Infekční endokarditida a TEER

Hana Línková

Infekční endokarditida

2015 ESC Guidelines for the management of infective endocarditis

The Task Force for the Management of Infective Endocarditis of the European Society of Cardiology (ESC)

Endorsed by: European Association for Cardio-Thoracic Surgery (EACTS), the European Association of Nuclear Medicine (EANM)

Authors/Task Force Members: Gilbert Habib* (Chairperson) (France), Patrizio Lancellotti* (co-Chairperson) (Belgium), Manuel J. Antunes (Portugal), Maria Grazia Bongiorni (Italy), Jean-Paul Casalta (France), Francesco Del Zotti (Italy), Raluca Dulgheru (Belgium), Gebrine El Khoury (Belgium), Paola Anna Erba[a] (Italy), Bernard Iung (France), Jose M. Miro[b] (Spain), Barbara J. Mulder (The Netherlands), Edyta Plonska-Gosciniak (Poland), Susanna Price (UK), Jolien Roos-Hesselink (The Netherlands), Ulrika Snygg-Martin (Sweden), Franck Thuny (France), Pilar Tornos Mas (Spain), Isidre Vilacosta (Spain), and Jose Luis Zamorano (Spain)

ESC European Society of Cardiology

European Heart Journal (2023) **00**, 1–95
https://doi.org/10.1093/eurheartj/ehad193

ESC GUIDELINES

2023 ESC Guidelines for the management of endocarditis

Developed by the task force on the management of endocarditis of the European Society of Cardiology (ESC)

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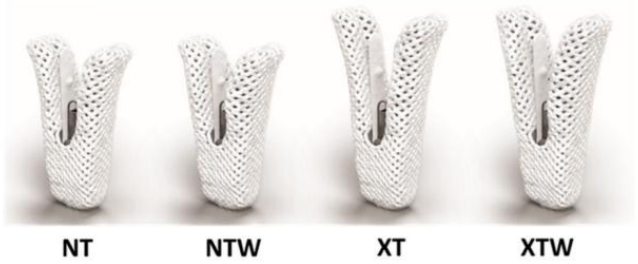
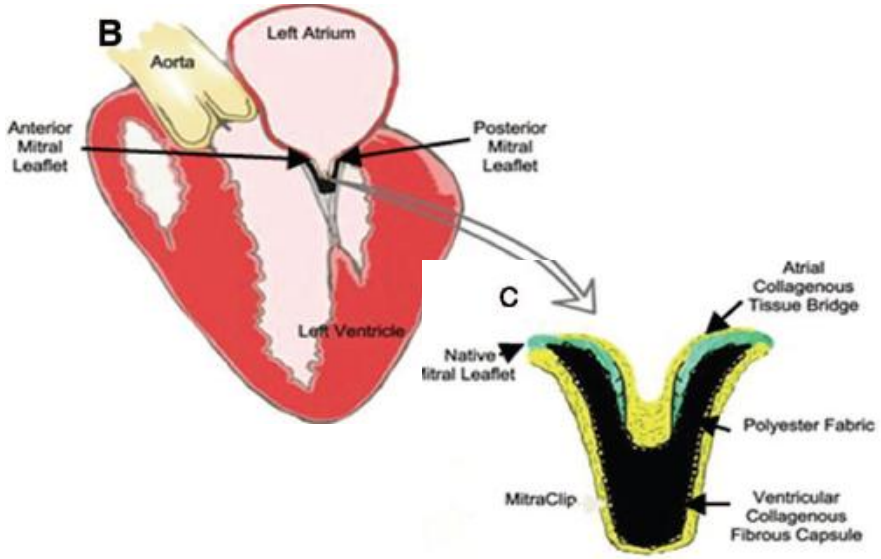
Authors/Task Force Members: Victoria Delgado *†, (Chairperson) (Spain), Nina Ajmone Marsan ‡, (Task Force Co-ordinator) (Netherlands), Suzanne de Waha‡, (Task Force Co-ordinator) (Germany), Nikolaos Bonaros (Austria), Margarita Brida (Croatia), Haran Burri (Switzerland), Stefano Caselli (Switzerland), Torsten Doenst (Germany), Stephane Ederhy (France), Paola Anna Erba [1] (Italy), Dan Foldager (Denmark), Emil L. Fosbøl (Denmark), Jan Kovac (United Kingdom), Carlos A. Mestres (South Africa), Owen I. Miller (United Kingdom), Jose M. Miro [2] (Spain), Michal Pazdernik (Czech Republic), Maria Nazarena Pizzi (Spain), Eduard Quintana [3] (Spain), Trine Bernholdt Rasmussen (Denmark), Arsen D. Ristić (Serbia), Josep Rodés-Cabau (Canada), Alessandro Sionis (Spain), Liesl Joanna Zühlke (South Africa), Michael A. Borger *†, (Chairperson) (Germany), and ESC Scientific Document Group

MitraClip





Surgical mitral valve repair should be considered in low-risk asymptomatic patients with LVEF >60%, LVESD <40 mm[d] and significant LA dilatation (volume index ≥60 mL/m^2 or diameter ≥55 mm) when performed in a Heart Valve Centre and a durable repair is likely.[285,288]	IIa	B
TEER may be considered in symptomatic patients who fulfil the echocardiographic criteria of eligibility, are judged inoperable or at high surgical risk by the Heart Team and for whom the procedure is not considered futile.[299–302]	IIb	B

Patients with concomitant coronary artery or other cardiac disease requiring treatment		
Valve surgery is recommended in patients undergoing CABG or other cardiac surgery.[329,330,333]	I	B
In symptomatic patients, who are judged not appropriate for surgery by the Heart Team on the basis of their individual characteristics,[d] PCI (and/or TAVI) possibly followed by TEER (in case of persisting severe SMR) should be considered.	IIa	C
Patients without concomitant coronary artery or other cardiac disease requiring treatment		
TEER should be considered in selected symptomatic patients, not eligible for surgery and fulfilling criteria suggesting an increased chance of responding to the treatment.[337,338,356,357 e]	IIa	B
Valve surgery may be considered in symptomatic patients judged appropriate for surgery by the Heart Team.	IIb	C
In high-risk symptomatic patients not eligible for surgery and not fulfilling the criteria suggesting an increased chance of responding to TEER, the Heart Team may consider in selected cases a TEER procedure or other transcatheter valve therapy if applicable, after careful evaluation for ventricular assist device or heart transplant.[e]	IIb	C

Kazuistika- popis případu

Žena, 71 let

20.5. 2021 přijata na MJ pro slabost, průjmy, černou stolici, hypotenze 90/60 mm Hg, spontánně ventilující

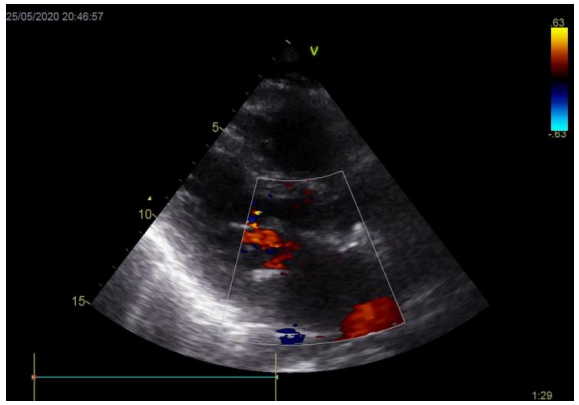
EKG: subakutní IM spodní stěny

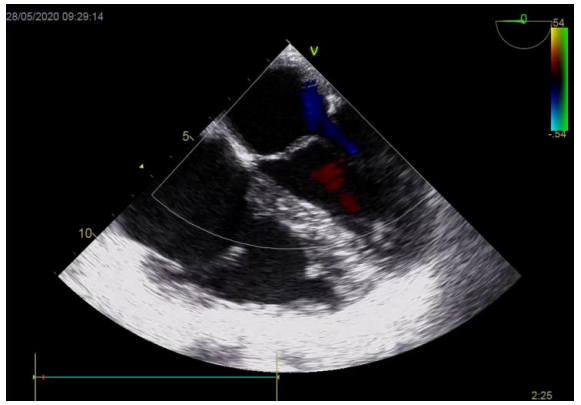
2.den hospitalizace na MJ rozvoj šokovéhostavu , tachykardie , známky nízkého CO

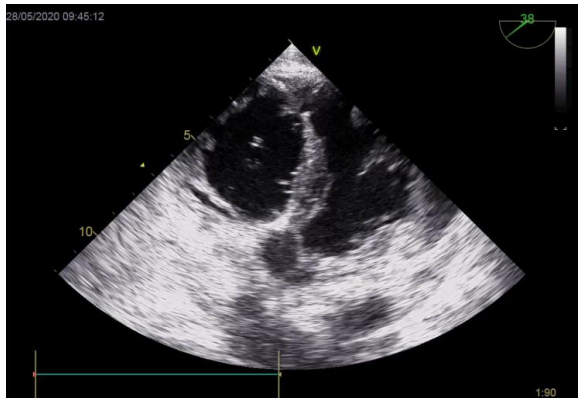
Laboratoř : **KO:** Hb 60 g/l Hb …90 g/l po substituci TRF**, biochemie**: troponin 8200 … 4 300.. 7200 ng/l , laktát 13,3 mmol/l, kreatinin 115….270 mmol/

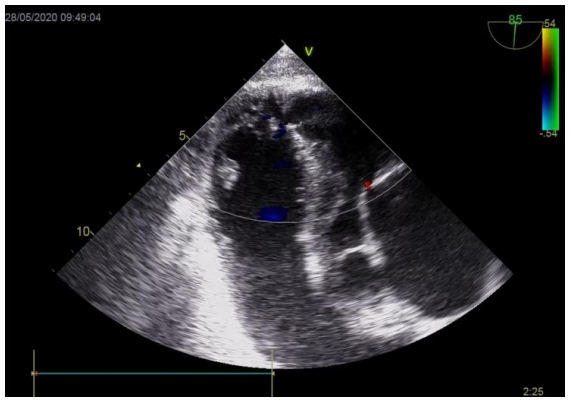
ECHO: ruptura mezikomorového septa, EF 60 % , MR 2/4

Urgentní překlad na kardiochirurgickou kliniku k zavedení AV ECMO a další léčbě









TTE a TEE: DSK , velikost defektu 15 mm, EF 60%, MR 2/4, TR 2+/4

Zdroj FNKV Praha

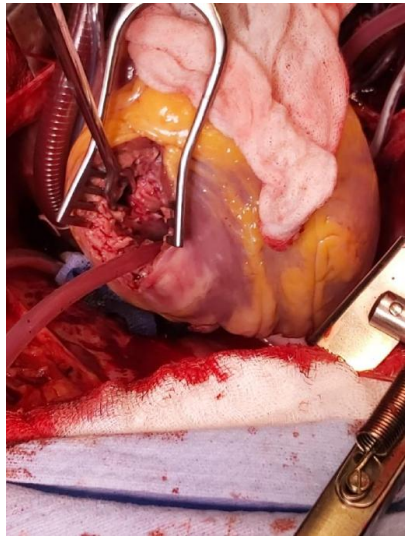
Kazuistika

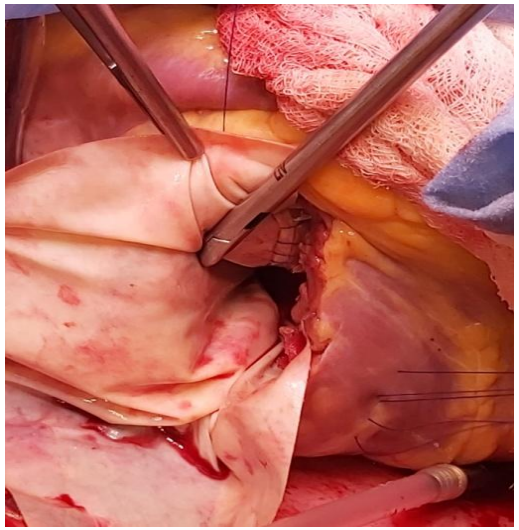
Léčba na kardiochirurgické klinice:

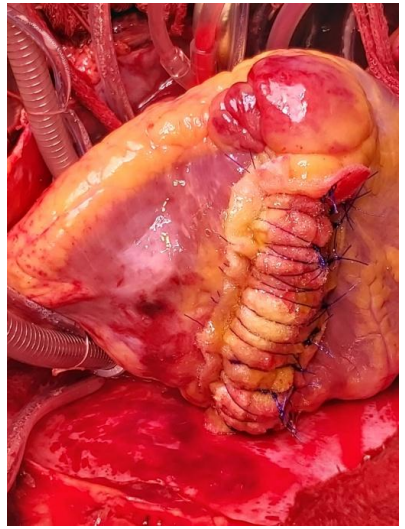
22.5.-27.5. zavedení IABK , inotropní a vasopresorická podpora, pro vzestup azotemie CVVHD, na terapii postupná kompenzace multiorgánového selhání

27. 5. SKG - nemoc 1 tepny, 100% uzávěr ACD, pravotyp

28.5. plastika defektu mezikomorového septa Celková doba operace 7 hod 15 min. ,MO: 4 hod 51 min , svorka 3hod 42 min Hypotermie 35°C



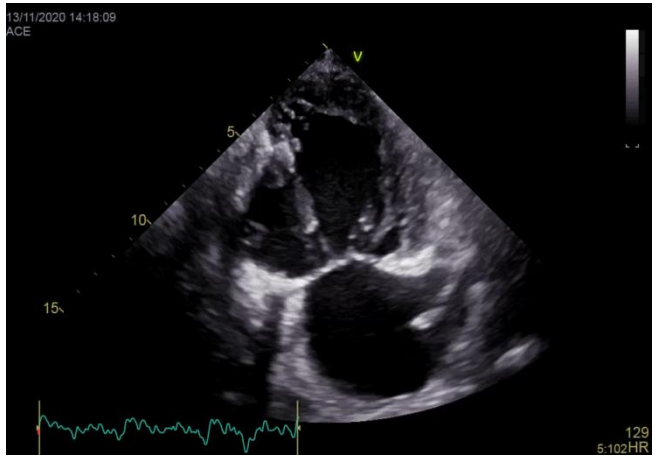


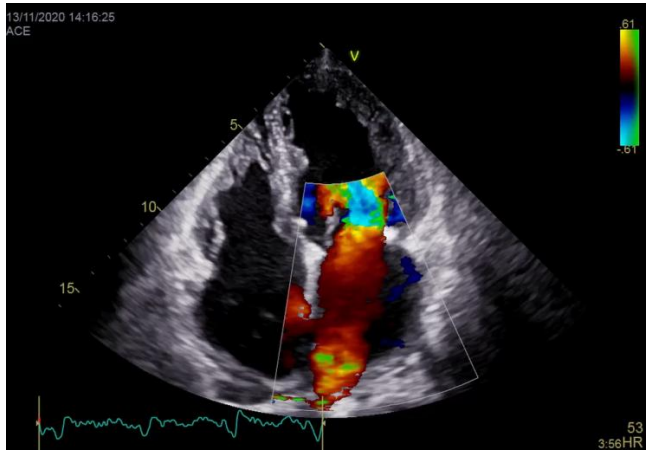


Zdroj FNKV, KCH klinika, doc.Kačer

Kazuistika

- Komplikovaný pooperační průběh s protrahovanou **UPV, tracheostomie, obtížný weaning**
- **Implantace trvalého KS** v režimu DDD pro AV blok III.st.
- Verifikovaná **klostridiová kolitida**, perkutánní cholecystitis pro **kalkulózní cholecystitidu** s hydropsem žlučníku
- Opakovaně **známky LSI**
- **ECHO:** dysfunkce LKS, MR převážně sekundární etiologie, 3-3+/4
- **Heart Team-** konzervativní postup
- **Dimise po 3 měsících hospitalizace**





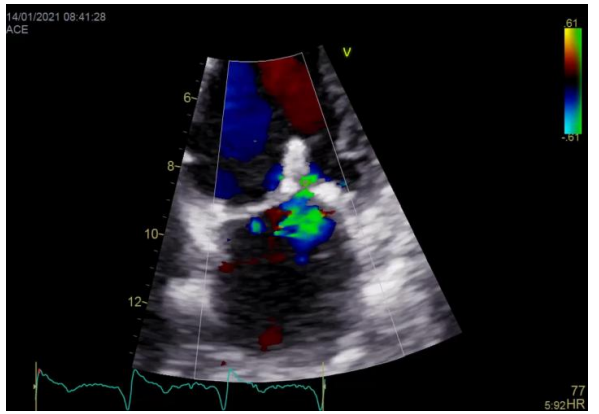
Zdroj FNKV Praha

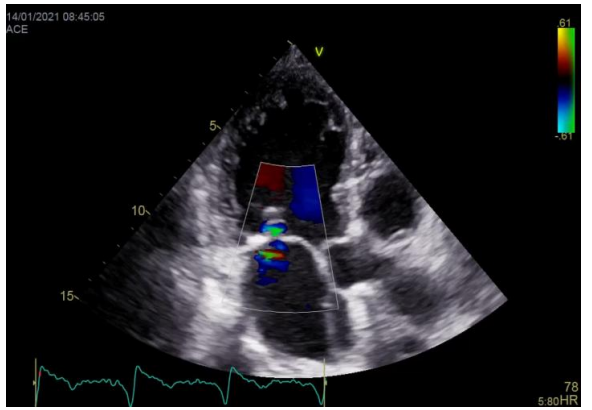
Kazuistika

2 měsíce po dimisi:

únava, nevýkonnost, dušnost NYHA III-IV

- NT pro BNP (16 000 ng/l) , RTG známky městnání
- postupné navyšování diuretické léčby s malým efektem
- opakované hospitalizace pro známky LSI
- **Heart Team** – implantace MitraClip





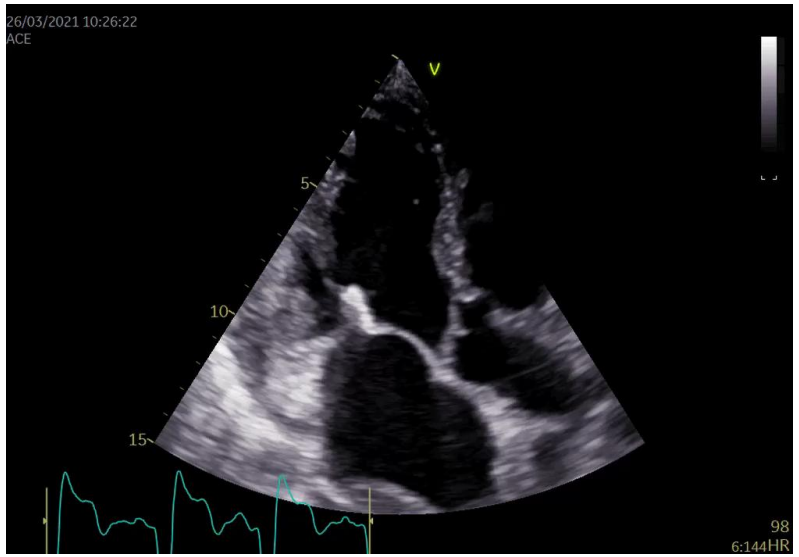
Po implantaci Mitraclipu

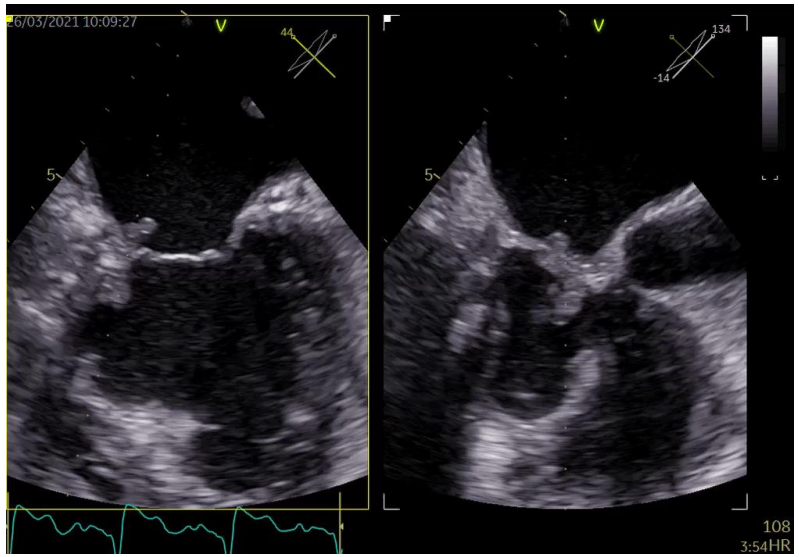
- subj.: zlepšení stavu , dušnost NYHA II-III
- TTE: Mi 2+/4, PG mean 3 mm Hg , EF LK 35-40%, TR 30 mm Hg

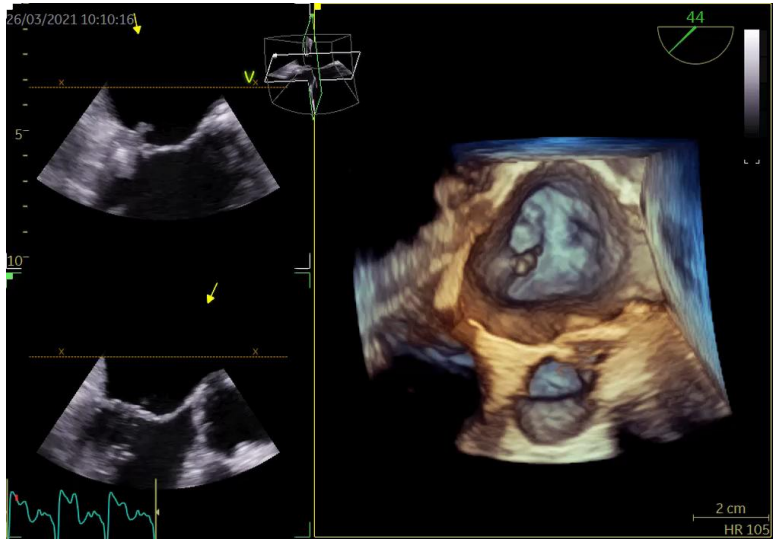
Zdroj FNKV,Praha

Kazuistika

- **2,5 měsíce** po dimisi opětovné zhoršení stavu, těžká únava, občasné zimnice. Anamnesticky udává uroinfekt cca 14 dní před vyšetřením
- **Laboratoř**: CRP 250 mg/l, prokalcitonin 8 , leuko 16 x10^9 g/l, HB 80, **pozitivní HC : enterococcus faecalis**
- Zahájena **ATB léčba**, léčba srdečního selhání, nutnost katecholaminové podpory
- Další zhoršení stavu, známky multiorgánového selhání, **10. den exitus letalis**







Zdroj FNKV, Praha

Infekční endokarditida

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Recommendations for antibiotic prophylaxis in patients with cardiovascular diseases undergoing oro-dental procedures at increased risk for IE (2)

Recommendations	Class	Level
Antibiotic prophylaxis is recommended in patients with ventricular assist devices.	I	C
Antibiotic prophylaxis should be considered in patients with transcatheter mitral and tricuspid valve repair.	IIa	C
Antibiotic prophylaxis may be considered in recipients of heart transplant.	IIb	C
Antibiotic prophylaxis is not recommended in other patients at low risk for IE.	III	C

2023 ESC Guidelines for the management of endocarditis
(European Heart Journal; 2023 – doi: 10.1093/eurheartj/ehad193)

Recommendations for infective endocarditis prevention in cardiac procedures (1)

Recommendations	Class	Level
Pre-operative screening for nasal carriage of *S. aureus* is recommended before elective cardiac surgery or transcatheter valve implantation to treat carriers.	I	A
Peri-operative antibiotic prophylaxis is recommended before placement of a CIED.	I	A
Optimal pre-procedural aseptic measures of the site of implantation is recommended to prevent CIED infections.	I	B
Periprocedural antibiotic prophylaxis is recommended in patients undergoing surgical or transcatheter implantation of a prosthetic valve, intravascular prosthetic, or other foreign material.	I	B
Surgical standard aseptic measures are recommended during the insertion and manipulation of catheters in the catheterization laboratory environment.	I	C

2023 ESC Guidelines for the management of endocarditis
(European Heart Journal; 2023 – doi: 10.1093/eurheartj/ehad193)

Recommendations for infective endocarditis prevention in cardiac procedures (2)

Recommendations	Class	Level
Elimination of potential sources of sepsis (including of dental origin) should be considered ≥2 weeks before implantation of a prosthetic valve or other intracardiac or intravascular foreign material, except in urgent procedures.	IIa	C
Antibiotic prophylaxis covering for common skin flora including *Enterococcus* spp. and *S. aureus* should be considered before TAVI and other transcatheter valvular procedures.	IIa	C
Systematic skin or nasal decolonization without screening for *S. aureus* is not recommended.	III	C

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(European Heart Journal; 2023 – doi: 10.1093/eurheartj/ehad193)

Infekční endokarditida a TEER

Infective endocarditis following transcatheter edge-to-edge mitral valve repair: A systematic review

Lluis Asmarats, MD | Tania Rodriguez-Gabella, MD | Chekrallah Chamandi, MD | Mathieu Bernier, MD | Jonathan Beaudoin, MD | Kim O'Connor, MD | Eric Dumont, MD | François Dagenais, MD | Jean-Michel Paradis, MD | Josep Rodés-Cabau, MD

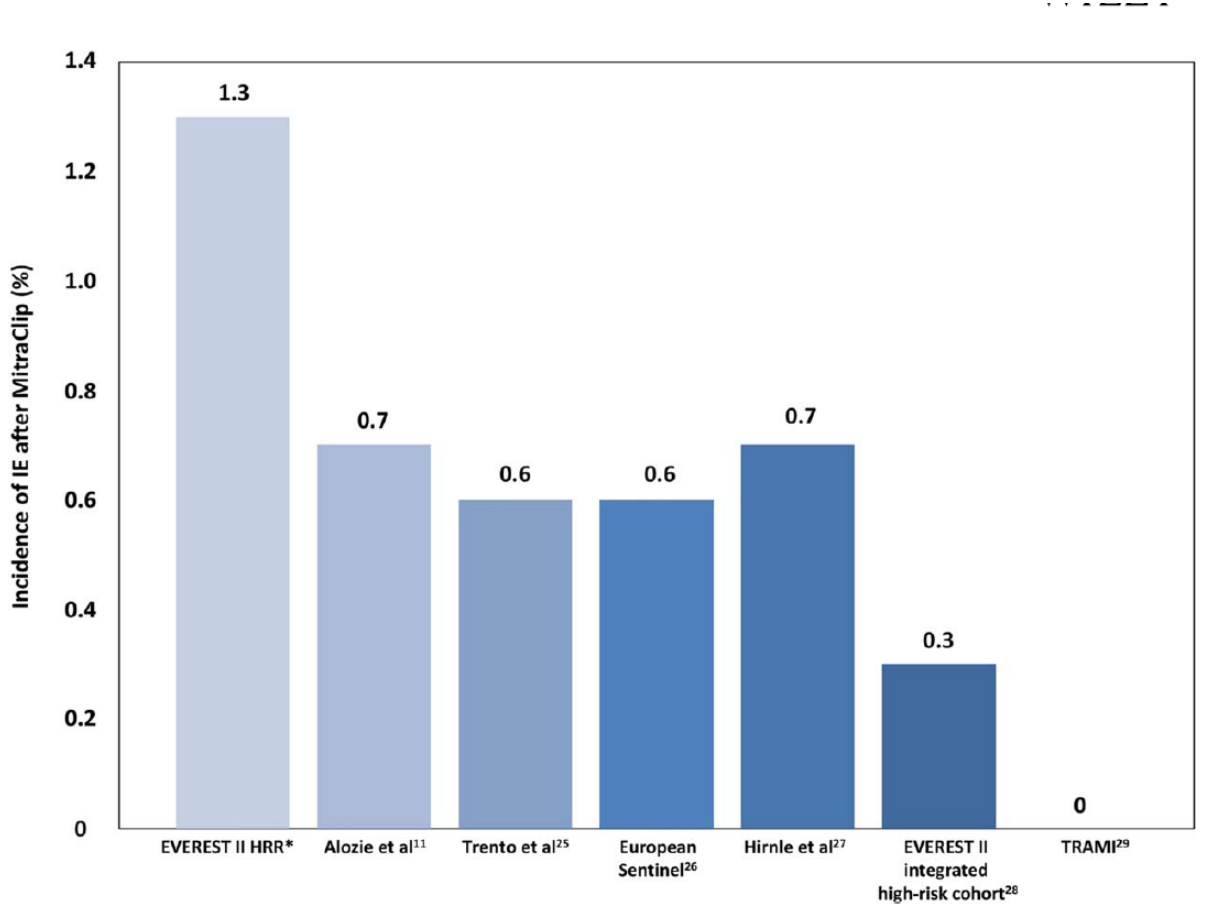
- 10 publikací- 12 pacientů
- Ø věk 76 let, 55% muži
- Logistické Euroscore I/ Euroscore II 41% resp.45%
- Časná (do 12 měsíců IE u 75 % pacientů
- Staphylococcus aureus u 60 % pacientů
- MVR provedena u 67% pacientů
- Mortalita 42 %

TABLE 2 Clinical features, echocardiographical, microbiological, and histologic findings

Patient	Time from MitraClip, months	Symptoms	Source of infection	Microorganism	MR	Location	Vegetation (size)	Histopathologic confirmation
1 [8]	0.5	Fever, dyspnea	...	*Staphylococcus aureus*	Severe	Clip (P2)	Yes (12 mm)	Yes
2 [9]	1	Fever, dyspnea	...	...	Severe	...	No	...
3 [10]	14	Systemic embolism	...	*Alfa-hemolytic Streptococcus*	Severe	Clip (P2-P3)	Yes (10 mm)	No
4 [11]	10	Asymptomatic	...	...	Moderate	...	No	Yes
5 [12]	8	...	...	*Staphylococcus aureus*	Severe	Clip (A1-A3)	Yes	...
6 [13]	1	Fever, dyspnea	...	*Staphylococcus aureus*	Severe	Clip (P1-P3, A1-A3)	Yes (15 mm)	Yes
7 [14]	36	Dyspnea	...	*Staphylococcus epidermidis*	Severe	Clip (P2)	Yes (15 mm)	-
8 [15]	0.5	Fever, hypotension	Recurrent erysipelas	*Staphylococcus aureus*	Severe	...	Yes	No
9 [15]	1	Fever	Peripheral catheter infection	*Staphylococcus aureus*	Severe	Clip Pacemaker lead	Yes (8 mm)	No
10 [16]	4	Dyspnea	...	*Enterococcus faecalis*	Severe	Clip (P2)	Yes (12 mm)	No
11[16]	2	Acute heart failure	...	*Enterococcus faecalis*	Severe	Clip (P2-P3)	Yes	No
12 [17]	36	Complete heart block	...	*Staphylococcus aureus*	Severe	Clip (A2-P2)	Yes	Yes
		Hemodynamic instability		*Beta-hemolytic Streptococcus*		Aortic prosthesis		

Catheter Cardiovasc Interv. 2018;92:583–591.

Incidence IE po TEER



Catheter Cardiovasc Interv. 2018;92:583–591.

Infekční endokarditida a MitraClip

updates

Infective endocarditis involving MitraClip© devices: a systematic literature review

Lorenzo Bertolino[1] · Mohammad Said Ramadan[2,3] · Rosa Zampino[1,2] · Emanuele Durante-Mangoni[2,3]

Received: 14 January 2023 / Accepted: 22 June 2023 / Published online: 29 June 2023

Abstract

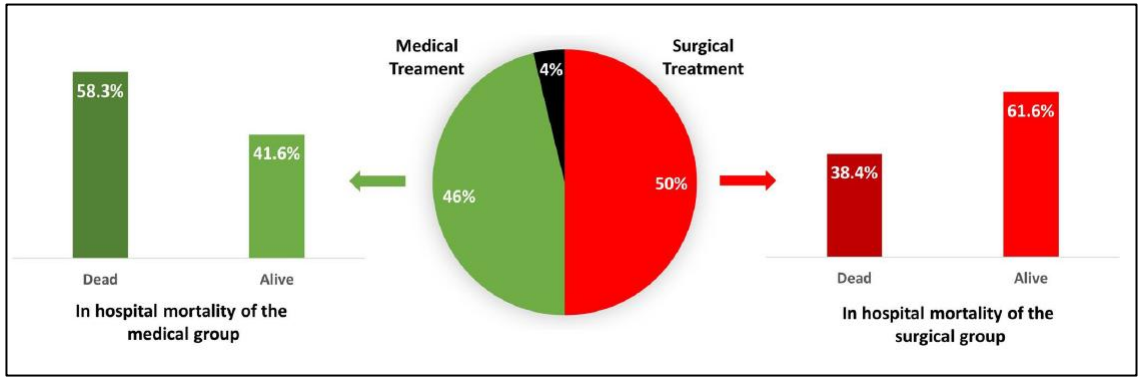
Purpose Progress of interventional cardiology has boosted the use of newer cardiac devices. These devices are perceived to be less prone to infections compared to traditional surgical prostheses, but little data are currently available. In this systematic review (SR), we summarize current literature regarding the clinical characteristics, management, and outcomes of patients with MitraClip-related infective endocarditis (IE).

Methods We conducted a SR of PubMed, Google Scholar, Embase, and Scopus between January 2003 and March 2022. MitraClip-related IE was defined according to 2015 ESC criteria whereas MitraClip involvement as vegetation on the device or on the mitral valve. Risk of bias was assessed through standardized checklist and potential bias of underestimation cannot be excluded. Data regarding clinical presentation, echocardiography, management, and outcome were collected.

Results Twenty-six cases of MitraClip-related IE were retrieved. The median age of patients was 76 [61–83] years with a median EuroScore of 41%. Fever was present in 65.8% of patients followed by signs and symptoms of heart failure (42.3%). IE occurred early in 20 (76.9%) cases with a median time between MitraClip implantation and IE symptom onset of 5 [2–16] months. *Staphylococcus aureus* was the major causative microorganism (46%). Surgical mitral valve replacement was needed in 50% of patients. A conservative medical approach was considered in the remainder. The overall in-hospital mortality rate was 50% (surgical group: 38.4%; medical group: 58.3%; $p = 0.433$).

Conclusion Our results suggest that MitraClip-related IE affects elderly, comorbid patients, is mostly due to *Staphylococcus aureus*, and has a poor prognosis irrespective of the therapeutic approach. Clinicians must be aware of the features of this new entity among cardiovascular infections.

26 pacientů ,Ø věk 76 let
Ø Euroscore 41%
76,9 % mělo časnou IE – medián 5 měsíců od implantace
Staphylococcus aureus 46%
50 % pacientů podstoupilo MVR
Mortalita 50% (chirurgie 38.4%; konzervativní : 58.3%; $p = 0.433$).



Infection (2023) 51:1241–1248

Infekční endokarditida a TEER

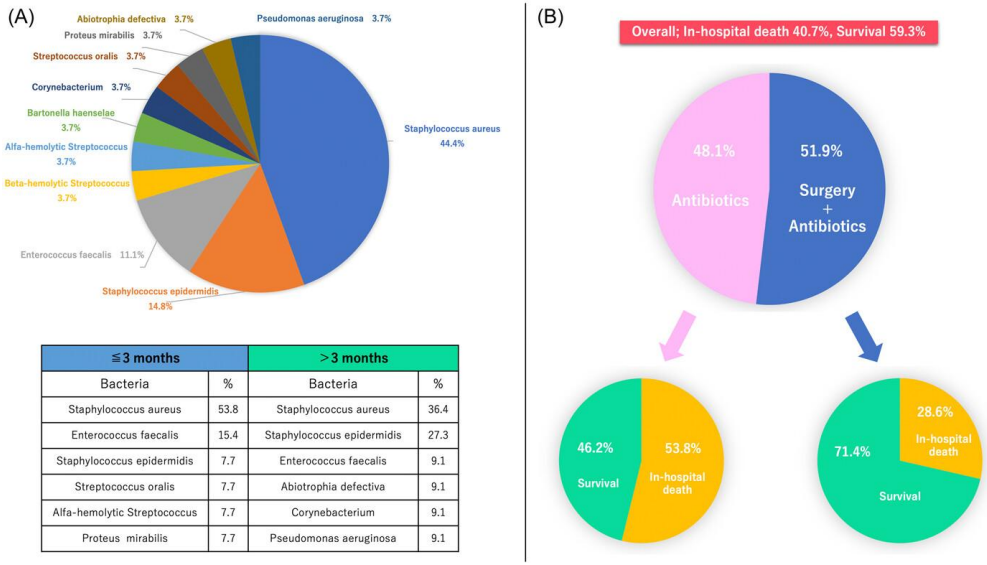
Catheterization & Cardiovascular Interventions

CASE REPORT | Full Access

Infective endocarditis after transcatheter edge-to-edge repair for severe mitral regurgitation; a case report and a systematic review

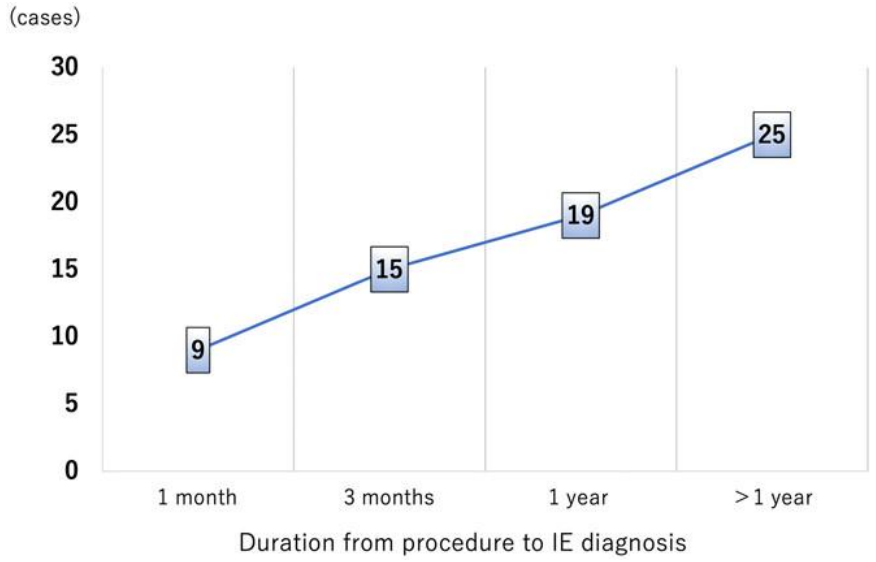
Hiroaki Yokoyama MD, Tomoki Ochiai MD, Shigeru Saito MD

First published: 21 June 2023 | https://doi-org.ezproxy.is.cuni.cz/10.1002/ccd.30751



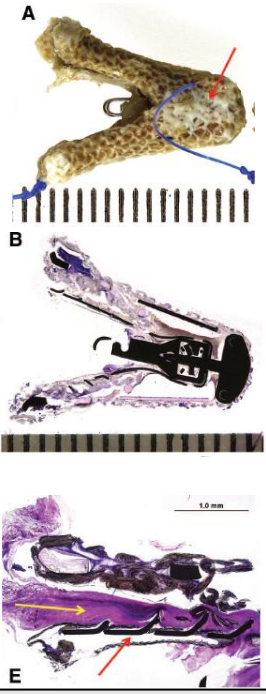
≦3 months		>3 months	
Bacteria	%	Bacteria	%
Staphylococcus aureus	53.8	Staphylococcus aureus	36.4
Enterococcus faecalis	15.4	Staphylococcus epidermidis	27.3
Staphylococcus epidermidis	7.7	Enterococcus faecalis	9.1
Streptococcus oralis	7.7	Abiotrophia defectiva	9.1
Alfa-hemolytic Streptococcus	7.7	Corynebacterium	9.1
Proteus mirabilis	7.7	Pseudomonas aeruginosa	9.1

- Ø počet klipů 1.74 ± 0.75
- Medián do IE 2.9 měsíce
- 60 % pacientů mělo IE do 3 měsíců od implantace
- 70 % do 1 roku od implantace



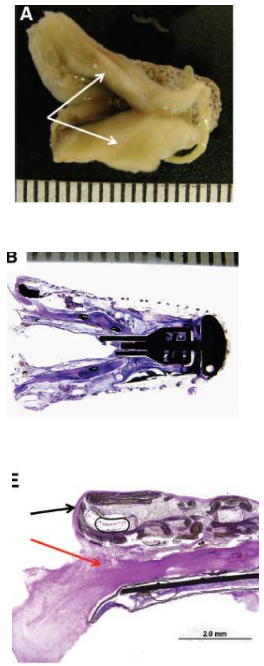
Histopatologické změny při vhojení MitraClipu

Akutní odpověď
< 30 dní



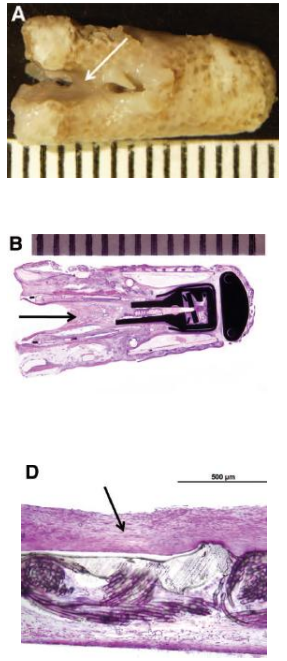
Fibrin a destičky

Subakutní
odpověď
31 až 90 dní



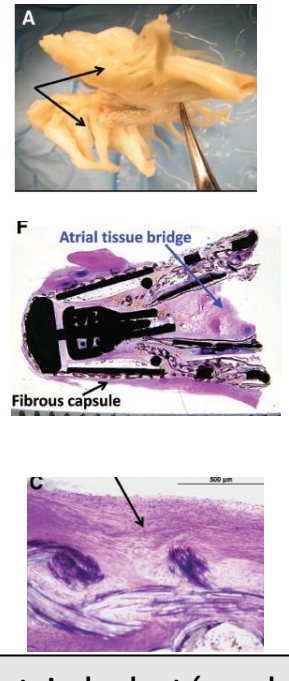
Granulační tkáň,
fibrozní panus

Chronická
Odpověď
91-300 dní



Přemostění

Dlouhodobá
odpověď
> 300 dní



Matrix bohatá na kolagen,
kompletní opláštění

Ladich et al, Circulation 2011

Závěr

- IE na MitraClipu je relativně vzácná
- Většinou jde o časnou endokarditidu, lokální vhojení Mitraclipu resp. histopatologicky jde o úplné pokrytí matrix bohatou na kolagen pravděpodobně výrazně snižuje riziko výskytu patogenů,proto je pozdní nástup IE související s MitraClipem méně častým jevem.
- Jde ale o onemocnění u velmi křehké a rizikové populace, klinické projevy nebývají jednoznačné (horečka pouze v cca 60%) s vysokou mortalitou
- ATB profylaxe dle doporučení

Děkuji za pozornost