



Valve In Valve Mitral

Repousser les limites du « TAVI »: la dégénérescence de bioprothèse

F.CHERY MERM DE

Explorations fonctionnelles de cardiologie, Pr D.METZ

CHU REIMS





Conflit d'intérêt

- Je déclare n'avoir aucun conflit d'intérêt



Mme P

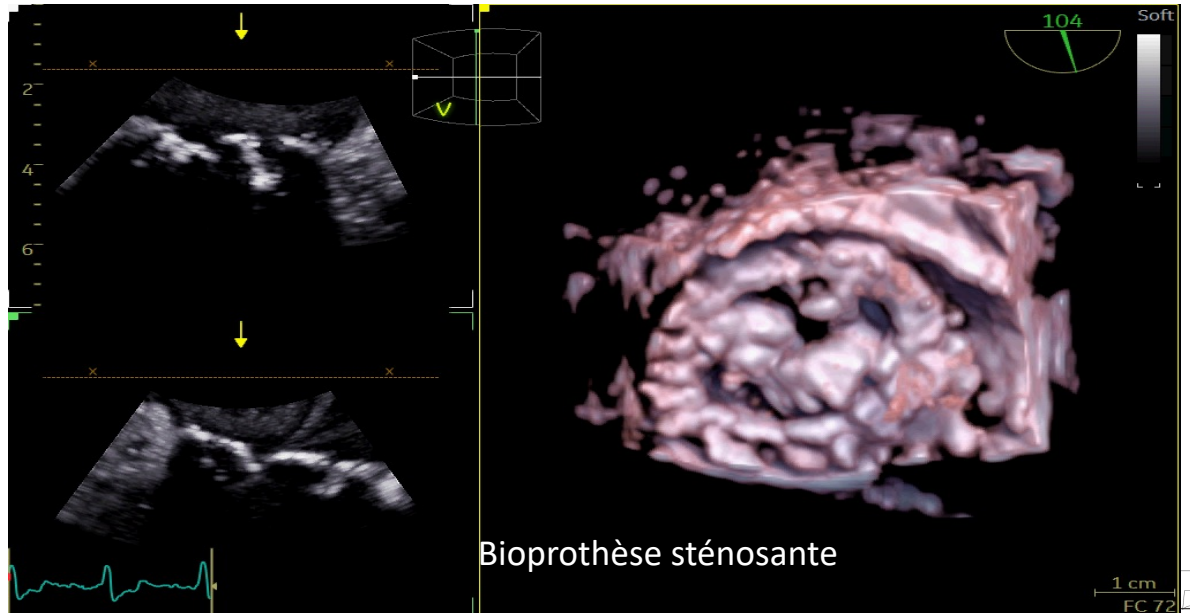
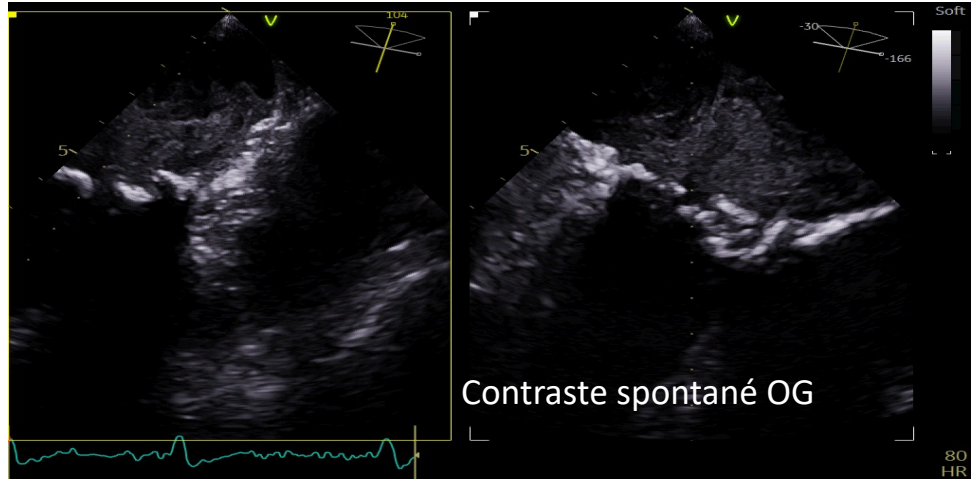
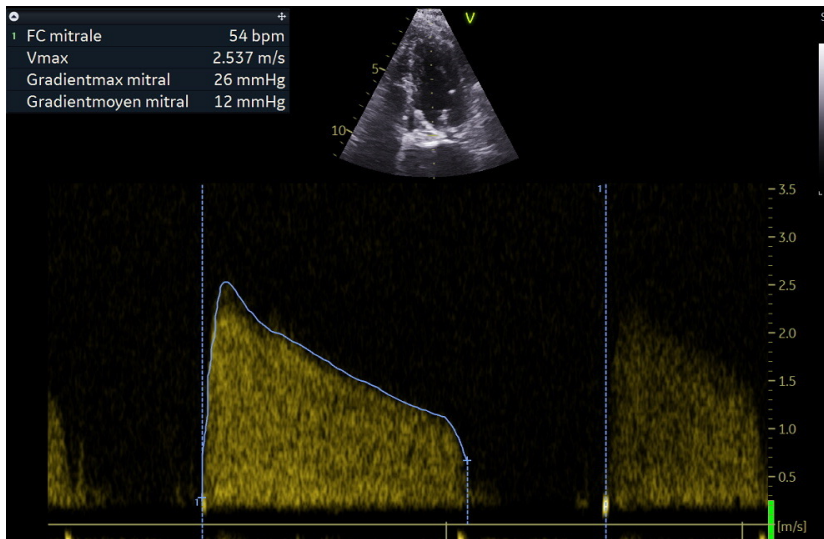
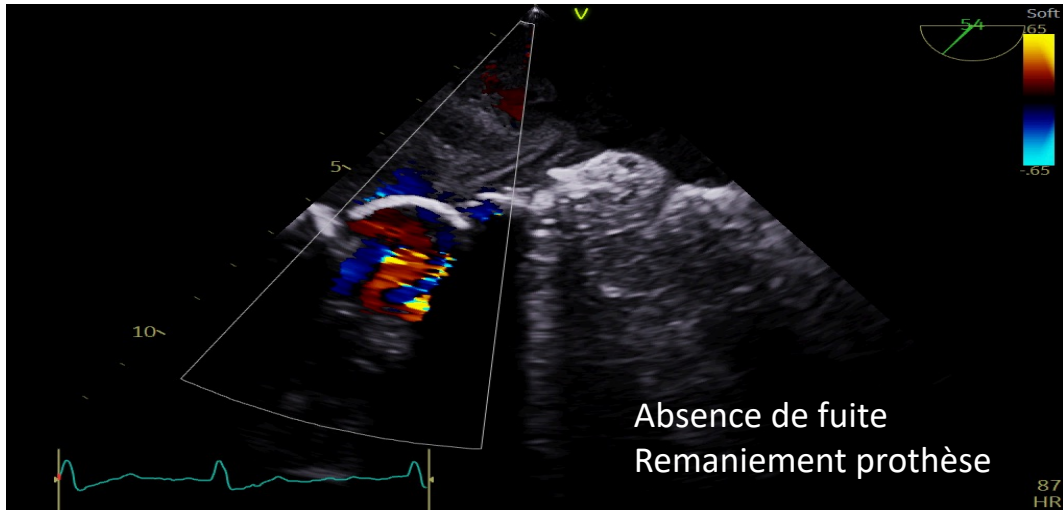
82 ans, 49 kg 156 cm

- En attente PTH : récusée par anesthésie
- FRDCV :Dyslipidémie, FA permanente
- ATCDTS :2011 : Bioprothèse mitrale Mosaic 33 mm + ligature AG

- Dyspnée croissante (NYHA 3) : réfractaire aux diurétique, dégénérescence structurelle , NTproBNP 3000, récusée d'un redux
- ETT : FEVG 70%, bioprothèse mitrale sténosante sans fuite ni endocardite infectieuse, gradient moyen 12 mmHg, surface 0,7 cm², PAPs 50 mmHg



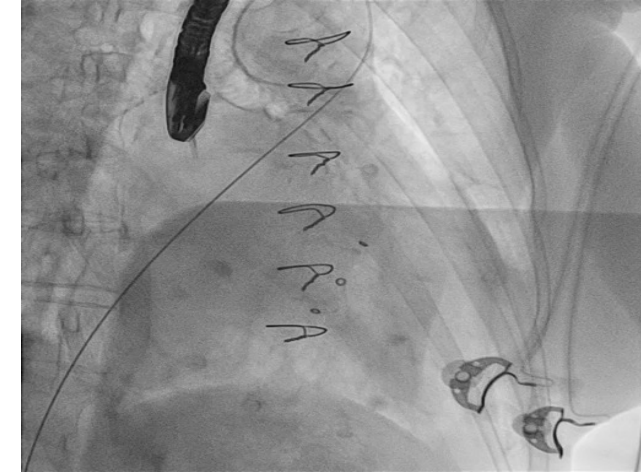
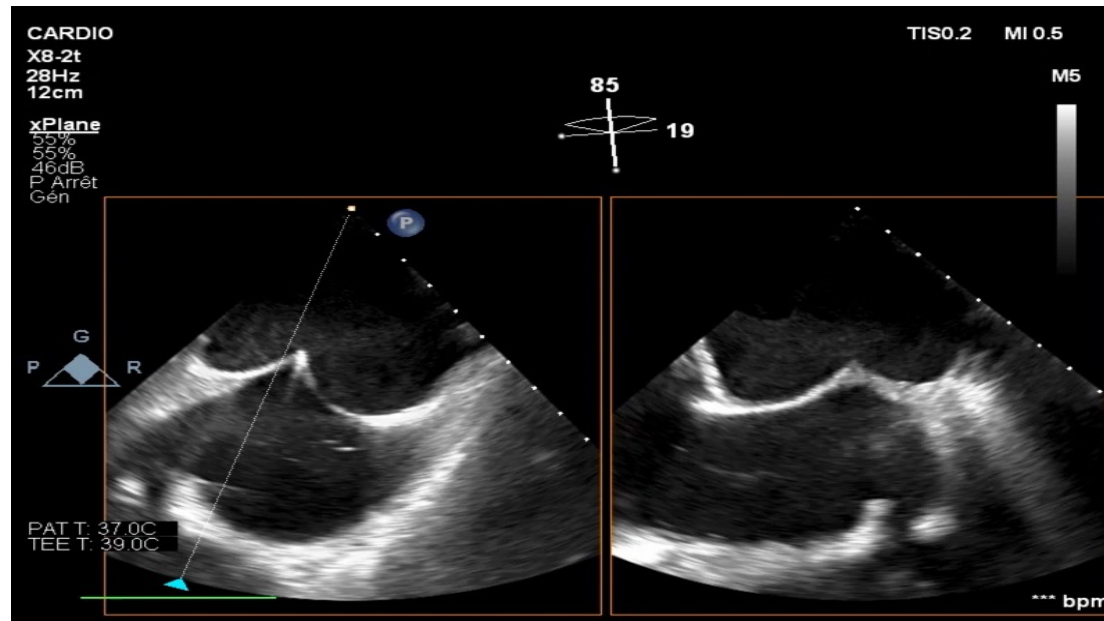
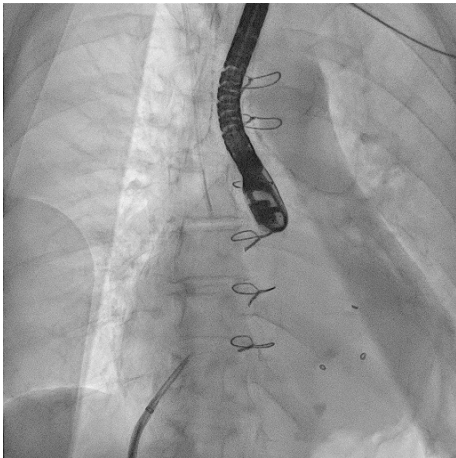
Screening Echo





Ponction transseptale

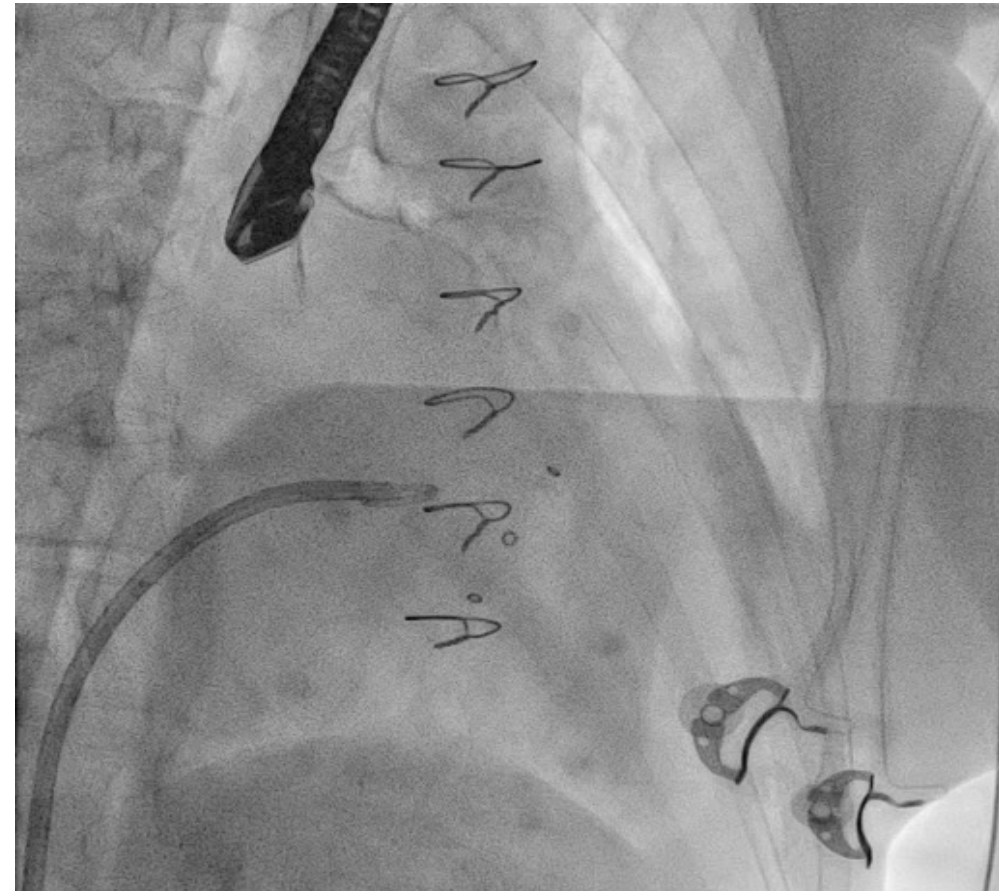
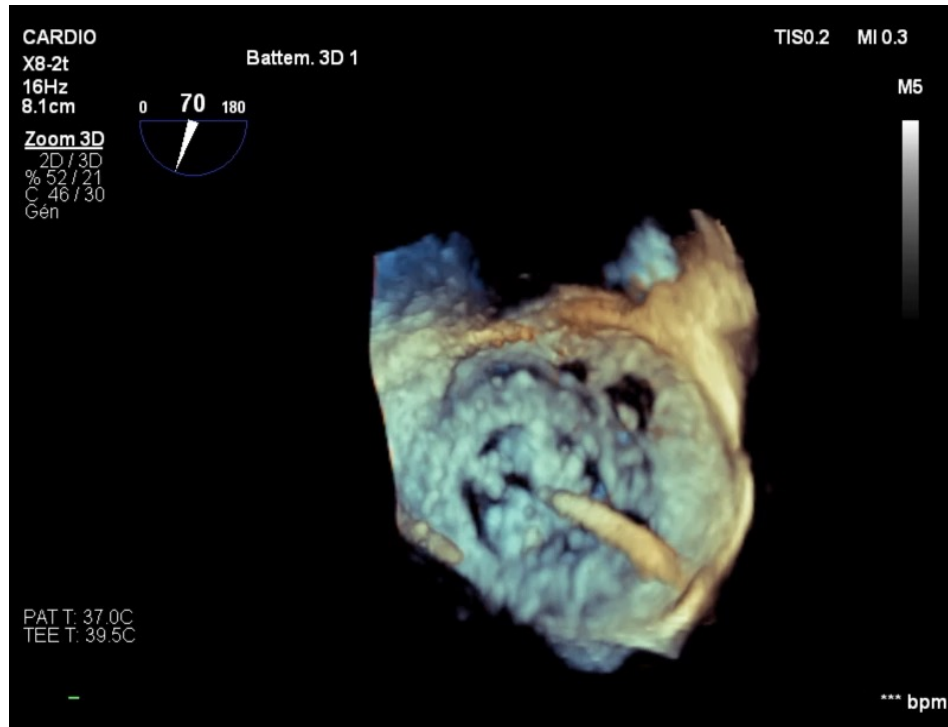
- Fémorale veineuse 8Fr sous écho et AG (ETO),
- Préclosing Proglide
- Gaine SL0, SL1 (Abbott)
- Aiguille BRK (Abbott)
- Guide d'échange + MPA1 : SuperStiff 260cm VPSG
- Intro 14Fr





Franchissement de la bioprothèse mitrale

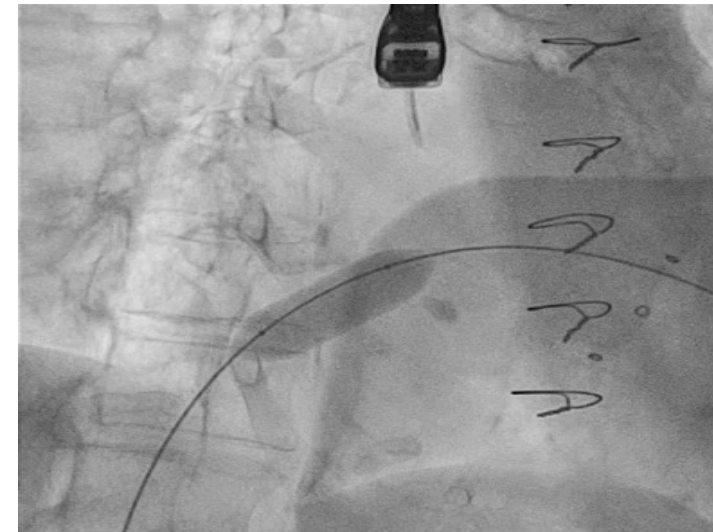
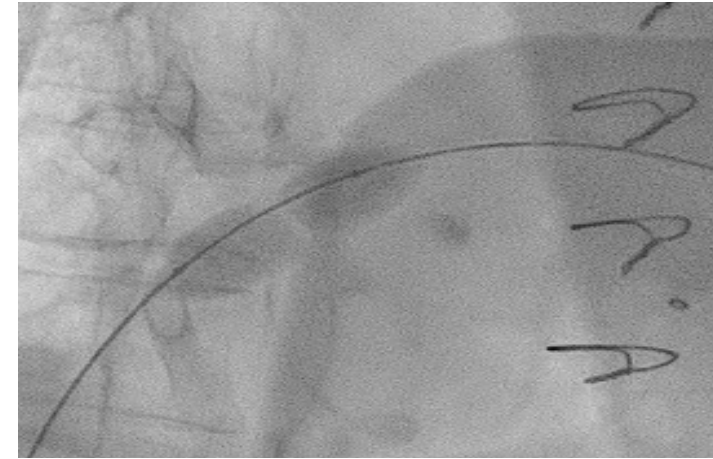
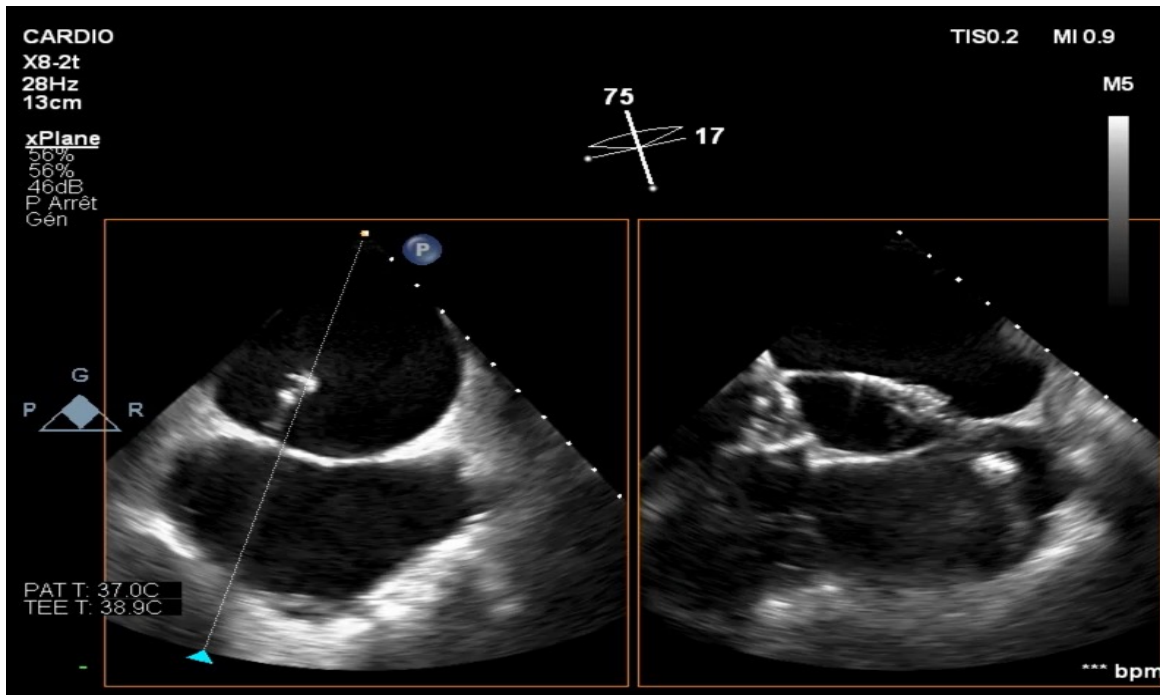
- Gaine orientable (Agilis NXT large curved, St Jude 8,5Fr)
- Pigtail 5Fr (assurance d'être dans la bioprothèse)
- Safari ExtraSmall





Dilatation du SIA

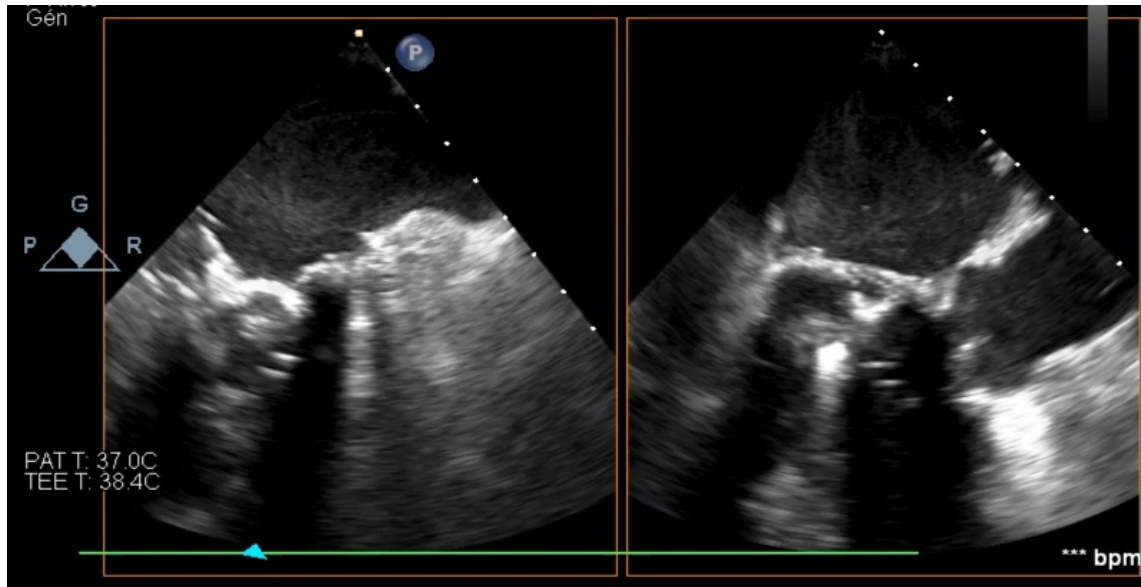
- Ballon Tyshak , Numed 14 mm
- 2 dilatations (éviter de rester bloqués)





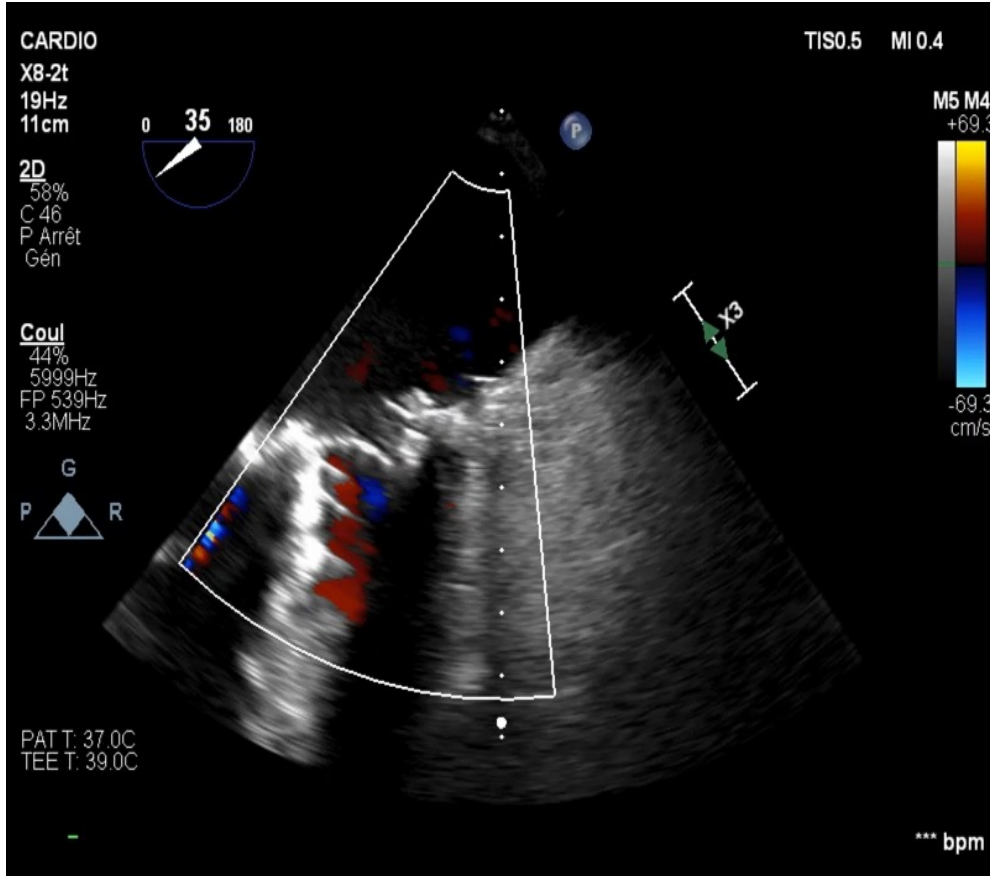
Pose de la prothèse

- Sapien 3 29 mm + 6cc
- Attention au sens de sertissage!!!
- Base de la prothèse au niveau des anneaux métalliques de la bioprothèse
- Inflation lente sous pacing (ajustement)



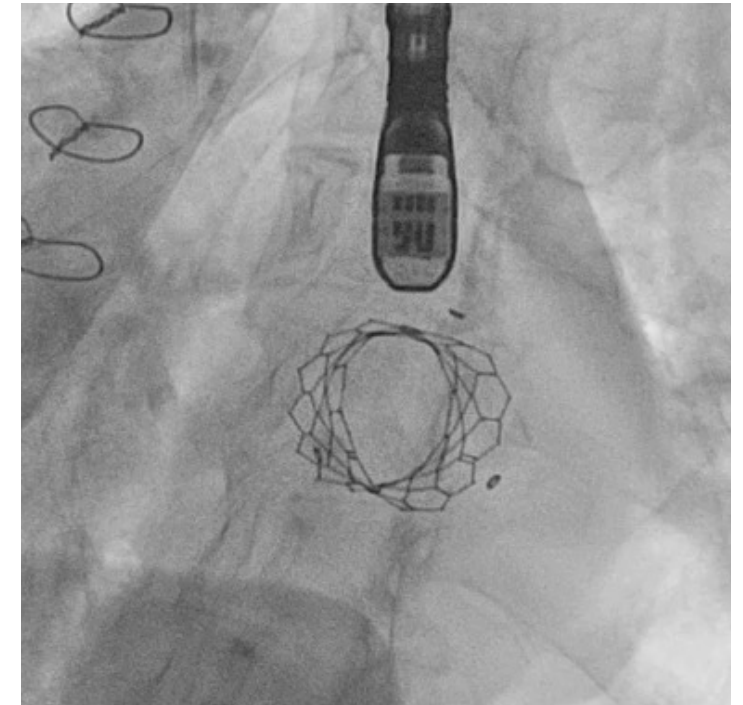
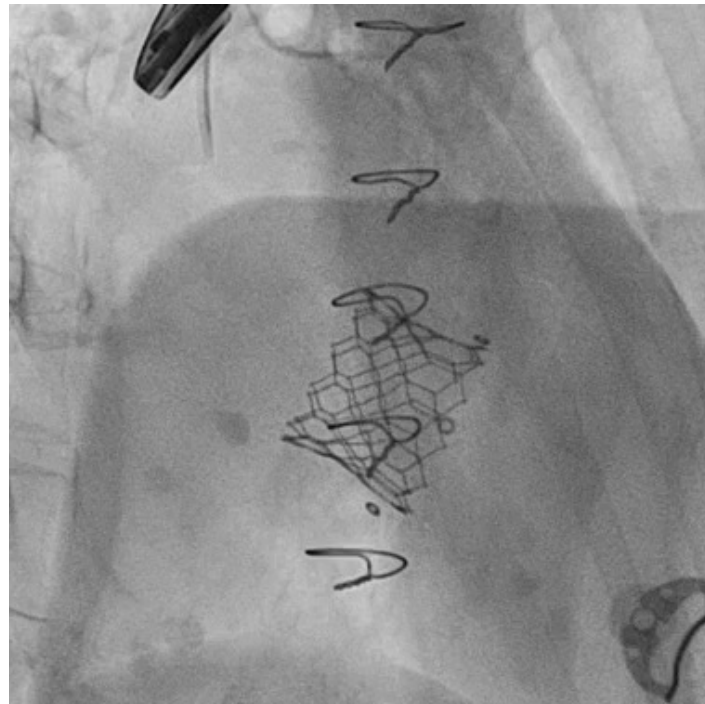
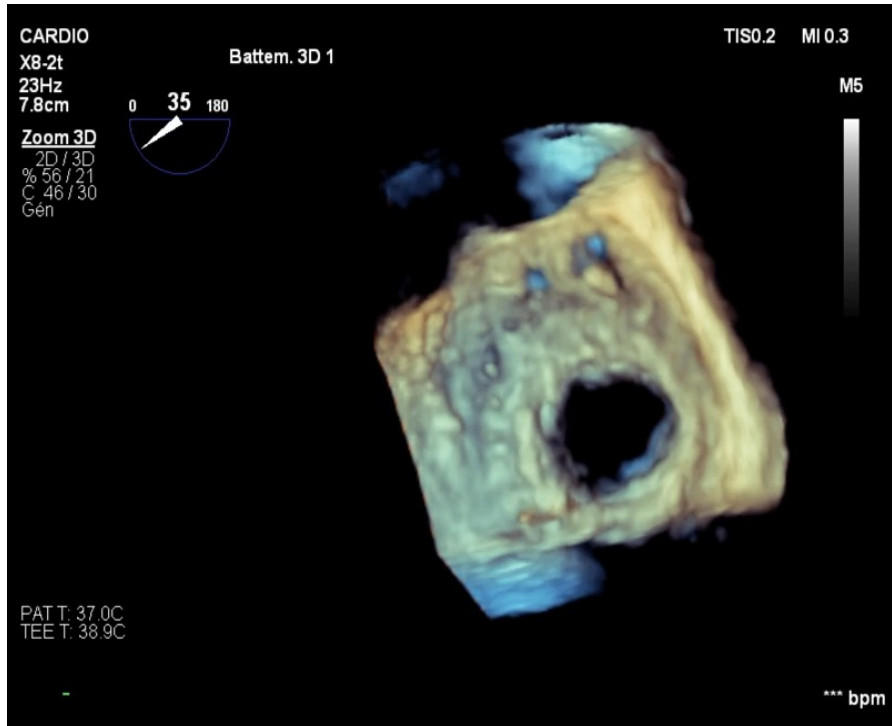


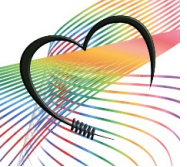
Contrôle ETO





Contrôle ETO

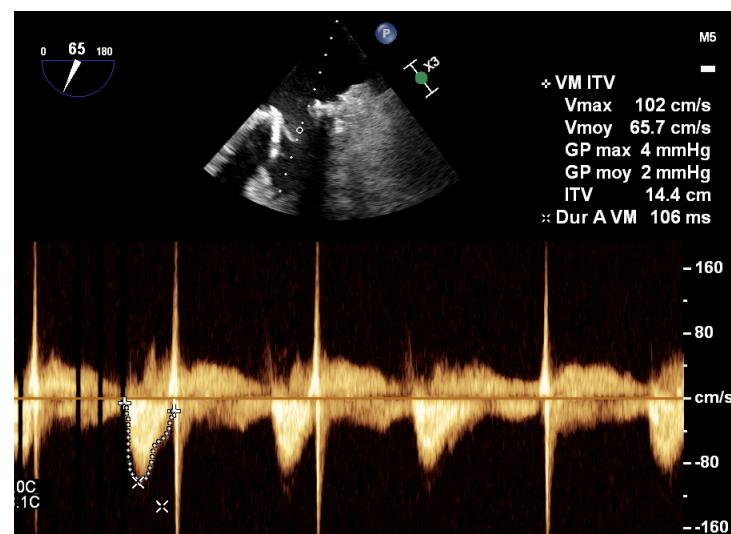
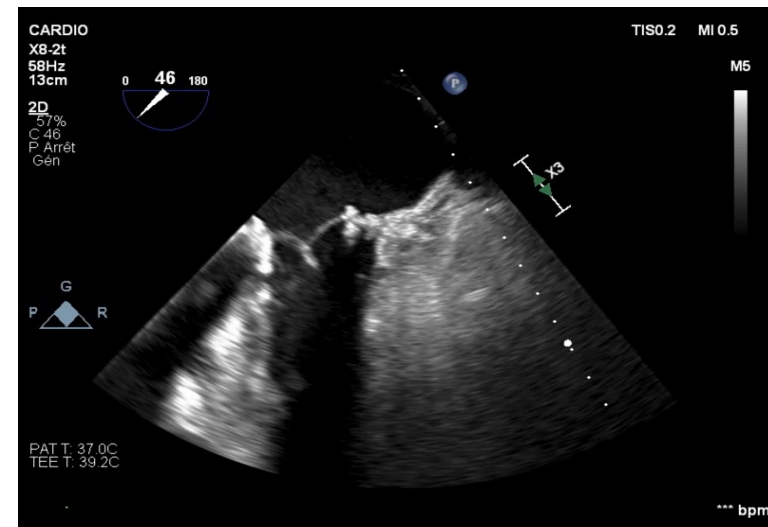


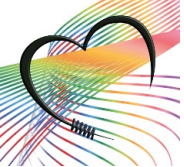


Mme P

82 ans

- Sapien 3 29 mm + 6cc
- Gradient moyen transmitral 2 mmHg
- Pas de fuite intra/péri-prothétique
- **DOSIMETRIE**
 - - Dose Totale : 1296,7 cGy.cm².
 - - Temps Scopie : 18,13 minutes
 - - Air Kerma cumulé : 70 mGy
- **Début de procédure : 09:00 Fin de procédure : 10:15**
- **Sortie J2**





Méta-analyse

Meta-Analysis Comparing Valve-in-Valve Transcatheter Mitral Valve Replacement Versus Redo Surgical Mitral Valve Replacement in Degenerated Bioprosthetic Mitral Valve

Mahmoud Ismayl, MDa, *, Muhannad Aboud Abbasi, MD_b, Mostafa Reda Mostafa, MD_c, Ahmed Aboeata, MD_d, Amit N. Vora, MD, MPHe, Itsik Ben-Dor, MD_f, Nandan S. Anavekar, MBBChb, and Andrew M. Goldswieg, MD, MSc
The American Journal of Cardiology

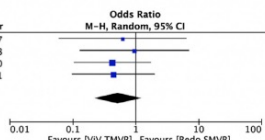
- TMVR non inferieur au redux
- Bel avenir aux techniques percutanées

Valvular Heart Disease/TMVR versus SMVR for degenerated bioprosthesis

A: In-hospital mortality

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Murzi et al. 2017	1	21	3	40	13.4%	0.62 [0.06, 6.32]	2017
Kamioka et al. 2018	2	62	2	59	18.2%	0.95 [0.13, 6.97]	2018
Simonetto et al. 2020	4	49	5	29	36.7%	0.43 [0.10, 1.74]	2020
Zubarevich et al. 2021	3	41	5	33	31.7%	0.44 [0.10, 2.01]	2021
Total (95% CI)	10	173	15	161	100.0%	0.52 [0.22, 1.23]	

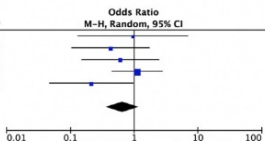
Total events: 10 (VIV TMVR), 15 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 0.49, df = 3 (P = 0.92); I² = 0%
Test for overall effect: Z = 1.49 (P = 0.14)



B: 30-day mortality

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Kamioka et al. 2018	2	62	2	59	8.7%	0.95 [0.13, 6.97]	2018
Simonetto et al. 2020	4	49	5	29	17.6%	0.43 [0.10, 1.74]	2020
Zubarevich et al. 2021	4	41	5	33	17.6%	0.61 [0.15, 2.46]	2021
Szlapka et al. 2022	11	79	10	79	41.0%	1.12 [0.45, 2.80]	2022
Simard et al. 2022	2	86	13	129	15.1%	0.21 [0.05, 0.97]	2022
Total (95% CI)	23	317	35	329	100.0%	0.65 [0.36, 1.17]	

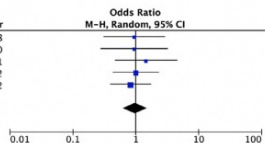
Total events: 23 (VIV TMVR), 35 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 3.97, df = 4 (P = 0.41); I² = 0%
Test for overall effect: Z = 1.44 (P = 0.15)



C: 1-year mortality

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Kamioka et al. 2018	7	62	7	59	14.7%	0.95 [0.31, 2.88]	2018
Simonetto et al. 2020	8	49	5	29	12.2%	0.94 [0.27, 3.19]	2020
Zubarevich et al. 2021	10	41	6	33	14.2%	1.45 [0.47, 4.52]	2021
Szlapka et al. 2022	13	79	13	79	25.8%	1.00 [0.43, 2.32]	2022
Simard et al. 2022	13	86	23	129	33.1%	0.82 [0.39, 1.72]	2022
Total (95% CI)	51	317	54	329	100.0%	0.97 [0.63, 1.49]	

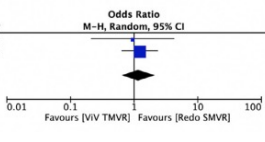
Total events: 51 (VIV TMVR), 54 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 3.69, df = 4 (P = 0.95); I² = 0%
Test for overall effect: Z = 0.13 (P = 0.89)



D: 2-year mortality

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Murzi et al. 2017	3	21	6	40	15.8%	0.94 [0.21, 4.23]	2017
Simard et al. 2022	21	86	27	129	84.2%	1.22 [0.64, 2.34]	2022
Total (95% CI)	24	107	33	169	100.0%	1.17 [0.65, 2.13]	

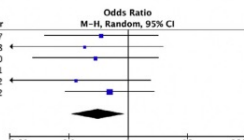
Total events: 24 (VIV TMVR), 33 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 0.09, df = 1 (P = 0.76); I² = 0%
Test for overall effect: Z = 0.52 (P = 0.60)



A: Stroke

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Murzi et al. 2017	1	21	5	40	21.9%	0.35 [0.04, 3.21]	2017
Kamioka et al. 2018	0	62	2	59	11.5%	0.18 [0.01, 3.91]	2018
Simonetto et al. 2020	1	49	2	29	17.9%	0.28 [0.02, 3.25]	2020
Zubarevich et al. 2021	0	41	0	33	Not estimable	Not estimable	2021
Simard et al. 2022	0	86	5	129	12.7%	0.13 [0.01, 2.40]	2022
Szlapka et al. 2022	2	79	4	79	36.0%	0.49 [0.09, 2.74]	2022
Total (95% CI)	338	369	100.0%			0.31 [0.11, 0.88]	

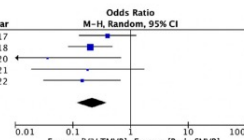
Total events: 4 (VIV TMVR), 18 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 0.75, df = 4 (P = 0.95); I² = 0%
Test for overall effect: Z = 2.21 (P = 0.03)



B: Bleeding complications

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Murzi et al. 2017	6	21	20	40	27.5%	0.40 [0.13, 1.24]	2017
Kamioka et al. 2018	9	62	27	59	46.3%	0.20 [0.08, 0.48]	2018
Simonetto et al. 2020	0	49	6	29	4.1%	0.04 [0.00, 0.68]	2020
Zubarevich et al. 2021	1	41	4	33	7.0%	0.18 [0.02, 1.71]	2021
Szlapka et al. 2022	2	79	12	79	15.0%	0.15 [0.03, 0.67]	2022
Total (95% CI)	18	252	69	240	100.0%	0.21 [0.12, 0.39]	

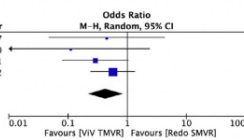
Total events: 18 (VIV TMVR), 69 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 2.93, df = 4 (P = 0.57); I² = 0%
Test for overall effect: Z = 5.09 (P < 0.00001)



C: Acute kidney injury

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Murzi et al. 2017	1	21	4	40	8.7%	0.45 [0.05, 4.31]	2017
Simonetto et al. 2020	0	49	2	29	4.7%	0.11 [0.01, 2.40]	2020
Zubarevich et al. 2021	4	41	9	33	26.8%	0.29 [0.08, 1.04]	2021
Szlapka et al. 2022	10	79	16	79	59.8%	0.57 [0.24, 1.35]	2022
Total (95% CI)	190	190	181	181	100.0%	0.43 [0.22, 0.84]	

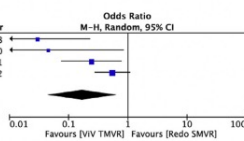
Total events: 15 (VIV TMVR), 31 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 1.54, df = 3 (P = 0.67); I² = 0%
Test for overall effect: Z = 2.48 (P = 0.01)



D: Arrhythmias

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Kamioka et al. 2018	1	62	21	59	20.5%	0.03 [0.00, 0.23]	2018
Simonetto et al. 2020	0	49	5	29	13.6%	0.04 [0.00, 0.85]	2020
Zubarevich et al. 2021	5	41	12	33	30.2%	0.24 [0.08, 0.79]	2021
Szlapka et al. 2022	19	79	29	79	35.7%	0.55 [0.27, 1.09]	2022
Total (95% CI)	231	231	200	200	100.0%	0.17 [0.04, 0.64]	

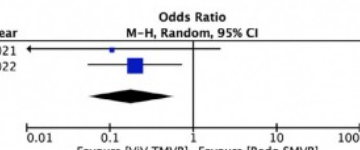
Total events: 25 (VIV TMVR), 67 (Redo SMVR)
Heterogeneity: Tau² = 1.17; Chi² = 10.25, df = 3 (P = 0.02); I² = 71%
Test for overall effect: Z = 2.62 (P = 0.009)



A: Permanent pacemaker

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	M-H, Random, 95% CI	Year
	Events	Total	Events	Total			
Zubarevich et al. 2021	0	41	3	33	15.8%	0.10 [0.01, 2.11]	2021
Szlapka et al. 2022	3	79	13	79	84.2%	0.20 [0.05, 0.73]	2022
Total (95% CI)	3	120	16	112	100.0%	0.18 [0.05, 0.60]	

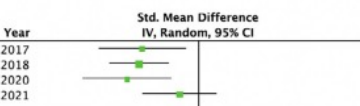
Total events: 3 (VIV TMVR), 16 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 0.15, df = 1 (P = 0.70); I² = 0%
Test for overall effect: Z = 2.81 (P = 0.005)



B: Hospital LOS

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	Std. Mean Difference, IV, Random, 95% CI	Year		
	Mean	SD	Mean	SD					
Murzi et al. 2017	9	7	21	14	7	40	20.0%	-0.71 [-1.25, -0.16]	2017
Kamioka et al. 2018	6.3	4.8	62	10.6	6.6	59	34.6%	-0.74 [-1.11, -0.37]	2018
Simonetto et al. 2020	6.3	4.1	27	11	6	29	19.6%	-0.90 [-1.45, -0.34]	2020
Zubarevich et al. 2021	9.7	5.4	41	11	5.4	33	25.7%	-0.24 [-0.70, 0.22]	2021
Total (95% CI)	151		161		100.0%			-0.64 [-0.91, -0.36]	

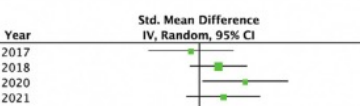
Total events: 151 (VIV TMVR), 161 (Redo SMVR)
Heterogeneity: Tau² = 0.02; Chi² = 4.11, df = 3 (P = 0.25); I² = 27%
Test for overall effect: Z = 4.53 (P < 0.00001)



C: Mean MV gradient

Study or Subgroup	VIV TMVR		Redo SMVR		Weight	Std. Mean Difference, IV, Random, 95% CI	Year		
	Mean	SD	Mean	SD					
Murzi et al. 2017	5.5	2.1	21	5.8	3.1	40	18.7%	-0.11 [-0.63, 0.42]	2017
Kamioka et al. 2018	7.1	2.5	62	6.5	2.5	59	38.9%	0.24 [-0.12, 0.60]	2018
Simonetto et al. 2020	6.7	1.2	27	5.7	2.1	29	18.2%	0.57 [0.04, 1.11]	2020
Zubarevich et al. 2021	4.2	0.8	41	3.9	1.2	33	24.2%	0.30 [-0.16, 0.76]	2021
Total (95% CI)	151		161		100.0%			0.25 [0.02, 0.48]	

Total events: 151 (VIV TMVR), 161 (Redo SMVR)
Heterogeneity: Tau² = 0.00; Chi² = 3.17, df = 3 (P = 0.37); I² = 5%
Test for overall effect: Z = 2.09 (P = 0.04)





Conclusions

Valve In Valve Mitral

- VinV mitrale : option thérapeutique acceptable (les données préliminaires montrent des résultats favorables en termes de sécurité et d'efficacité)
- Simple à mettre en place pour le cardio inter aguerrit au TAVi et au transeptal
- Risque limité et ô combien efficace pour les patients
- Bel avenir pour le traitement percutané dans la dégénérescence de bioprothèse (Ex: TAVI = référence)
- En outre, ces procédures balisent le chemin pour l'implantation valvulaire percutanée dans l'appareil valvulaire mitral natif



Remerciements

A l'ensemble de l'équipe du Cath'lab du CHU de reims

- Et plus particulièrement aux Dr A.Villecourt et Dr L.Faroux

- Et sans oublier les organisateurs de ce très beau congrès