

Mitral Annular Calcification

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Nom de l'orateur : Guillaume LEURENT, Rennes

Je déclare les liens d'intérêt potentiel suivants :

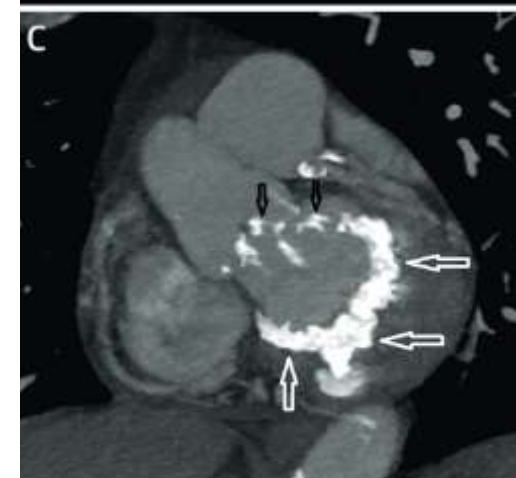
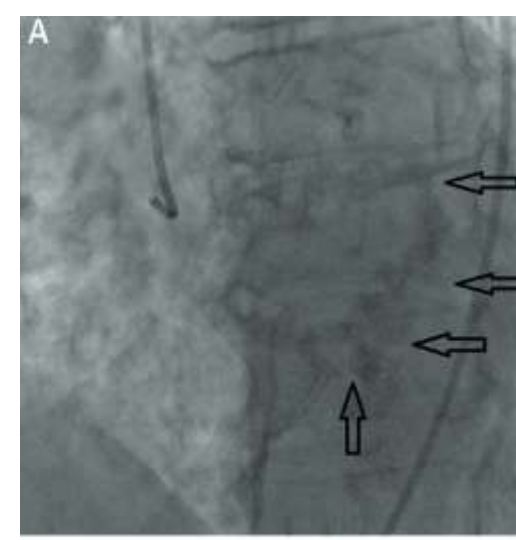
Consultant : Abbott

Honoraires : Abbott

MAC ?

- ❑ Processus dégénératif, chronique impliquant l'anneau mitral, fibreux
- ❑ Sexe féminin, FDR CV, VIH, insuffisance rénale, ostéoporose, RT médiastinale, Marfan
- ❑ ~ 5% > 75 ans
- ❑ Infiltration Ca++ à la base du feuillet post.
+/- feuillets, appareil sous-valvulaire...
-> réduction mobilité de l'anneau, puis des feuillets
-> traction ++ sur les cordages
-> élongation/ rupture de cordage

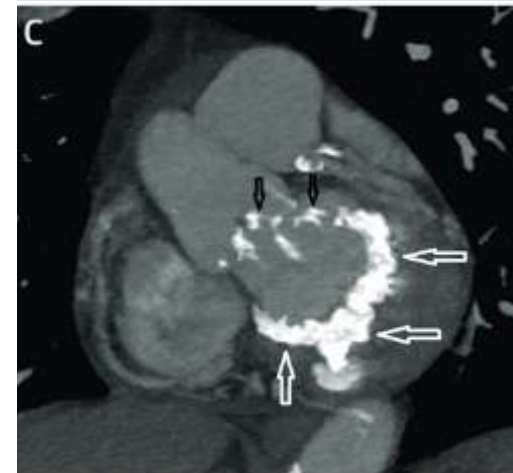
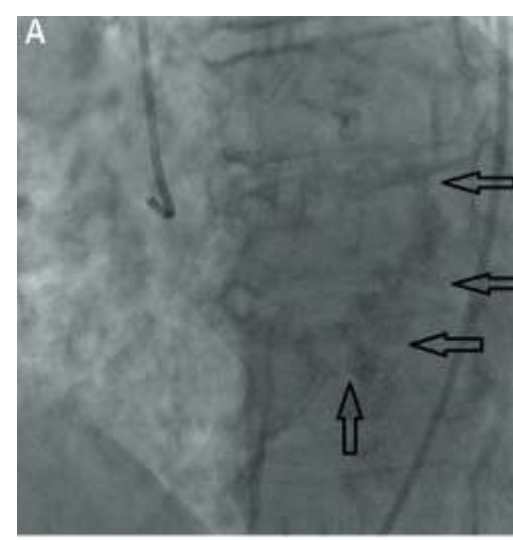
Fuite mitrale
Sténose mitrale
Maladie mitrale



Evaluation des MAC

- ❑ Imagerie difficile
- ❑ Evaluation complexe: HVG, dysfonction diastolique, poly-valvulopathie
- ❑ Indication de traitement ?
 - Sévérité de la valvulopathie (sténose ++)
 - Symptômes < MAC ?
 - MAC ↔ mortalité toute cause, mortalité CV, AVC
 - MAC < maladie systémique
 - Bénéfice d'un R/rVM non démontré

« ViMAC TMVR seems to be futile in up to 50% of patients »



Mitral Annulus Calcification



Circulation

IN DEPTH

Current Indications for Transcatheter Mitral Valve Replacement Using Transcatheter Aortic Valves

Valve-in-Valve, Valve-in-Ring, and Valve-in-Mitral Annulus Calcification

Editorial see p 117; Article see p 104

ABSTRACT: Use of transcatheter mitral valve replacement (TMVR) using transcatheter aortic valves in clinical practice is limited to patients with failing bioprostheses and rings or mitral valve disease associated with severe mitral annulus calcification. Whereas the use of valve-in-valve TMVR appears to be a reasonable alternative to surgery in patients at high

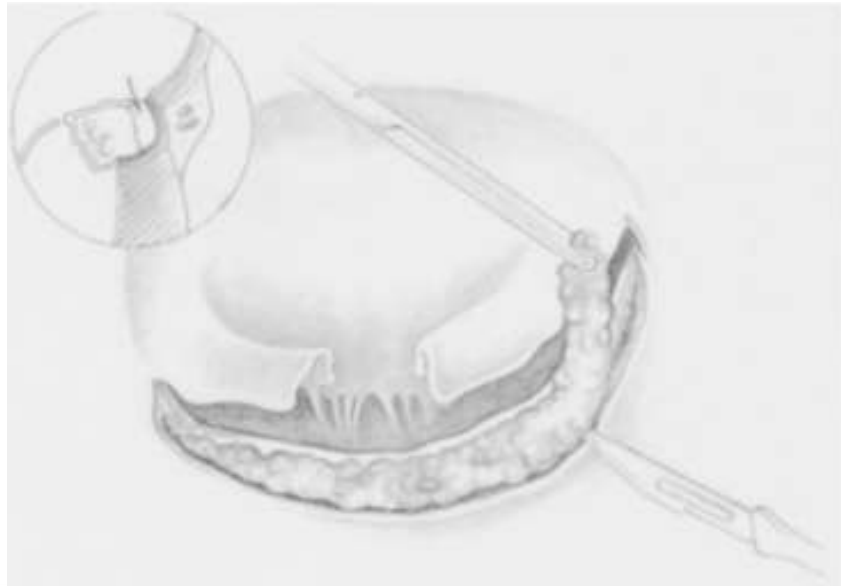
Marina Urena, MD, PhD
Alec Vahanian, MD
Eric Brochet, MD
Gregory Ducrocq, MD,
PhD
Bernard Jung, MD
Dominique Himbert, MD

Quel traitement: la chirurgie?

« respecte ou résèque » ?

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« respecte ou résèque » ?



Mitral valve replacement in patients with severely calcified mitral valve annulus: Surgical technique

Tomislav Mihaljevic, MD,^a Marijan Koprivanac, MD,^a Marta Kelava, MD,^a Nicholas G. Smedira, MD,^a Bruce W. Lytle, MD,^a and Eugene H. Blackstone, MD,^{a,b} Cleveland, Ohio, and Abu Dhabi, United Arab Emirates

J Thorac Cardiovasc Surg 2013;146:233-5

Procédure complexe ++

Risques :

- de rupture jonction A-V
- de lésion de la Cx
- de fuite para valvulaire/
désinsertion anneau

EXTENSIVE CALCIFICATION OF THE MITRAL VALVE ANULUS: PATHOLOGY AND SURGICAL MANAGEMENT

Alain F. Carpentier, MD, PhD
Michel Pellerin, MD^{*§}
Jean-François Fuzellier, MD[§]
John Y. M. Relland, MD[§]

J Thorac Cardiovasc Surg 1996;111;718-30

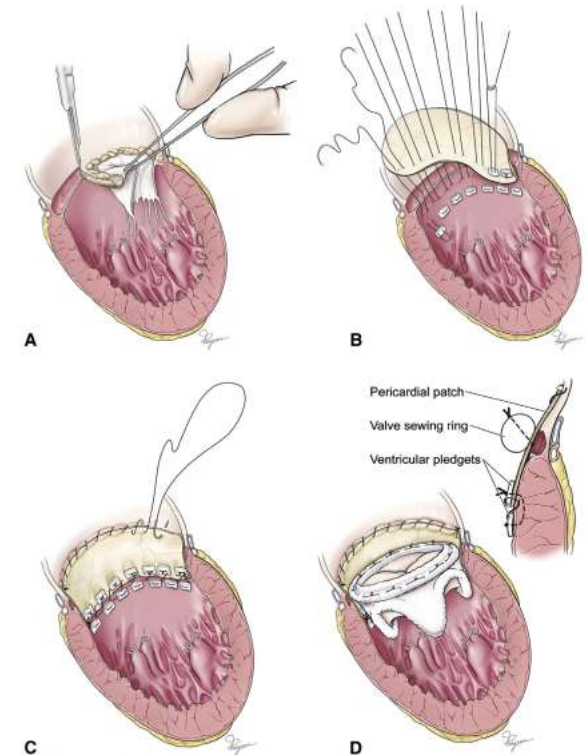
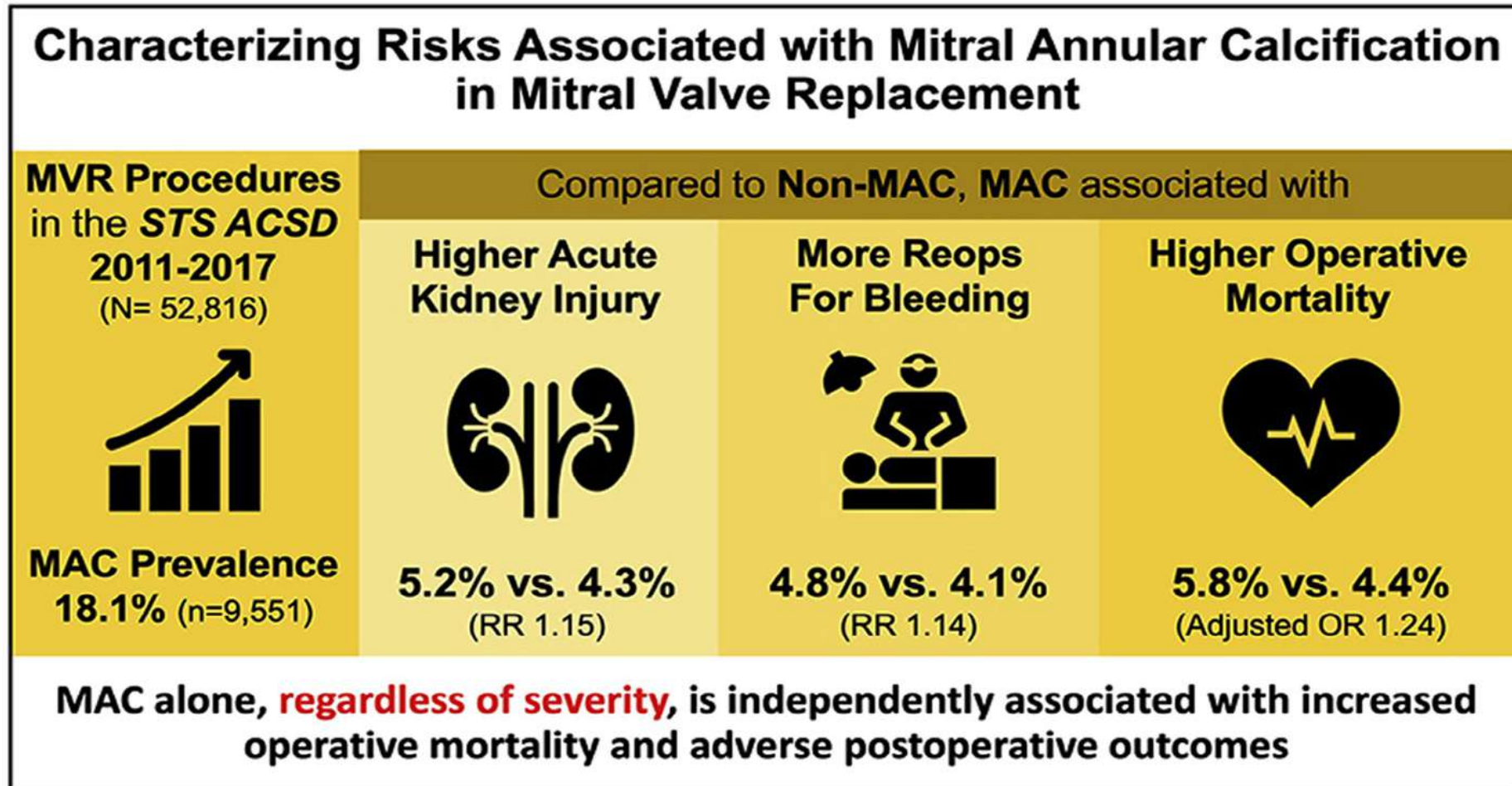


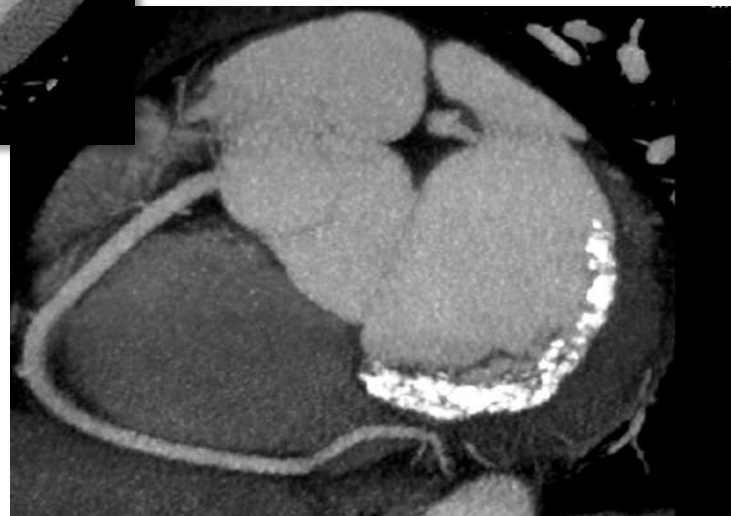
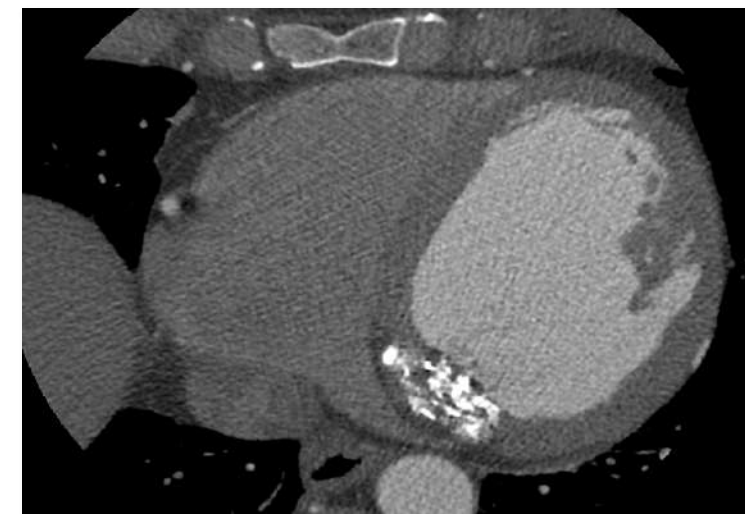
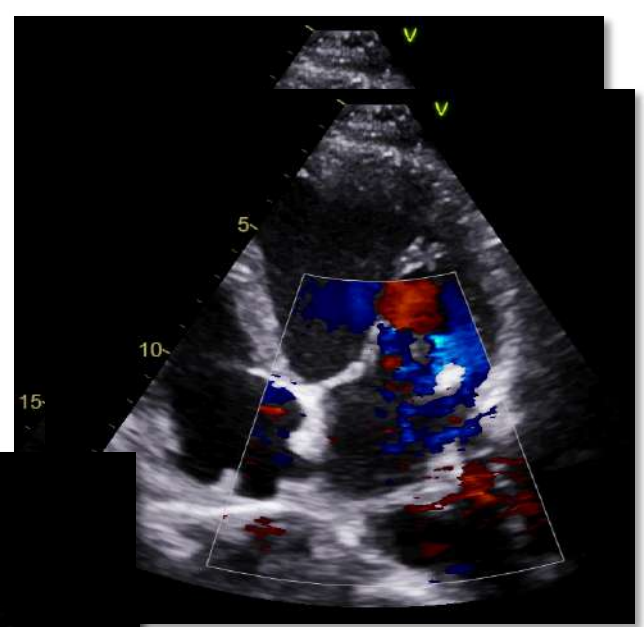
FIGURE 2. Surgical technique. A, Sharp en bloc decalcification. B, Patch parachuting. C, Patch attachment. D, Completed procedure.

Quel traitement: la chirurgie?



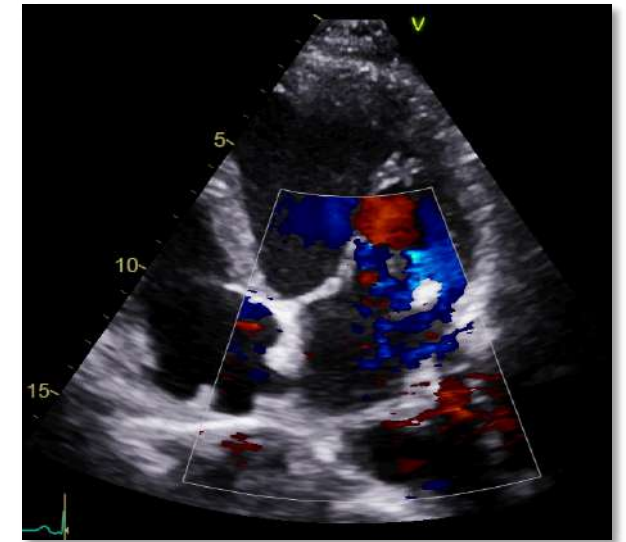
Quel traitement: le clip ?

- ✓ Homme, 51 ans, antdt RT médiastinale
- ✓ IM sévère symptomatique sur prolapsus bivalvulaire < maladie de Barlow



Quel traitement: le clip ?

- ✓ Homme, 51 ans , antdt RT médiastinale
- ✓ IM sévère symptomatique (NYHA II) sur prolapsus bivalvulaire < maladie de Barlow

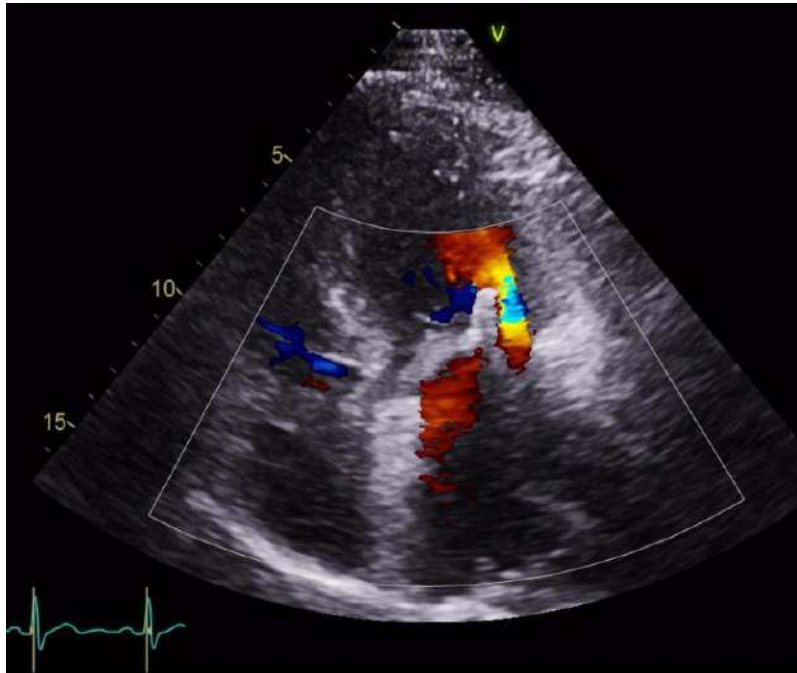


ETT pré-procédure

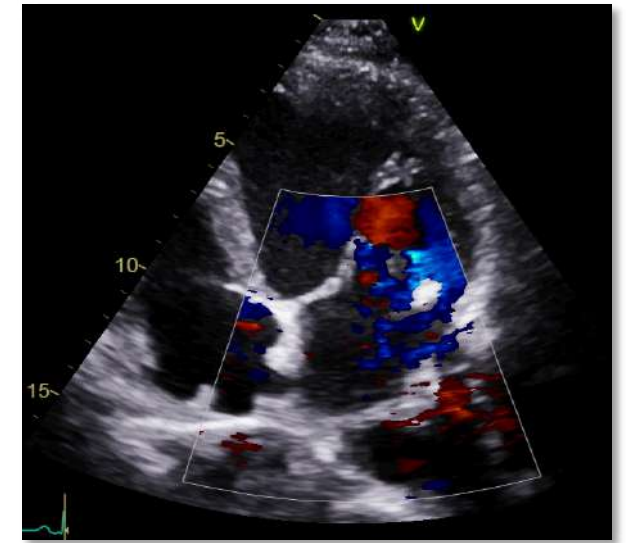
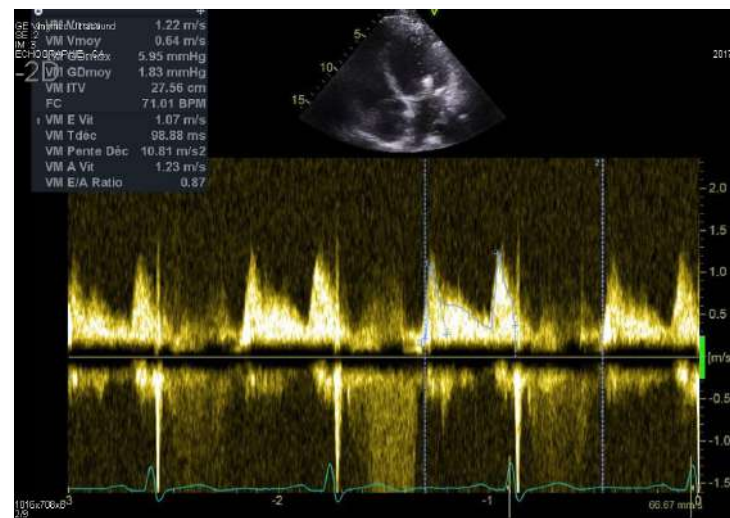


Quel traitement: le clip ?

- ✓ Homme, 51 ans , antdt RT médiastinale
- ✓ IM sévère symptomatique (NYHA II) sur prolapsus bivalvulaire < maladie de Barlow



Contrôle à 36 mois
NYHA I



ETT pré-procédure



Quel traitement: le clip ?



Table 1. Patient selection suitability by echo criteria.

| Optimal | Limited suitable | Inappropriate |
|---|--|---|
| Pathology in segment 2 | Pathology in segment 1 or 3 | Leaflet perforation or cleft |
| No calcification | Slight calcification outside the grasping area – Ring calcification – Annuloplasty with ring | Severe calcification |
| Valve area >4 cm ² | Valve area >3 cm ² & good leaflet mobility | Mitral stenosis (<3 cm ² , gradient >5 mmHg) |
| Length of the posterior leaflet >10 mm | Length of the posterior leaflet 7-10 mm | Length of the posterior leaflet <7 mm |
| Coaptation depth <11 mm | Coaptation depth >11 mm | |
| Normal thickness and mobility of the leaflets | Restriction (Carpentier IIIB) | Rheumatic thickening and restriction (Carpentier IIIA) |
| MR with prolapse – Flail size <15 mm – Flail gap <10 mm | Flail size >15 mm only with large mitral annulus and option for more than 1 clip | Barlow's disease |
| Start-up centres | Intermediate centres | High-volume centres |

(Adapted from Boekstegers et al)

Quel traitement: le clip ?

| | Overall n=852 | No/Mild MAC n= 791 | Moderate/Severe MAC n=61 | p value |
|--------------------------------------|------------------|--------------------------|--------------------------------|---------|
| Procedure duration (min) | 136+/-66 | 135+/-66 | 144+/-61 | 0,327 |
| Technical success (%) | 833 (97,9) | 775 (98,1) | 58 (95,1) | 0,114 |
| Procedural success (%) | 807 (94,8) | 751 (95,1) | 56 (91,8) | 0,268 |
| Number of clips | | | | 0,474 |
| 1 | 497 (56,7) | 455 (57,9) | 42 (68,9) | |
| 2 | 290 (34,2) | 275 (35) | 15 (24,6) | |
| 3 | 57 (6,7) | 53 (6,7) | 4 (6,6) | |
| ≥4 | 2 (0,3) | 2 (0,3) | 0 (0) | |
| Partial/Complete Dettachment (%) | 19 (2,2) | 19 (2,4) | 0 (0) | 0,224 |
| Embolization (%) | 0 (0) | 0 (0) | 0 (0) | N/A |
| Chords Rupture (%) | 6 (0,7) | 5 (0,6) | 1 (1,7) | 0,357 |
| Conversion to surgery (%) | 7 (0,8) | 5 (0,6) | 2 (3,3) | 0,027 |
| Major bleeding MVARC scale (%) | 39 (4,6) | 38 (4,8) | 1 (1,6) | 0,254 |
| Cardiac Tamponade (%) | 7 (0,8) | 7 (0,9) | 0 (0) | 0,461 |
| Residual MR (%) | | | | 0,194 |
| 0 | 30 (3,6) | 28 (3,6) | 2 (3,3) | |
| 1 | 446 (52,8) | 420 (53,6) | 26 (42,6) | |
| 2 | 308 (36,5) | 281 (35,9) | 27 (44,3) | |
| 3 | 45 (5,3) | 42 (5,4) | 3 (4,9) | |
| 4 | 15 (1,8) | 12 (1,5) | 3 (4,9) | |
| Residual Mitral Mean Gradient (mmHg) | 3,1+/-1,6 | 3+/-1,3 | 3,6+/-1,3 | 0,001 |
| In Hospital Mortality (%) | 7 (0,8) | 6 (0,8) | 1 (1,6) | 0,513 |
| Stroke (%) | 3 (0,4) | 3 (0,4) | 0 | 0,504 |

Quel traitement: le TMVR?

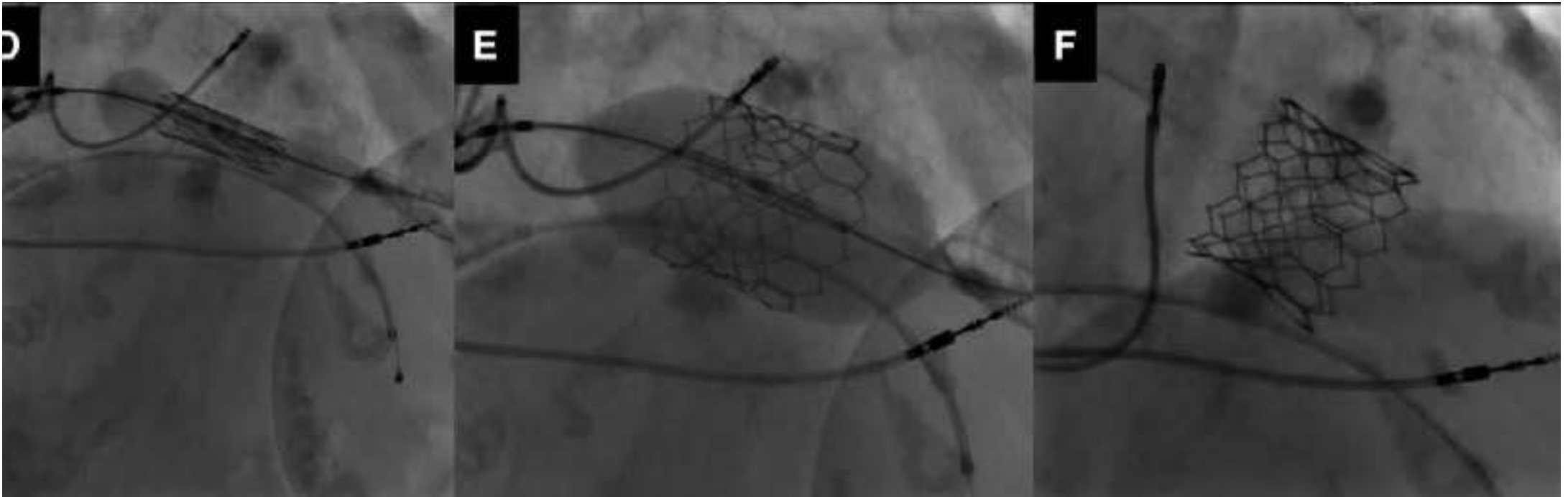


TABLE 2 Procedural Results

Procedural characteristics

| | |
|--|--------------|
| Device brand | |
| Edwards | |
| SAPIEN | 5/64 (7.8) |
| SAPIEN XT | 38/64 (59.4) |
| SAPIEN 3 | 18/64 (28.1) |
| Inovare | 3/64 (4.7) |
| Device size, mm | |
| 23 | 2/64 (3.1) |
| 26 | 28/64 (43.8) |
| 29 | 31/64 (48.4) |
| 25 (Inovare) | 1/64 (1.6) |
| 30 (Inovare) | 2/64 (3.1) |
| Access | |
| Transapical | |
| Transapical | 29/64 (45.3) |
| Direct open transatrial | 9/64 (14.1) |
| Transseptal | |
| Traditional (wire free in LV) | 22/26 |
| Modified (wire externalized through percutaneous sheath in LV) | 4/26 |
| Pre-dilation | 21/58 (36.1) |
| AVR during same procedure | |
| TAVR | |
| TAVR | 7/12 (58.3) |
| SAVR | 5/12 (41.7) |

Procedural results

| | |
|-----------------------------------|--------------|
| Technical success* | 46/64 (72) |
| Post-implantation valvuloplasty | 18/58 (31) |
| Mean MVG | 4 ± 2.2 |
| MVA | 2.2 ± 0.95 |
| LVOTO with hemodynamic compromise | 6/64 (9.3) |
| Valve embolization | 4/64 (6.25) |
| Need for a second valve | 11/64 (17.2) |
| Due to MR | 6/11 (55) |
| Due to migration | 5/11 (45) |
| LV perforation | 2/64 (3.1) |
| Pulmonary vein perforation | 1/64 (1.56) |
| Conversion to open heart surgery | 4/64 (6.25) |
| LVOTO | 1/4 (25) |
| Embolization | 2/4 (50) |
| LV perforation | 1/4 (25) |
| Residual MR at end of procedure | |
| Trace or none | 35/52 (67.3) |
| Mild | 17/52 (32.7) |
| ≥3(+) | 0/52 (0) |

Transcatheter Mitral Valve Replacement in Native Mitral Valve Disease With Severe Mitral Annular Calcification

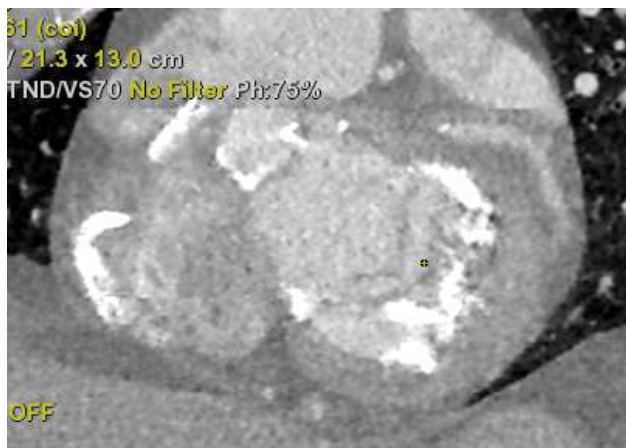
Results From the First Multicenter Global Registry

TABLE 3 Clinical Outcomes

| | |
|--------------------------|--------------|
| Length of stay, days | 17.7 ± 18 |
| 30-day/procedural death* | 19/64 (29.7) |

Procédure à risque

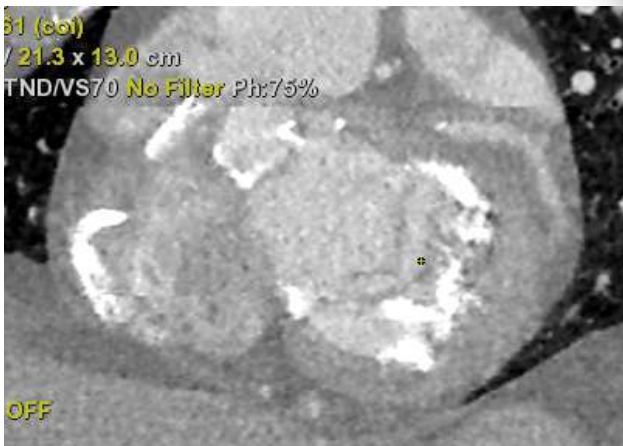
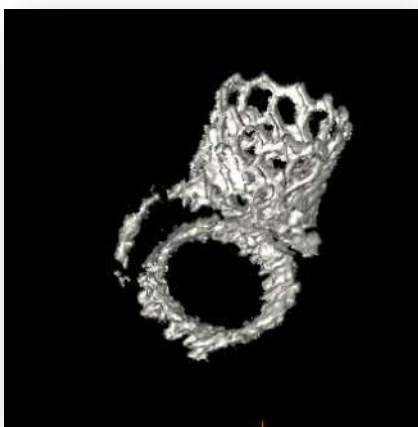
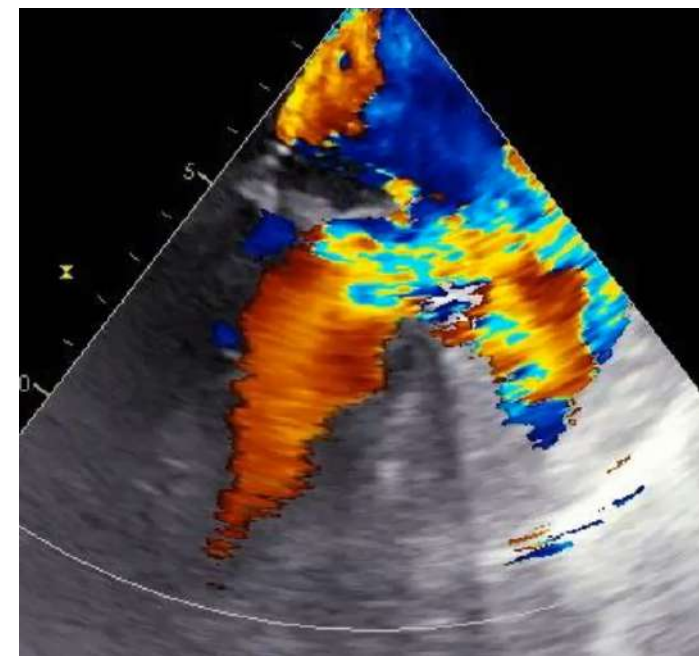
- Migration de prothèse
- Obstruction chambre de chasse
- Fuite para prothétique



- ✓ Homme, 69 ans
- ✓ NYHA III
- ✓ RAO + maladie mitrale sur MAC



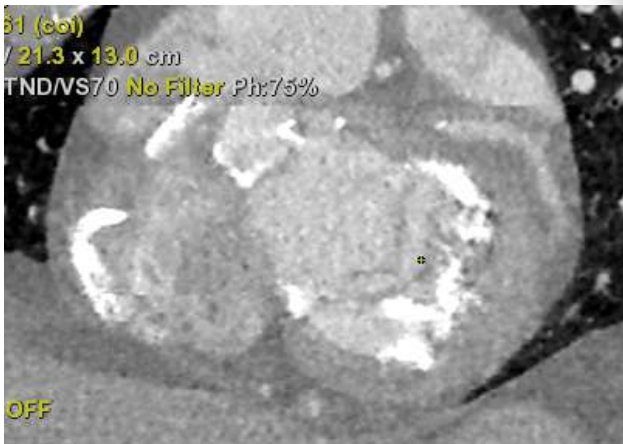
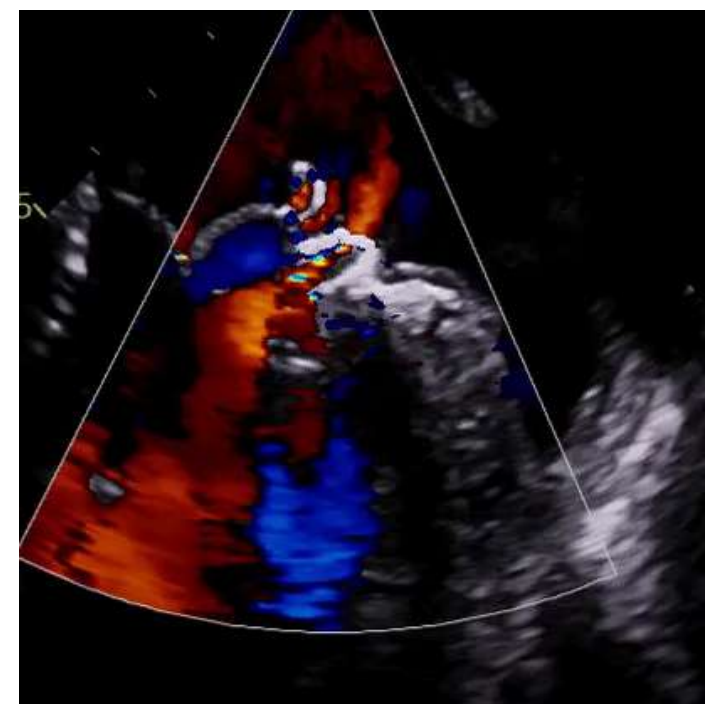
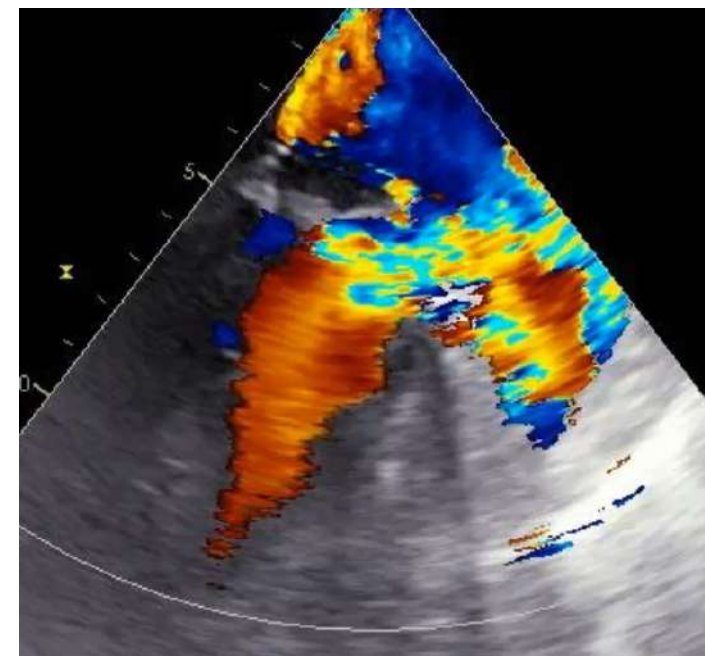
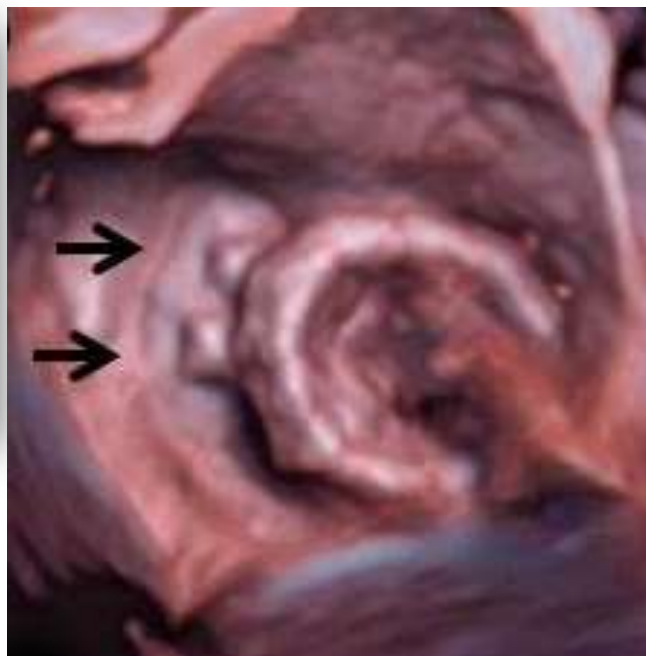
✓ A 2 mois: de nouveau symptomatique



- ✓ Homme, 69 ans
- ✓ NYHA III
- ✓ RAO + maladie mitrale sur MAC

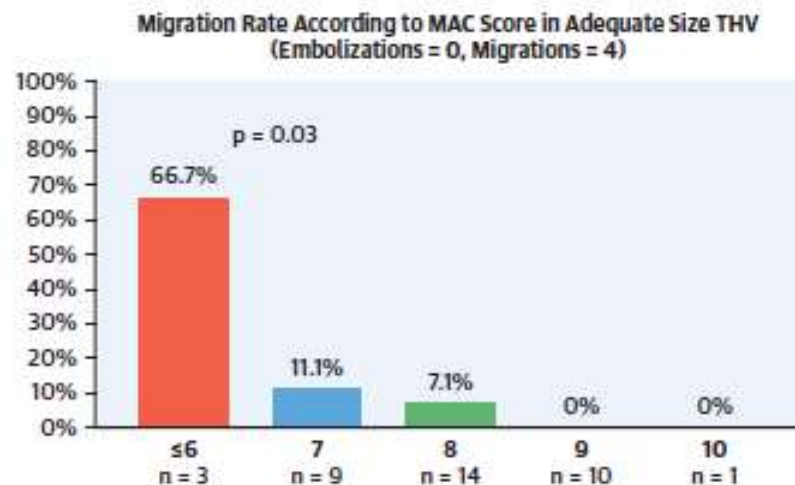


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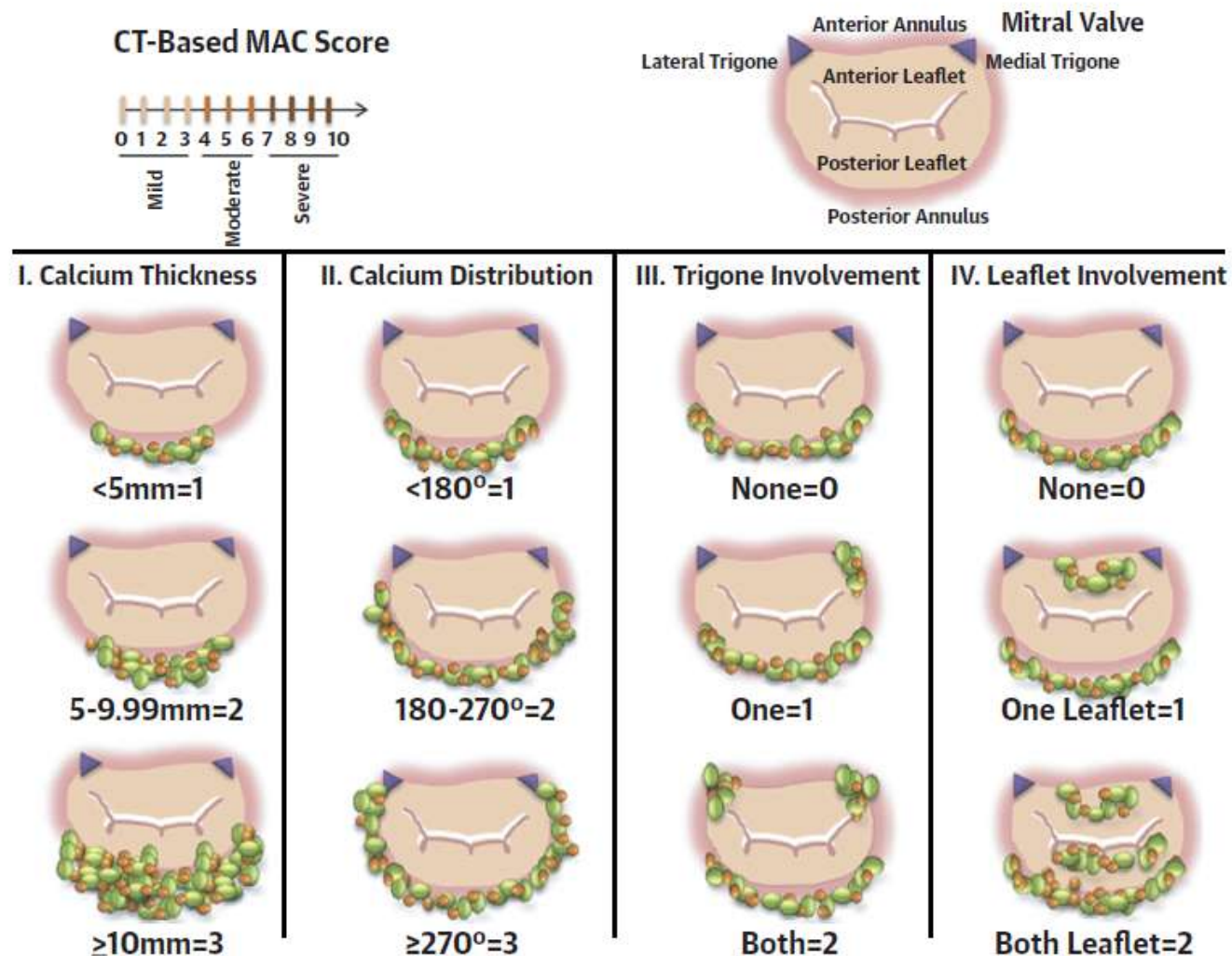
MAC score: migration?



ORIGINAL RESEARCH

A Cardiac Computed Tomography- Based Score to Categorize Mitral Annular Calcification Severity and Predict Valve Embolization

FIGURE 2 Elements Used of the MAC Score and Their Corresponding Points



Average annulus calcium thickness (<5 mm = 1 point, 5 to 9.9 mm = 2 points, ≥10 mm = 3 points); calcium distribution in annulus circumference (<180° = 1 point, 180° to 270° = 2, ≥270° = 3); trigone calcification (none = 0, anterolateral = 1, posteromedial = 1); and mitral leaflet calcification (none = 0, anterior = 1, posterior = 1). A severity grade is assigned based on total points accumulated as follows: mild MAC = 3 points or less, moderate MAC = 4 to 6 points, and severe MAC ≥7 points. CT = computed tomography; MAC = mitral annular calcification.

Analyse du CT : obstruction de la CC ?

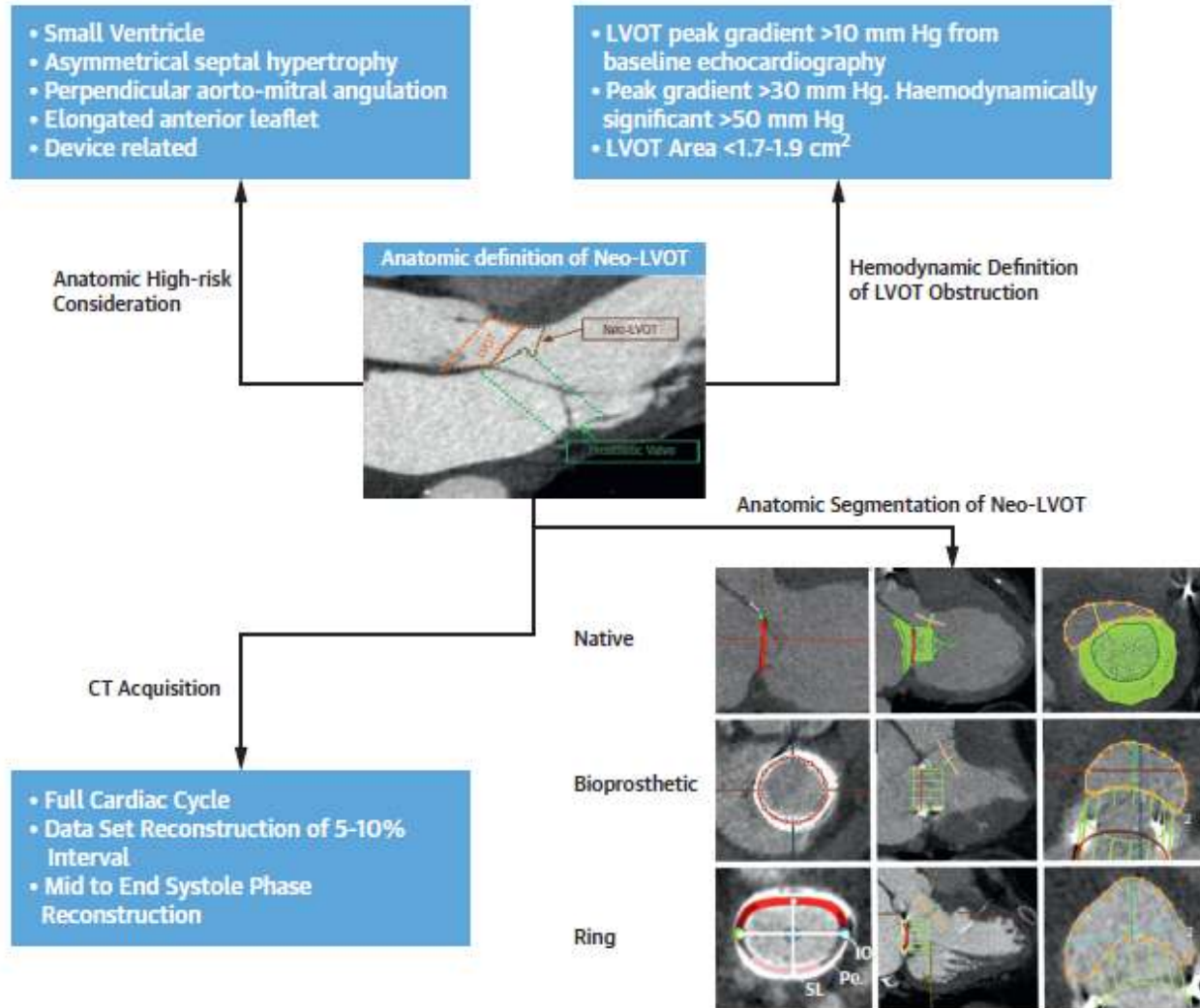
STATE-OF-THE-ART PAPER

Neo-LVOT and Transcatheter Mitral Valve Replacement

Expert Recommendations

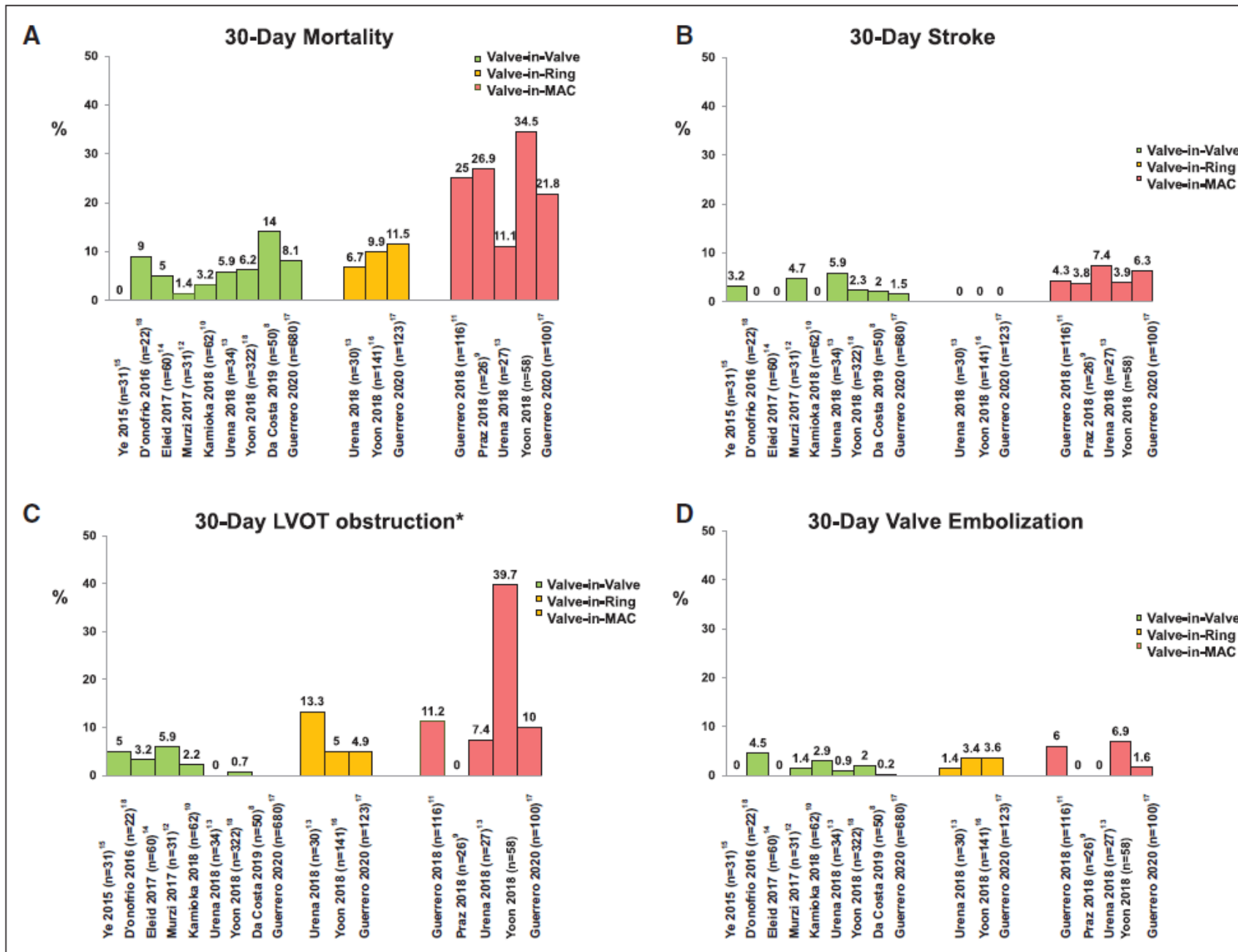
Anna Reid, MChB,^{a,*} Sagit Ben Zekry, MD,^{a,*} Mansi Turaga, MChB,^a Stephanie Tarazi, BSc,^a Jeroen J. Bax, MD,^b Dee Dee Wang, MD,^c Nicolo Piazza, MD,^d Vinayak N. Bapat, MBBS,^e Abdul-Rahman Ihdahid, MBBS, PhD,^a João L. Cavalcante, MD,^f Philipp Blanke, MD,^a Jonathon Leipsic, MD^g

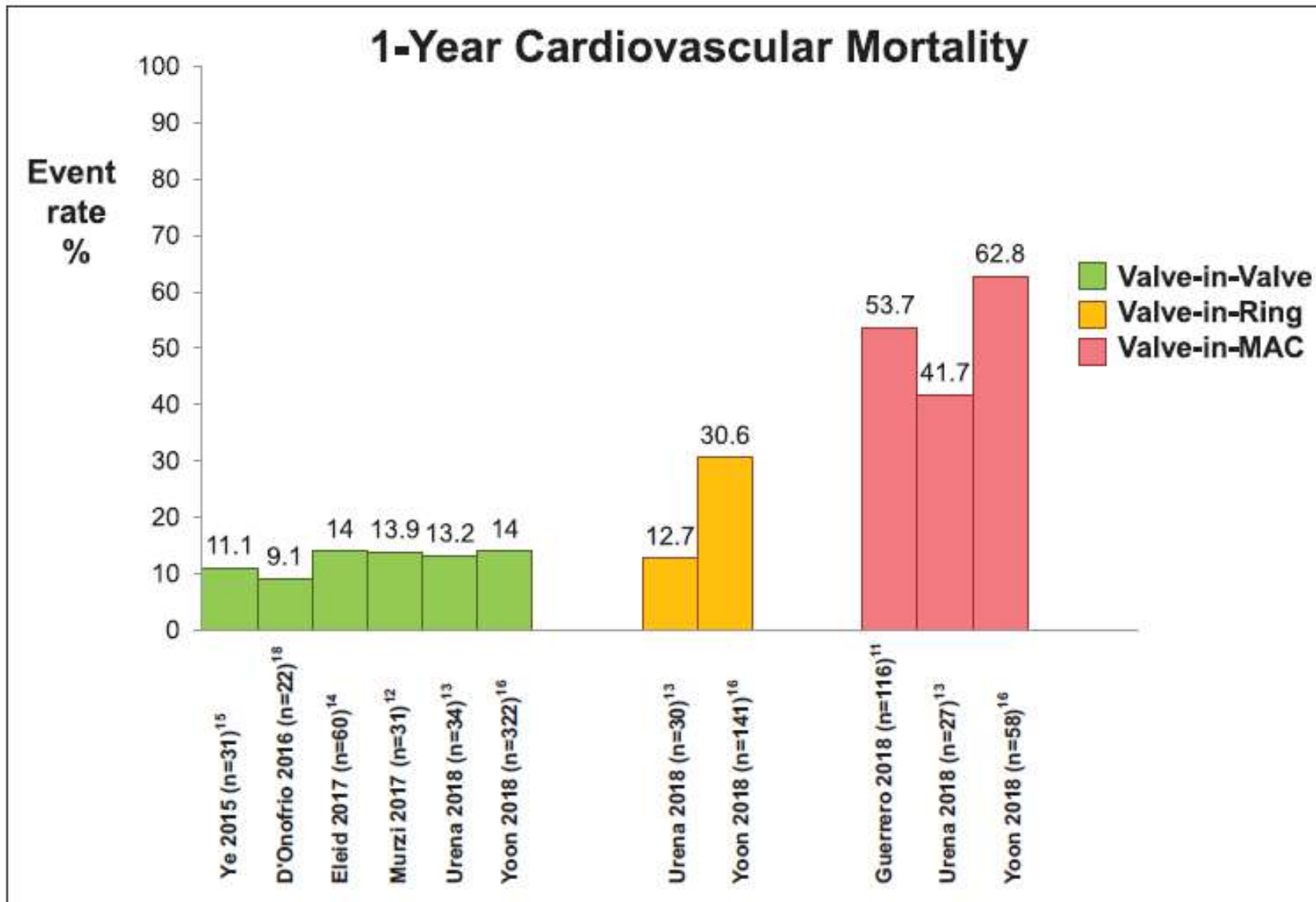
CENTRAL ILLUSTRATION Key Elements of Computed Tomography Acquisition and Evaluation for Neo-LVOT Obstruction Risk During Transcatheter Mitral Valve Replacement



Reid, A. et al. J Am Coll Cardiol Img. 2020; ■(■):■-■.

Approach to computed tomography imaging and analysis for left ventricular outflow tract (LVOT) obstruction during transcatheter mitral valve replacement.

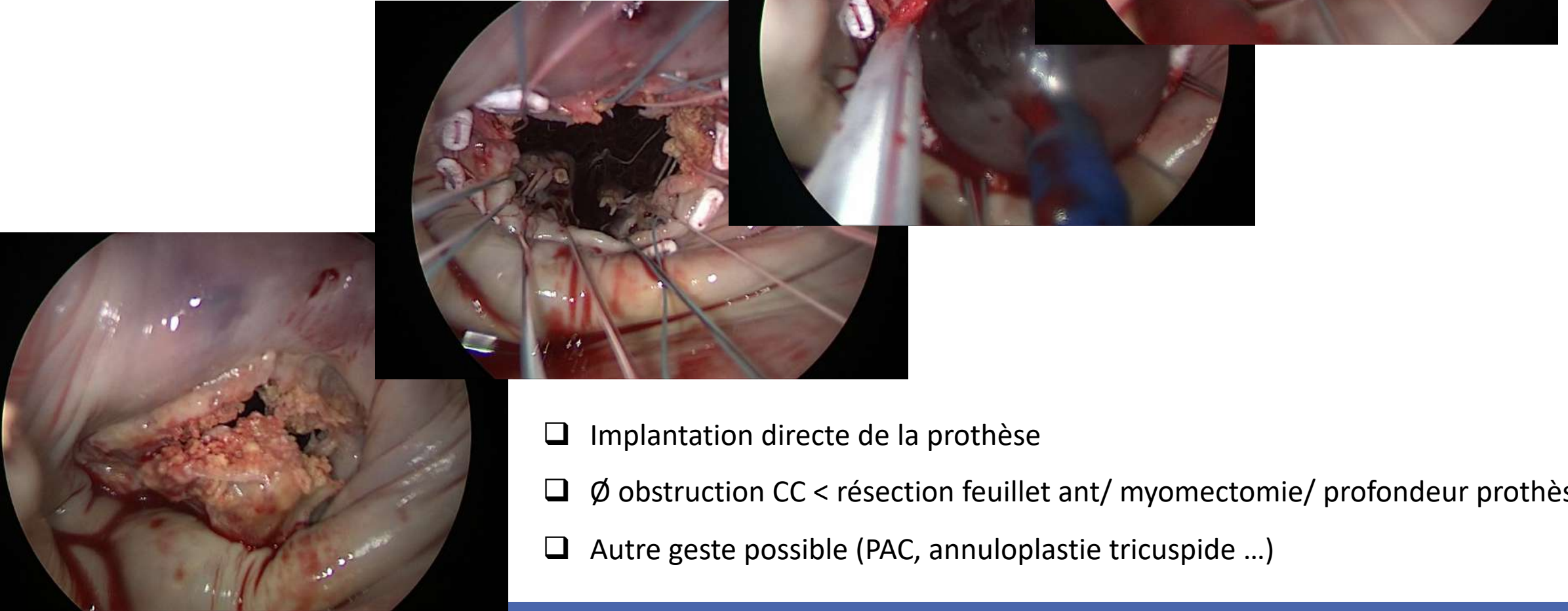




« ViMAC TMVR seems to be futile in up to 50% of patients»

Approche hybride

La voie trans atriale



- Implantation directe de la prothèse
- Ø obstruction CC < résection feuillet ant/ myomectomie/ profondeur prothèse
- Autre geste possible (PAC, annuloplastie tricuspide ...)

Approche hybride

La voie trans atriale

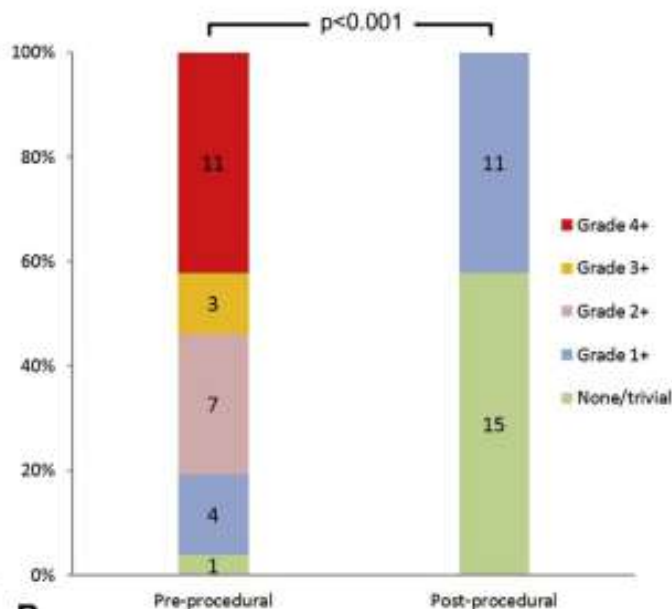
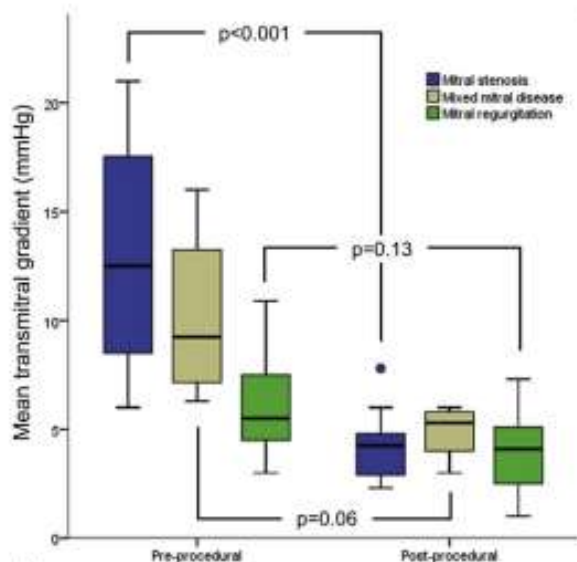
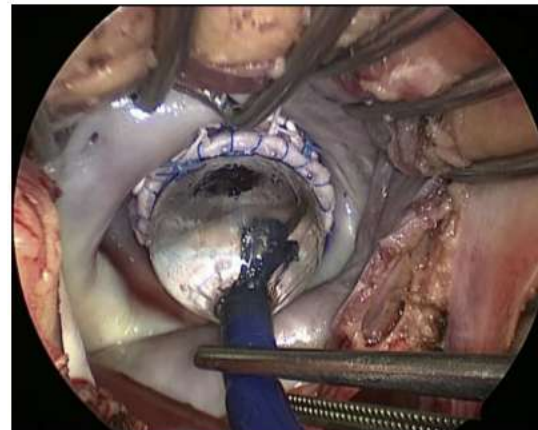


TABLE 3. Procedural and in-hospital outcomes (N = 26)

| | Value |
|--|----------|
| Procedural characteristics | |
| Technical success* | 26 (100) |
| Median sternotomy | 25 (96) |
| Right thoracotomy | 1 (4) |
| Edwards Sapien XT | |
| 23 mm | 1 (4) |
| 26 mm | 1 (4) |
| Edwards Sapien 3 | |
| 23 mm | 3 (11) |
| 26 mm | 14 (54) |
| 29 mm | 7 (27) |
| Procedural duration, minutes | 158 ± 49 |
| Cross clamp time, minutes | 123 ± 34 |
| Procedural mortality | |
| Procedural mortality | 0 |
| In-hospital outcomes | |
| In-hospital mortality | 5 (19) |
| Complications | |
| LVOT obstruction | 1 (4) |
| Major bleeding requiring surgical re-exploration | 2 (8) |
| Valve embolization | 0 |
| Cerebrovascular event | |
| TIA | 0 |
| Ischemic stroke | 1 (4) |
| Acute renal failure requiring temporary dialysis | 4 (15) |
| Permanent pacemaker implantation | 2 (8) |
| New-onset atrial fibrillation | 7 (27) |
| Length of stay, d | 13 ± 6 |
| Echocardiographic outcomes | |
| Peak transmitral gradient, mm Hg | 9 ± 3 |
| Mean transmitral gradient, mm Hg | 4 ± 2 |
| Peak LVOT gradient, mm Hg | 8 ± 4 |
| Mean LVOT gradient, mm Hg | 5 ± 3 |
| MR severity | |
| No/trivial MR | 16 |
| MR grade 1+ | 9 |
| MR grade 2+ | 1 |
| MR grade 3+ | 0 |
| MR grade 4+ | 0 |

Edwards Sapien valves are from Edwards Lifesciences (Irvine, Calif). LVOT, Left ventricular outflow tract obstruction; TIA, transient ischemic attack; MR, mitral regurgitation. *According to MVARC criteria.

Approche hybride

La voie trans atriale

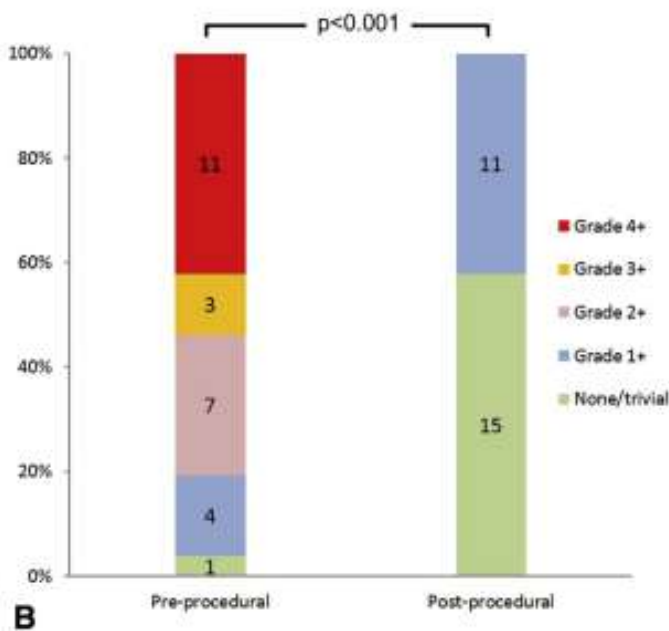
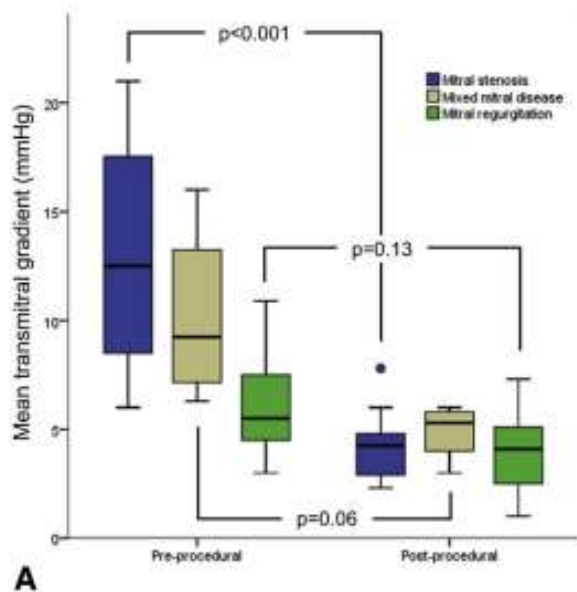
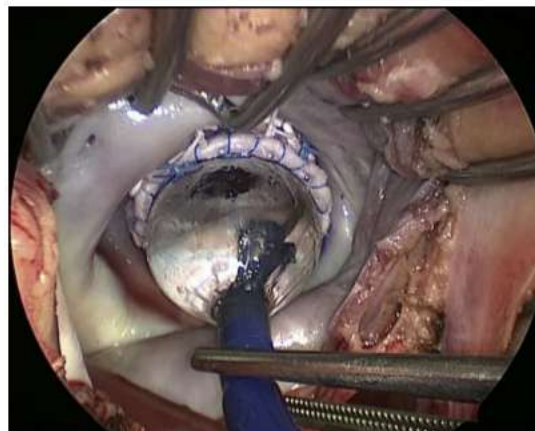


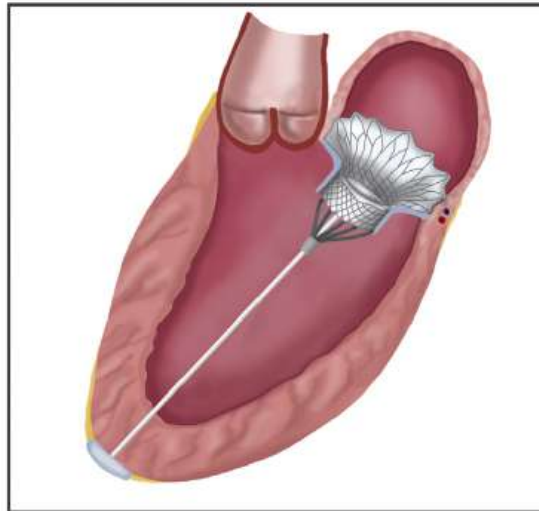
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| No/trivial MR | 16 |
| MR grade 1+ | 9 |
| MR grade 2+ | 1 |
| MR grade 3+ | 0 |
| MR grade 4+ | 0 |

Quel traitement. Le TMVR (valve de rechange) ?

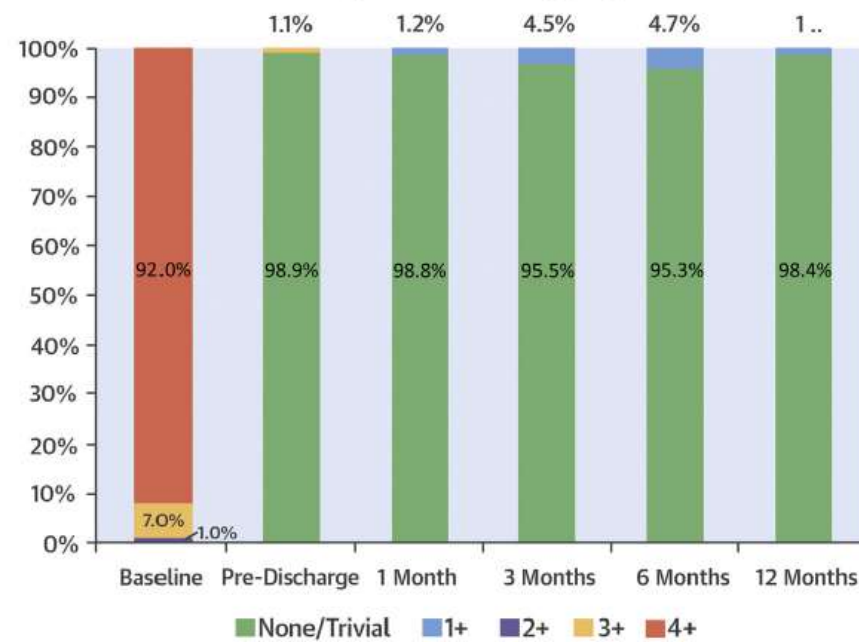
CENTRAL ILLUSTRATION Clinical Outcomes With Transcatheter Mitral Valve Replacement With the Prosthesis

First 100 Patients Treated



- No intra-procedural deaths
- Technical success in 96%
- 30-day death, 6%; 1-year mortality, 26%
- Among survivors at 1 year, 88.5% with mild or no symptoms

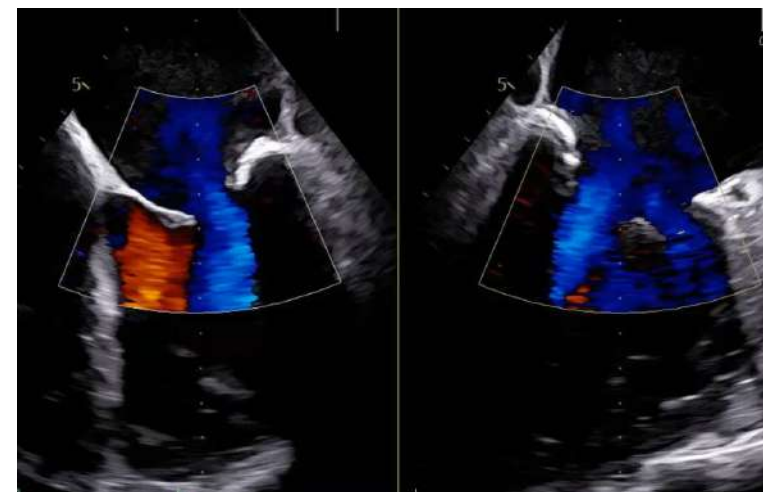
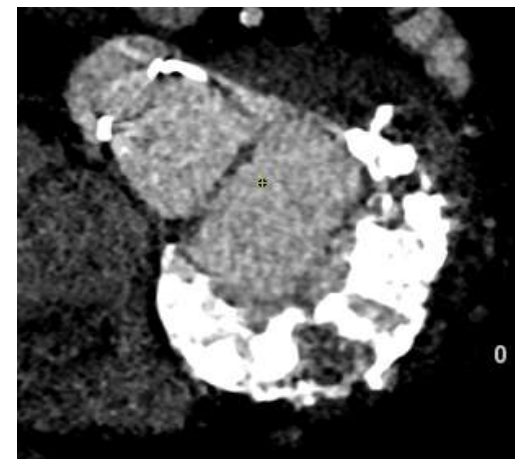
Change in Mitral Regurgitation



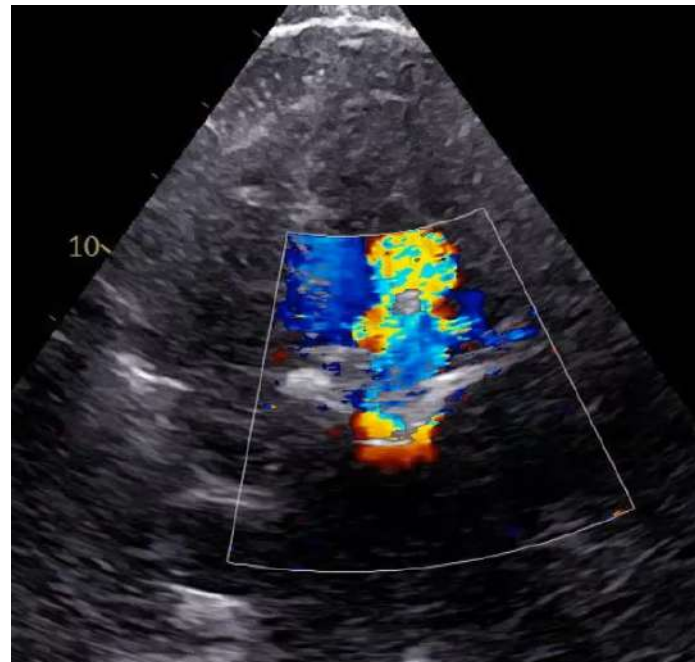
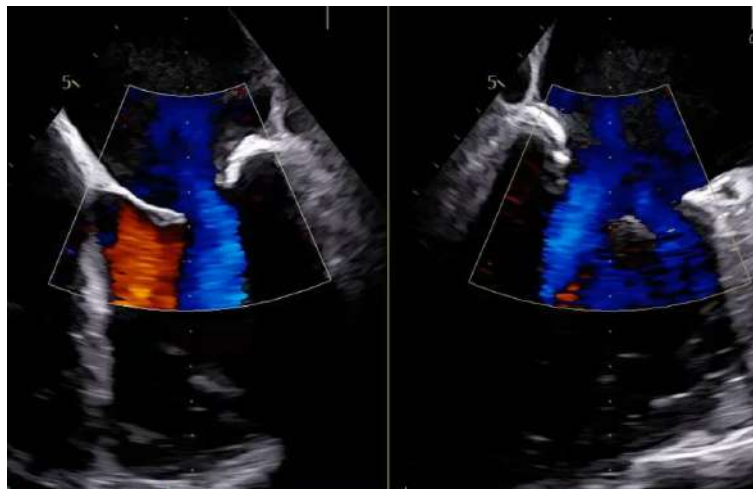
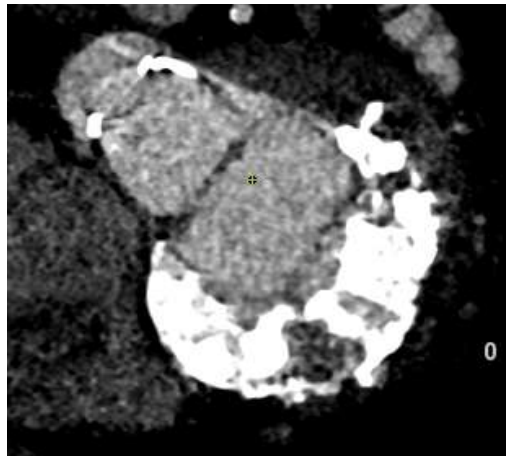
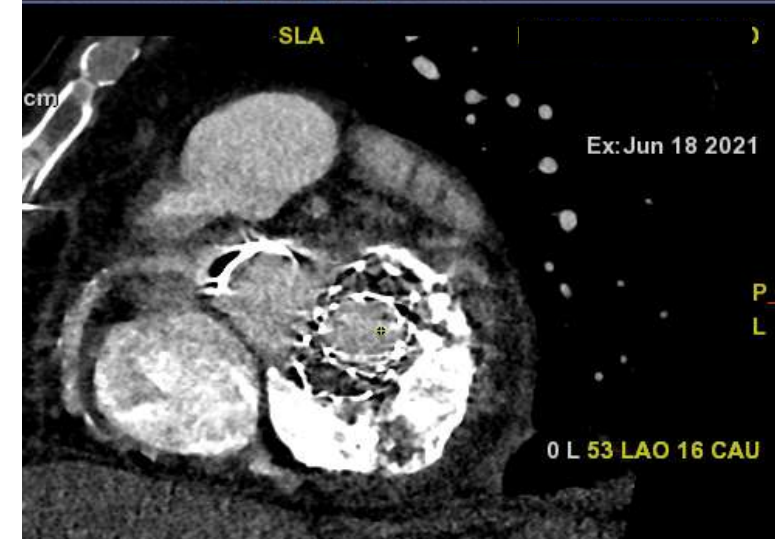
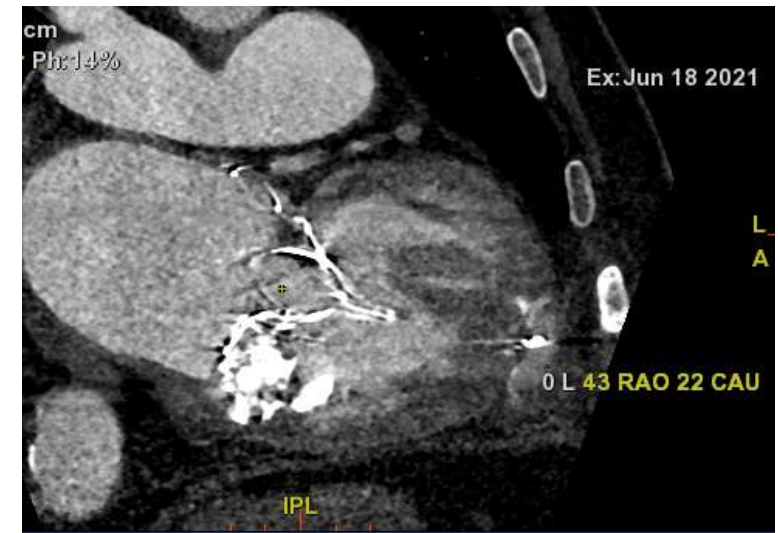
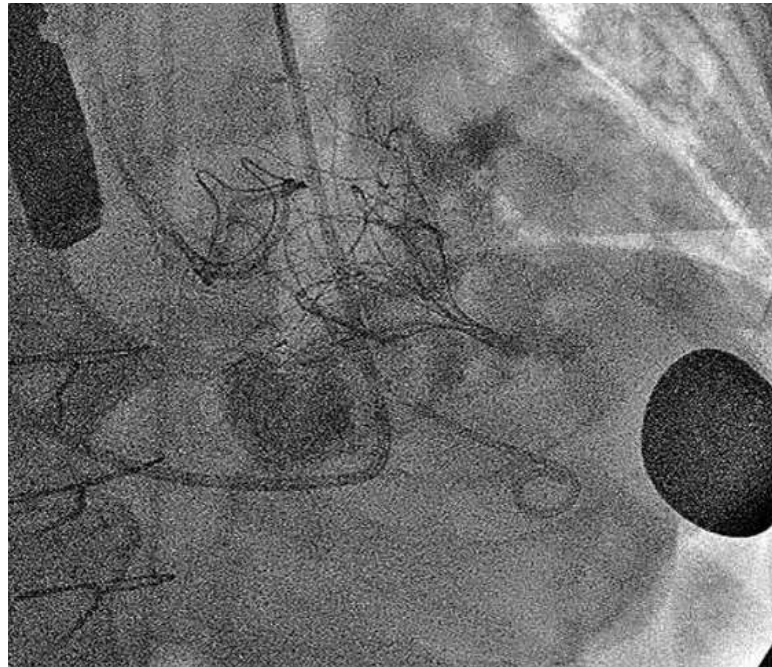
Sorajja, P. et al. J Am Coll Cardiol. 2019;73(11):1250-60.

(Left) The Tendyne prosthesis. (Right) Changes in mitral regurgitation at baseline and after treatment with the prosthesis. Severity of mitral regurgitation was determined in a core echocardiography laboratory at baseline and through 12-month follow-up for survivors.

Homme 74 ans
Dyspnée NYHA II
Antdt RVAo bio



Homme 74 ans
Dyspnée NYHA II
Antdt RVAo bio



Gradient moyen trans mitral: 4 mmHg

Early outcomes of transcatheter mitral valve replacement with the Tendyne system in severe mitral annular calcification

Mario Gössl^{1*}, MD; Vinod Thourani², MD; Vasilis Babaliaros³, MD; Lenard Conradi⁴, MD; Bassem Chehab⁵, MD; Nicolas Dumonteil⁶, MD; Vinay Badhwar⁷, MD; David Rizik⁸, MD; Benjamin Sun¹, MD; Richard Bae¹, MD; Robert Guyton³, MD; Michael Chuang⁹, MD; Philipp Blanke¹⁰, MD; Paul Sorajja¹, MD

Table 3. Procedure and hospitalisation data.

| | MAC FS (n=11) | CU (n=9) | Total (n=20) | |
|---|--------------------------|---------------|---------------|---------------|
| Procedure time, min, mean±SD (n) | 121±36.7 (11) | 130±43.9 (9) | 125±39.3 (20) | |
| Cardiopulmonary bypass or ECMO | 0% (0/11) | 0% (0/9) | 0% (0/20) | |
| IABP used | 9.1% (1/11) | 0% (0/9) | 5% (1/20) | |
| Valve implanted | 100% (11/11) | 100% (9/9) | 100% (20/20) | |
| Standard profile | 9.1% (1/11) | 44.4% (4/9) | 25% (5/20) | |
| Low profile | 90.9% (10/11) | 55.6% (5/9) | 75% (15/20) | |
| Device retrieval | 0% (0/11) | 0% (0/9) | 0% (0/20) | |
| Technical success | 100% (11/11) | 88.9% (8/9) | 95% (19/20) | |
| Concomitant balloon valvuloplasty | 54.5% (6/11) | 55.6% (5/9) | 55% (11/20) | |
| Length of hospitalisation stay (days), median | 6 | 6 | 7 | |
| Length of ICU stay (days), median | 1.5 | 4 | 2.6 | |
| Discharge status | Home | 90.9% (10/11) | 37.5% (3/8) | 68.4% (13/19) |
| | Acute care hospital | 0.0% (0/11) | 12.5% (1/8) | 5.2% (1/19) |
| | Rehabilitation centre | 9.1% (1/11) | 25.0% (2/8) | 15.7% (3/19) |
| | Skilled nursing facility | 0.0% (0/11) | 25.0% (2/8) | 10.5% (2/19) |

ECMO: extracorporeal membrane oxygenation; IABP: intra-aortic balloon pump; ICU: intensive care unit

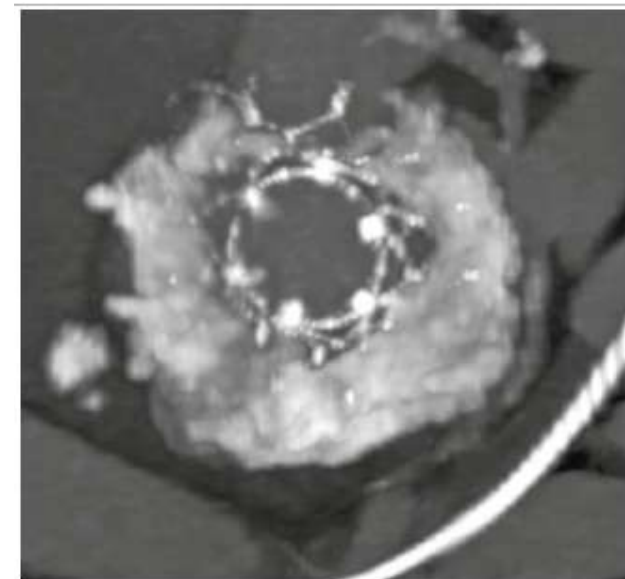


Table 2. Clinical and echocardiographic outcomes at one year.

| | | MAC FS (n=11) | CU (n=9) | Total (n=20) |
|--|---|-----------------|-------------|-----------------|
| Any mortality | | 36.4% (4/11) | 44.4% (4/9) | 40% (8/20) |
| Cardiac death | | 27.3% (3/11) | 11.1% (1/9) | 20% (4/20) |
| NYHA Functional Class | I | 50% (3/6) | 16.7% (1/6) | 33.3% (4/12) |
| | II | 33.3% (2/6) | 83.3% (5/6) | 58.3% (7/12) |
| | III | 16.7% (1/6) | 0% (0/6) | 8.3% (1/12) |
| | IV | 0% (0/6) | 0% (0/6) | 0% (0/12) |
| Heart failure hospitalisation | | 27.3% (3/11) | 33.3% (3/9) | 30% (6/20) |
| Myocardial infarction | | 0% (0/11) | 0% (0/9) | 0% (0/20) |
| New onset atrial fibrillation | | 18.2% (2/11) | 11.1% (1/9) | 15% (3/20) |
| Stroke | | 9.1% (1/11) | 0% (0/9) | 5% (1/20) |
| Disabling | | 0% (0/11) | 0% (0/9) | 0% (0/20) |
| Bleeding, all | | 63.6% (7/11) | 0% (0/9) | 20% (4/20) |
| MVARC life threatening or fatal | | 9.1% (1/11) | 0% (0/9) | 5% (1/20) |
| MV re-intervention* | | 9.1% (1/11) | 11.1% (1/9) | 10% (2/20) |
| Bioprosthetic valve dysfunction | Erosion, migration, malposition | 0% (0/11) | 0% (0/9) | 0% (0/20) |
| | Fracture (tear or damage) | 0% (0/11) | 0% (0/9) | 0% (0/20) |
| | Thrombosis | 0% (0/11) | 0% (0/9) | 0% (0/20) |
| | Haemolysis | 9.1% (1/11) | 0% (0/9) | 5% (1/20) |
| | Embolisation | 0% (0/11) | 0% (0/9) | 0% (0/20) |
| | Endocarditis | 0% (0/11) | 0% (0/9) | 0% (0/20) |
| | Paravalvular leak | 9.1% (1/11) | 0% (0/9) | 5% (1/20) |
| Mitral regurgitation grade | None/trivial | 100.0% (6/7) | 100% (5/5) | 100% (12/12) |
| | 1+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 2+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 3+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 4+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | Mitral paravalvular regurgitation grade | None/trace | 100% (7/7) | 100% (5/5) |
| | 1+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 2+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 3+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 4+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | Mean MV gradient, mmHg | Mean±SD (n) | 4.2±1.4 (6) | 4.6±1.9 (5) |
| Median (min, max) | | 3.7 (3.0, 6.3) | 4 (2, 7) | 4 (2, 7) |
| 1-month ES neo-LVOT (mm ²) | | 424±109 (9/20) | 0% (0/9) | 424±109 (9/20) |
| Pre-discharge LVOT gradient (mmHg) | | 2.3±0.9 (10/20) | 0% (0/9) | 2.3±0.9 (10/20) |

Patients in the MAC Feasibility Study had a 1-month cardiac CT study per protocol. * Alcohol septal ablation for LVOT obstruction (n=1), vascular plugs for paravalvular leak (n=1). CT: computed tomography; ES: end systole; LVOT: left ventricular outflow tract; MV: mitral valve; NYHA: New York Heart Association

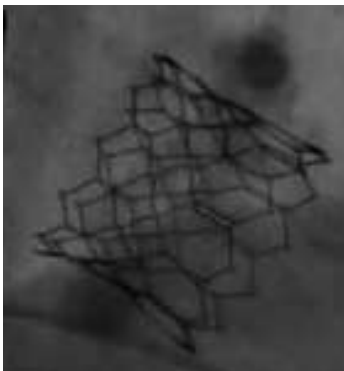
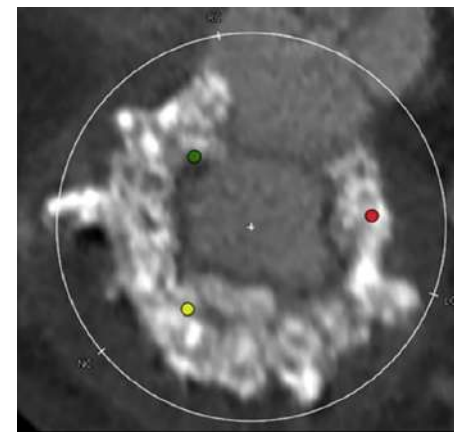
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| | 1+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 2+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 3+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 4+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| Mitral paravalvular regurgitation grade | None/trace | 100% (7/7) | 100% (5/5) | 100% (12/12) |
| | 1+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 2+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 3+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| | 4+ | 0% (0/7) | 0% (0/5) | 0% (0/12) |
| Mean MV gradient, mmHg | Mean±SD (n) | 4.2±1.4 (6) | 4.6±1.9 (5) | 4.4±1.6 (11) |
| | Median (min, max) | 3.7 (3.0, 6.3) | 4 (2, 7) | 4 (2, 7) |
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Patients in the MAC Feasibility Study had a 1-month cardiac CT study per protocol. * Alcohol septal ablation for LVOT obstruction (n=1), vascular plugs for paravalvular leak (n=1). CT: computed tomography; ES: end systole; LVOT: left ventricular outflow tract; MV: mitral valve; NYHA: New York Heart Association

Take home message

- MAC: non exceptionnel, gestion complexe
- Chirurgie difficile (décalcification), souvent contre-indiquée (terrain)
- IM pure: TEER possible ; plus difficile ; possible sténose induite
- TMVR / S3 in MAC : morbi-mortalité...
- TMVR / valve dédiée : screen failure ; abord trans apical
- Éviter les procédures futiles !



Merci de votre attention

guillaume.leurent@chu-rennes.fr

