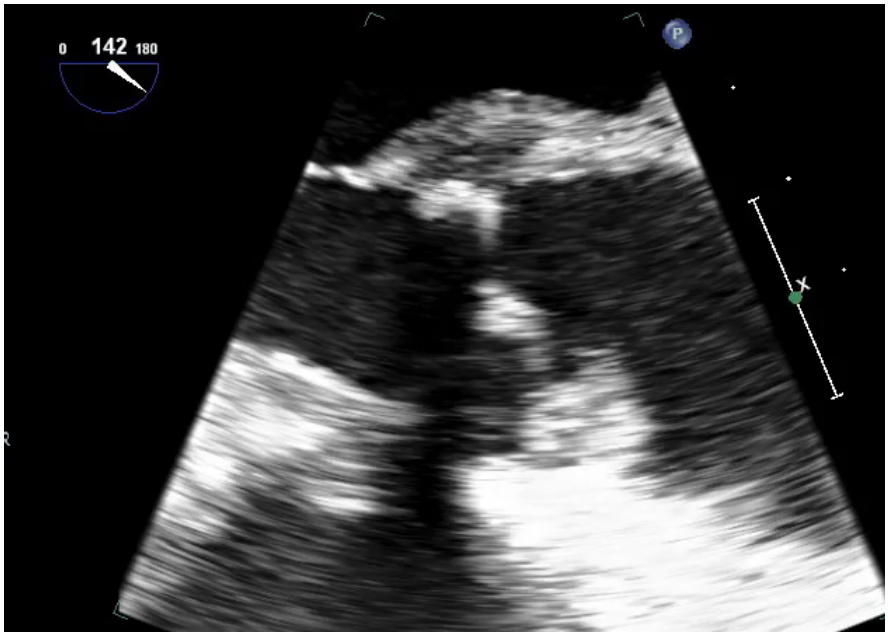


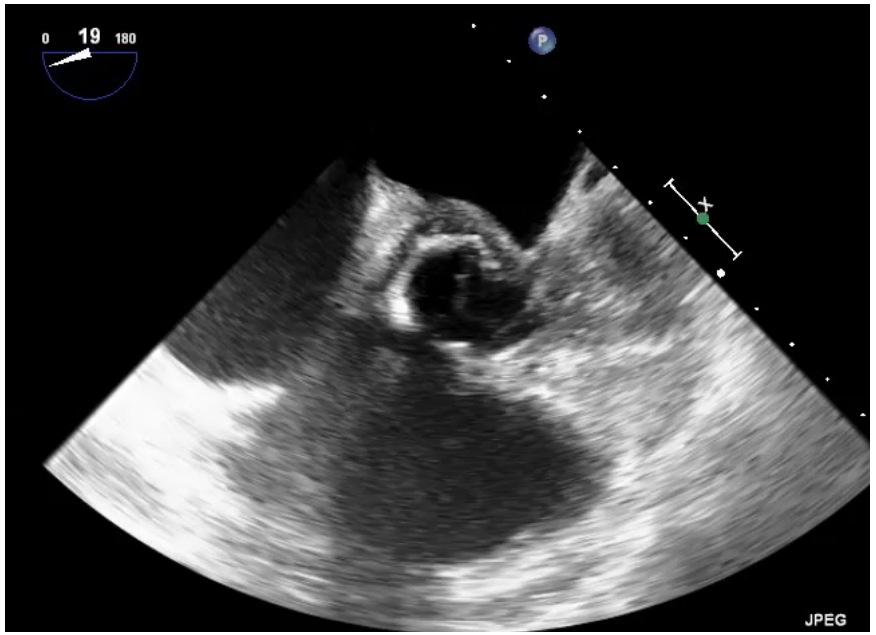
3D



Bioprothèse aortique pour RAC
Bactériémie à SAMS

Abcès

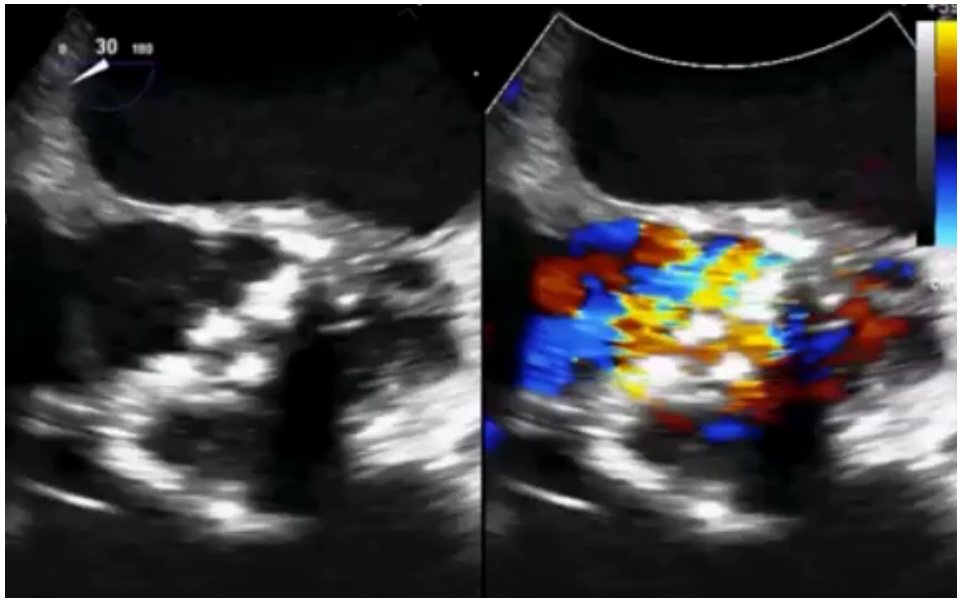




Bioprothèse aortique
AVC fébrile
Bactériémie à SARM

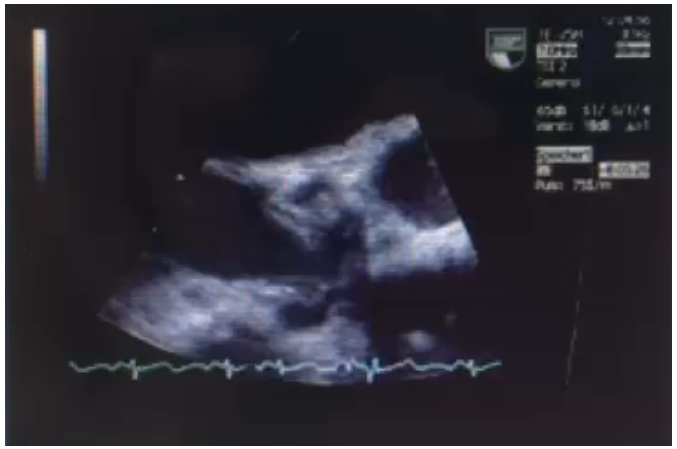
Pseudo-anévrisme

Endocardite à Streptocoque

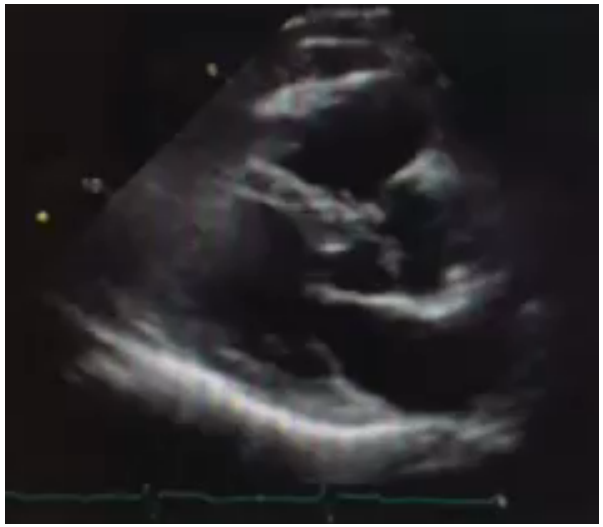


Communication de l’abcès avec la CCVG

Diagnostic Différentiel Végétations



Fibroélastome



Excroissance de Lambl

Processus de lésion-réparation de la valve associé avec dépôts de fibrine

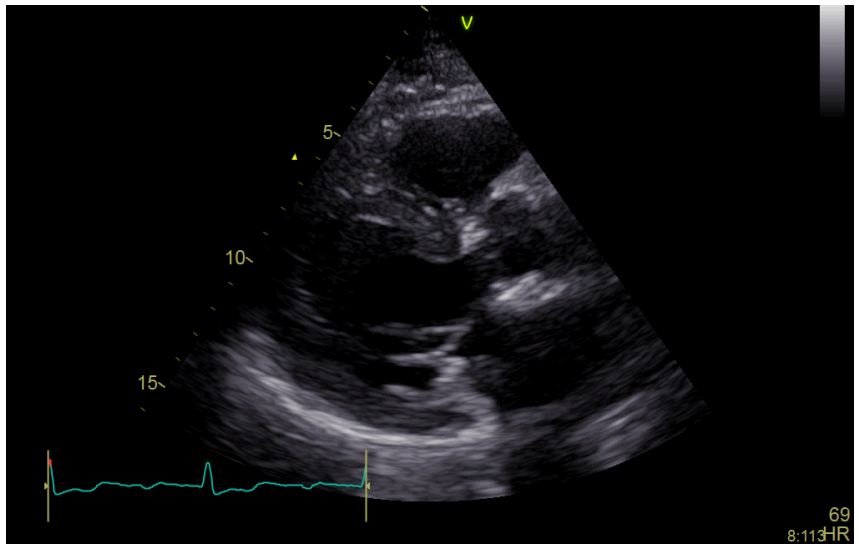
Rupture faux-tendon

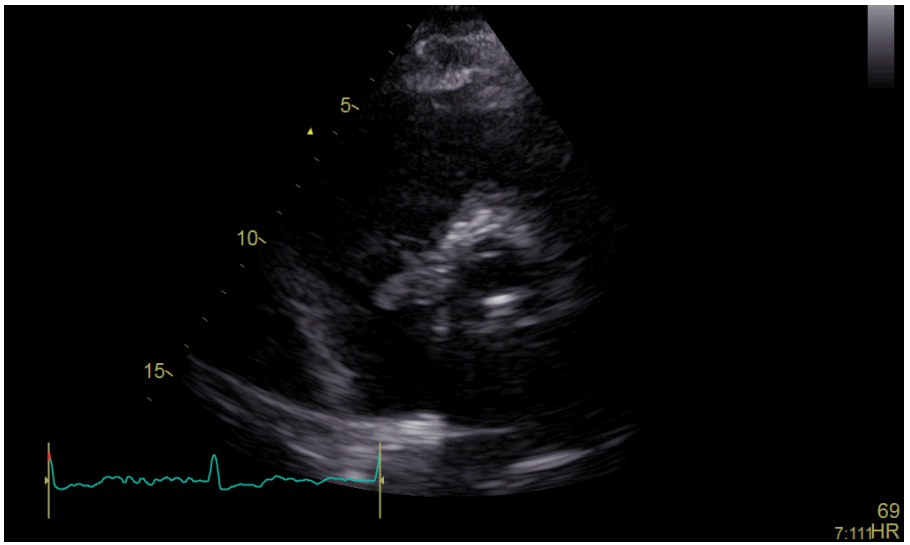
Une image mobile n'est pas toujours une végétation

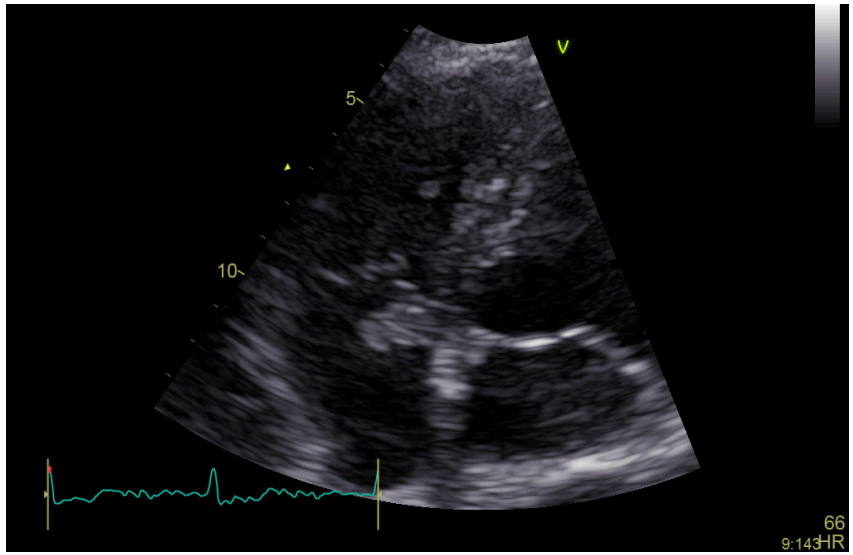
Cas 1

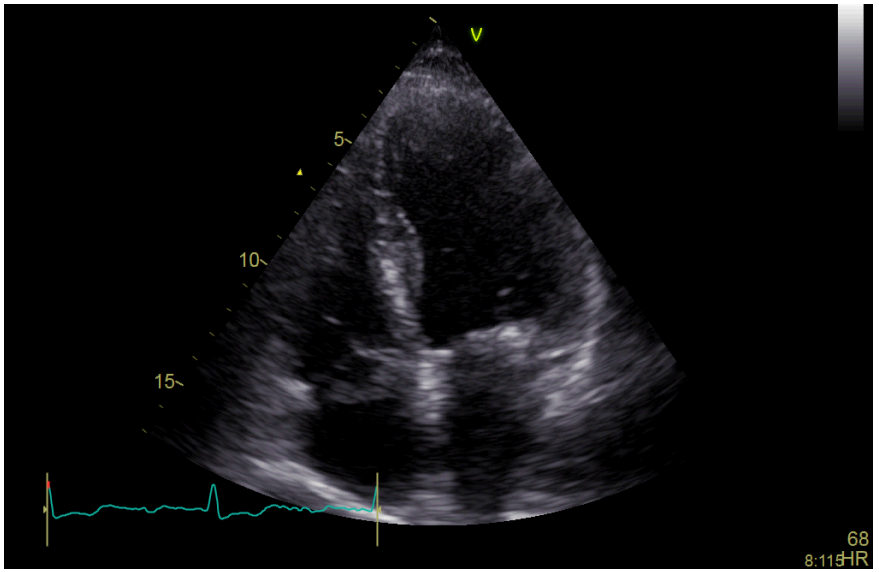
- 68 ans
- Bioprothèse aortique en 2014
- Plaie traumatique du 1er orteil nécessitant des soins locaux
- Consultation de suivi auprès de son cardiologue

ETT





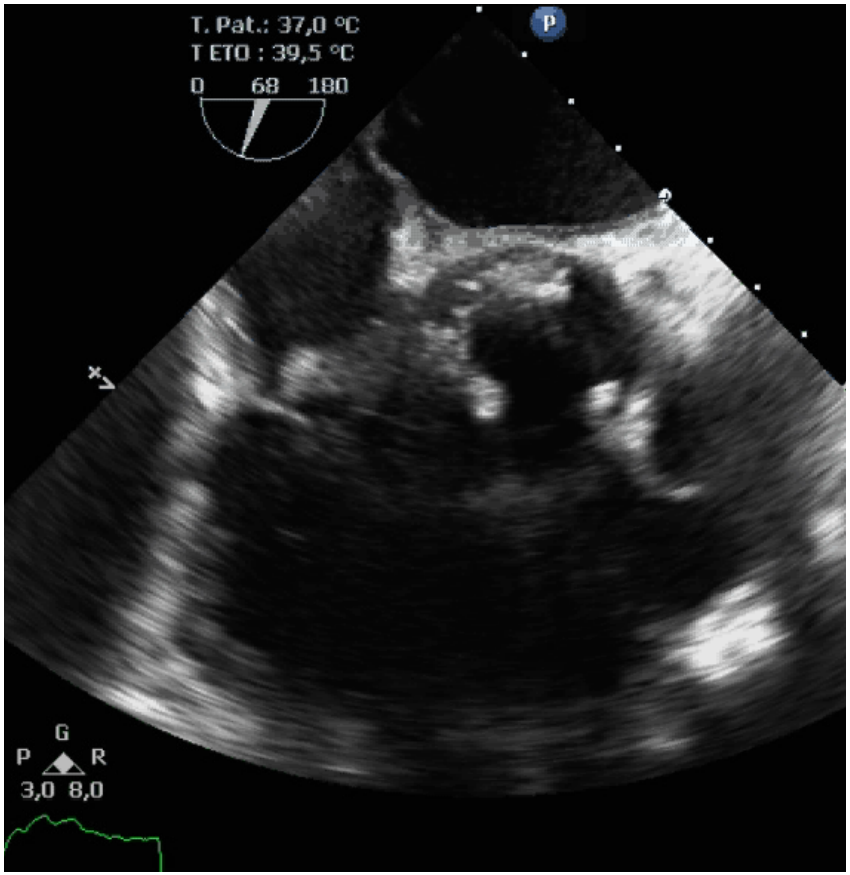


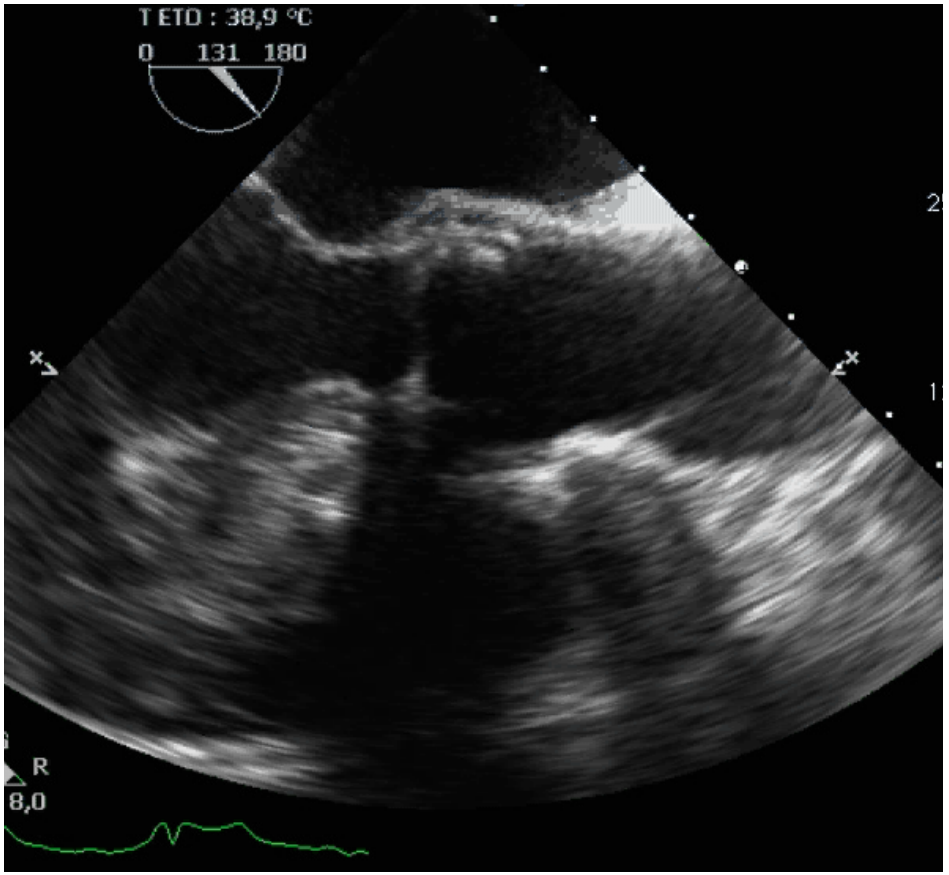


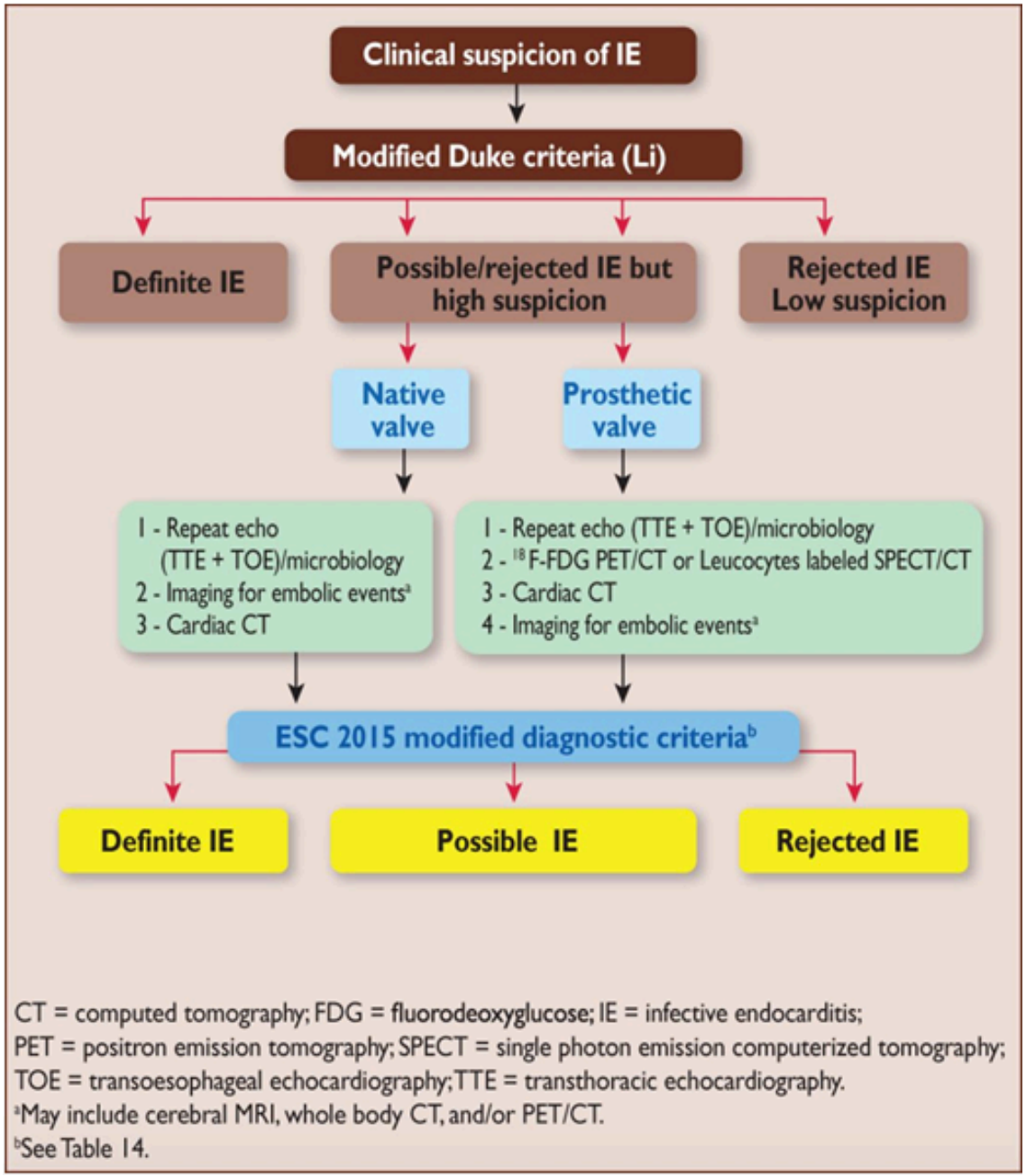
Cas 1

- Apyrétique
- CRP: 3
- Hémocultures: Micrococcus Luteus 2 flacons
- ETO
- Scanner TAP: normal
- Scanner et IRM cérébrale normaux

ETO







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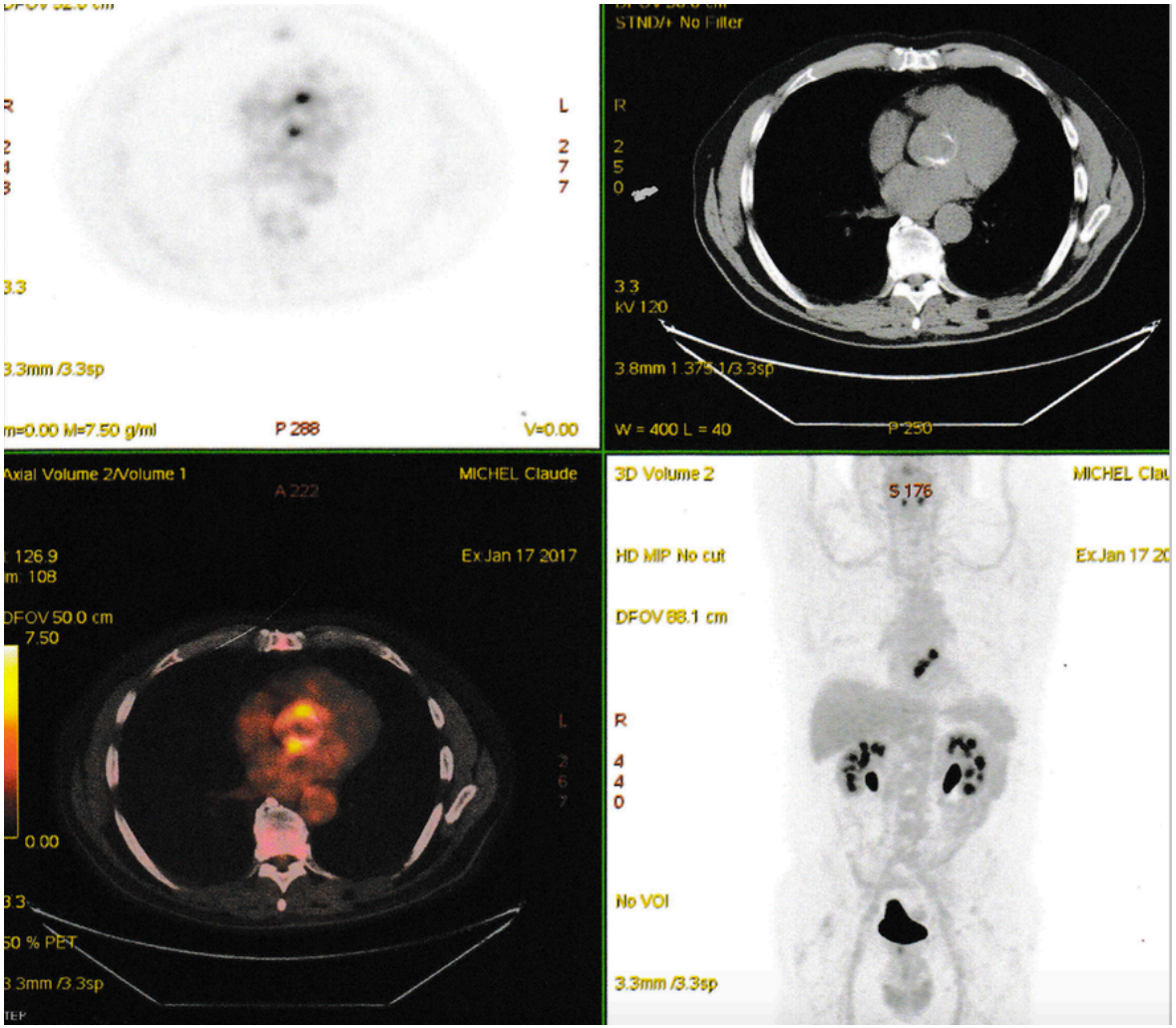
PET-Scan



Hyperfixation intense 18 FDG de la Bioprothèse aortique compatible avec une Endocardite

Hyperfixation de la prostate à investiguer

PET-Scan

Valvular Heart Disease

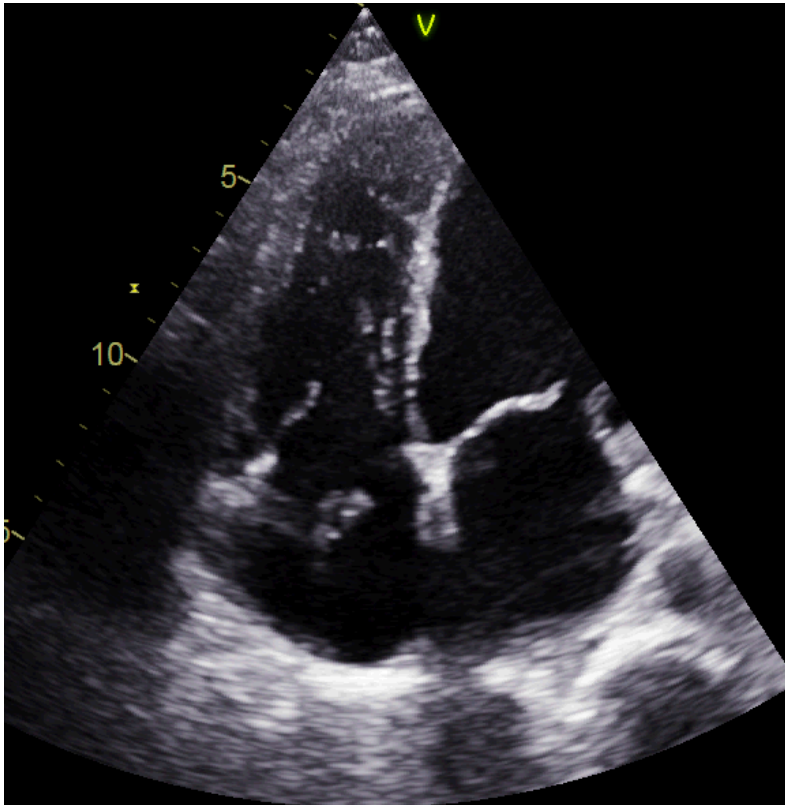
Improving the Diagnosis of Infective Endocarditis in Prosthetic Valves and Intracardiac Devices With ^{18}F-Fluordeoxyglucose Positron Emission Tomography/ Computed Tomography Angiography

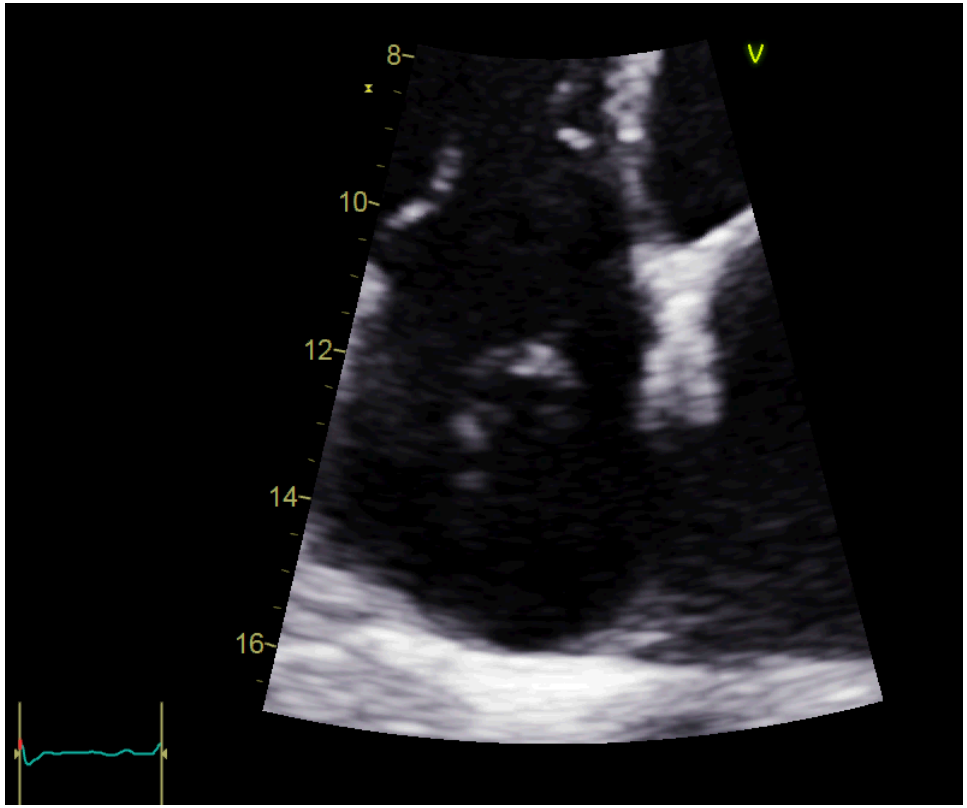
Initial Results at an Infective Endocarditis Referral Center

María N. Pizzi, MD; Albert Roque, MD; Nuria Fernández-Hidalgo, MD, PhD;
Hug Cuéllar-Calabria, MD; Ignacio Ferreira-González, MD, PhD;
María T. Gonzàlez-Alujas, MD, PhD; Gerard Oristrell, MD; Laura Gracia-Sánchez, MD;
Juan J. González, PhD; José Rodríguez-Palomares, MD; Manuel Galiñanes, MD, PhD;
Olga Maisterra-Santos, MD; David Garcia-Dorado, MD, PhD; Joan Castell-Conesa, MD, PhD;
Benito Almirante, MD, PhD; Santiago Aguadé-Bruix, MD; Pilar Tornos, MD, PhD

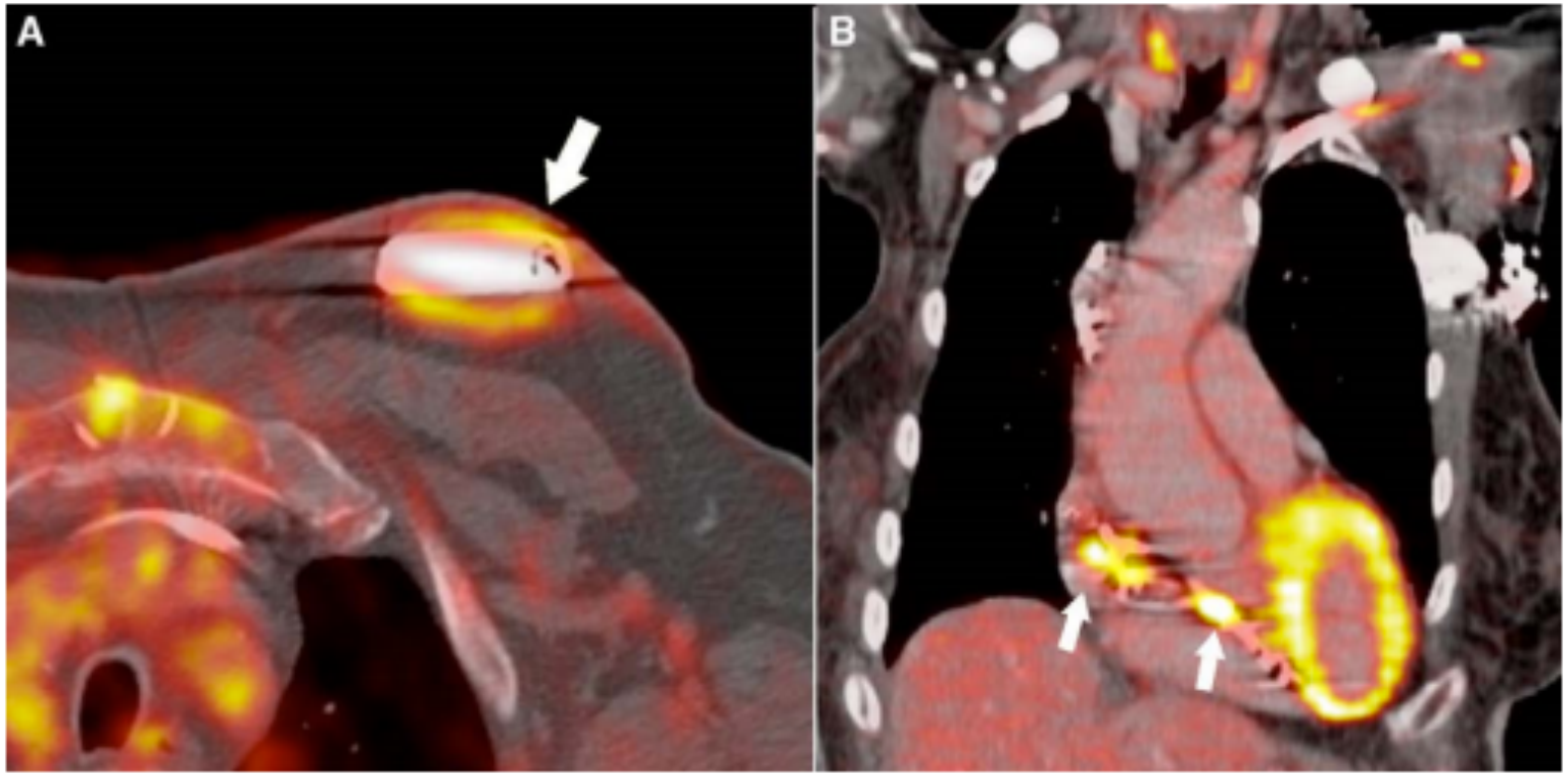
Circulation. 2015;132:1113-1126.

PET-Scan





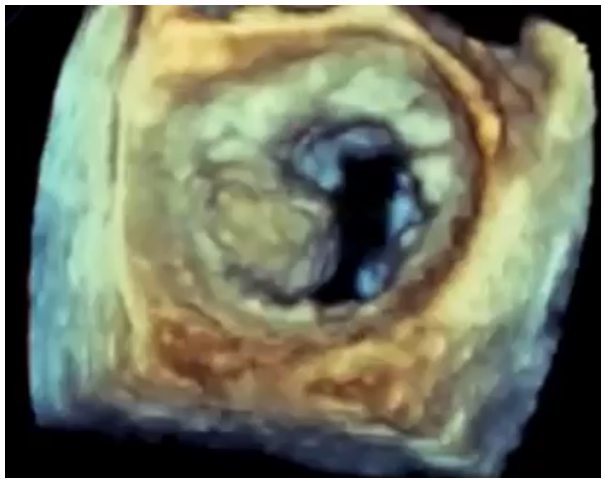
PET-Scan



Augmentation de la Sensibilité de Détection EI en présence de Dispositif intra-vasculaire et de Valve prothétique

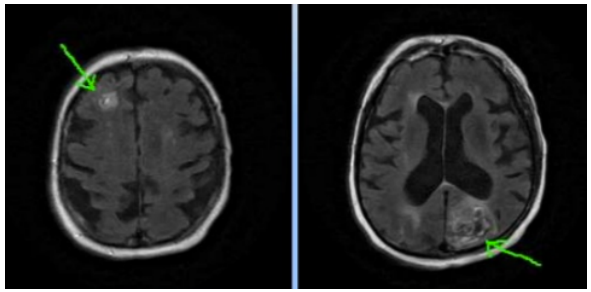
Conclusions

- Imagerie représente un Outil indispensable dans le Diagnostic de l'Endocardite
- Approche Multi-disciplinaire mais aussi Multi-Modalitaire
  - Meilleure Sensibilité



Morphologie

Inflammation



Extension