

HIGHTECH

MARSEILLE

29-31
JANVIER
2025

MARSEILLE
PALAIS DU PHARO

WWW.HIGHTECH-CARDIO.ORG



Un Ross qui dégénère...

Dr Camille WEHRLIN, Centre Cardio Thoracique de Monaco



MONACO
CARDIO
THORACIC
CENTER

Aucun conflit d'intérêt à déclarer

Mr M. 52 ans

Antécédent

Chirurgie de ROSS 1994 + reconstruction de la racine aortique et second temps double PAC (MIG IVA - Saphène Mg)

Clinique

Dyspnée NYHA III

FEVG sévèrement altérée 25%

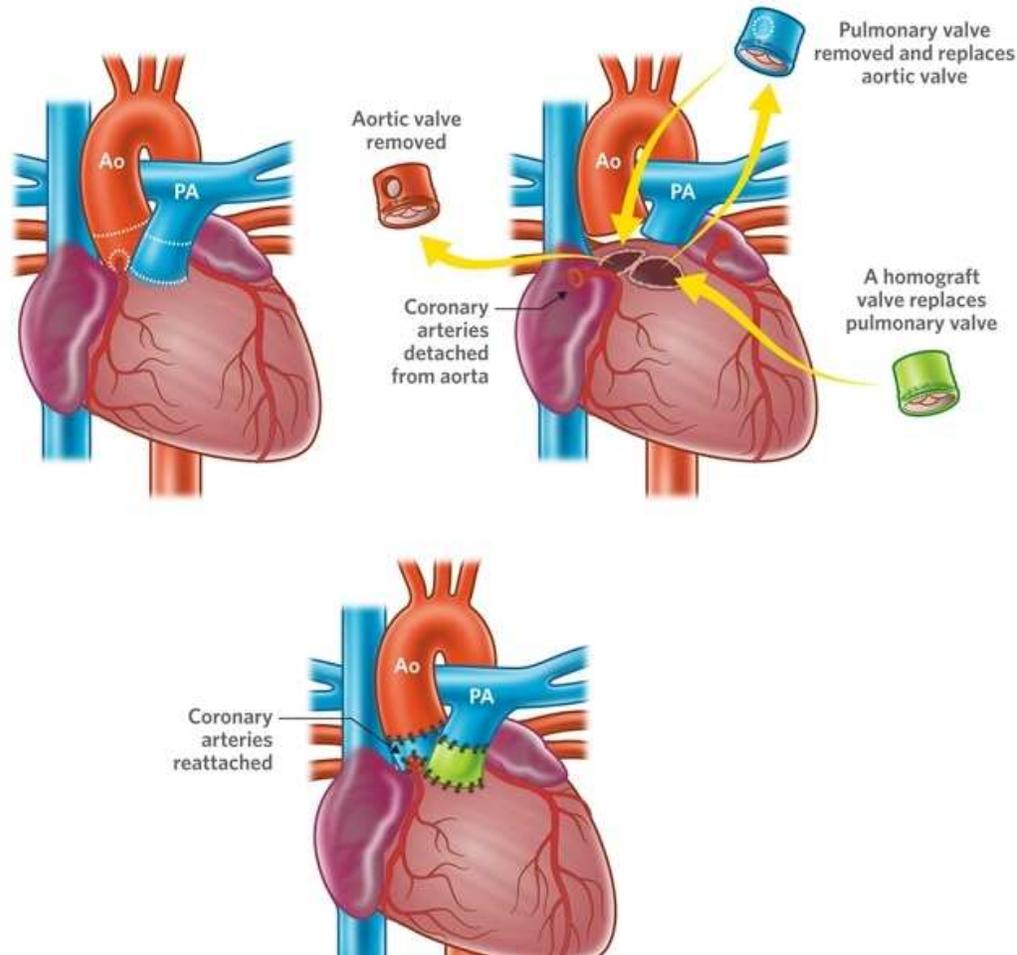
IAO sévère sur une dégénérescence fuyante de l'autogreffe et dilatation racine aortique 49mm

Patient médecin, en activité, récusé pour chirurgie tridux au staff médicochirurgical

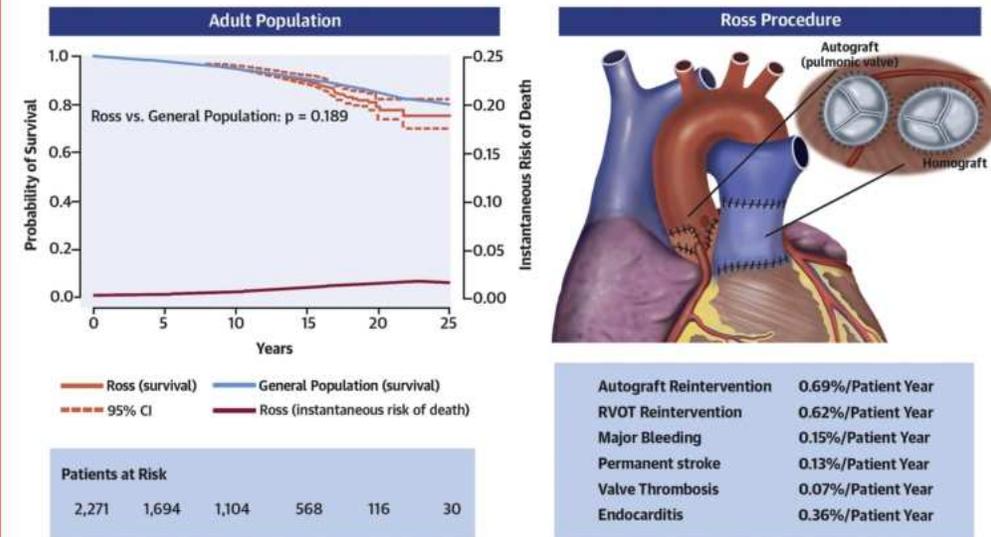
Procédure de ROSS



Ross operation (pulmonary autograft)



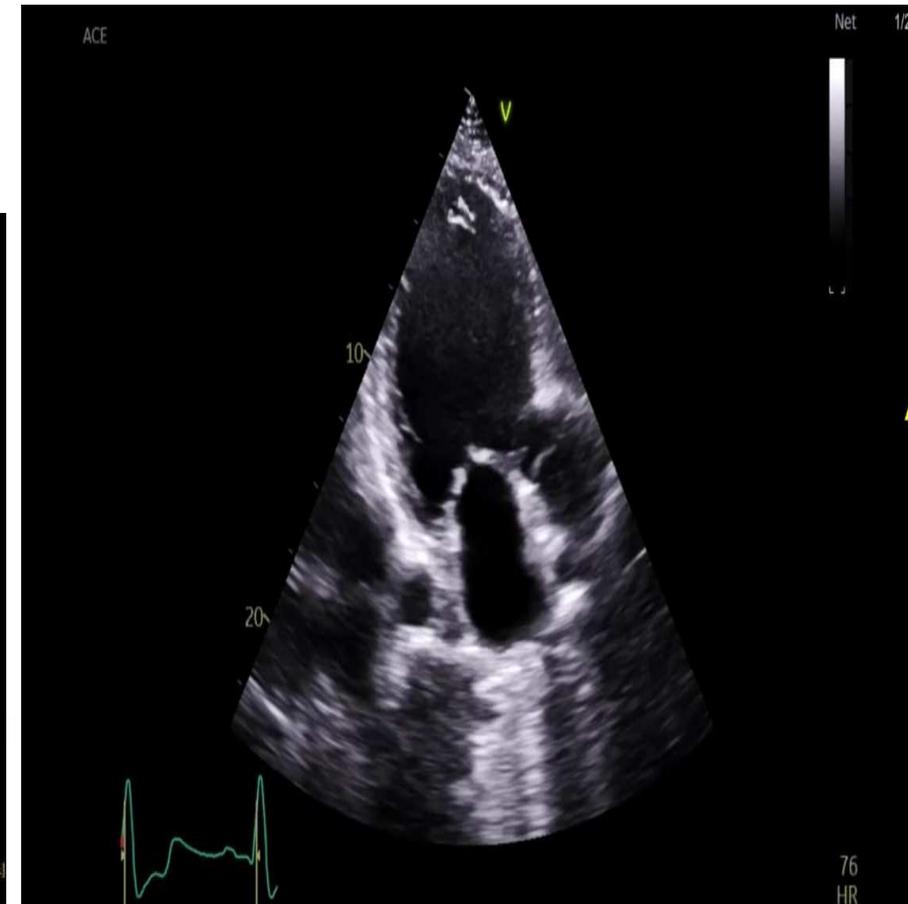
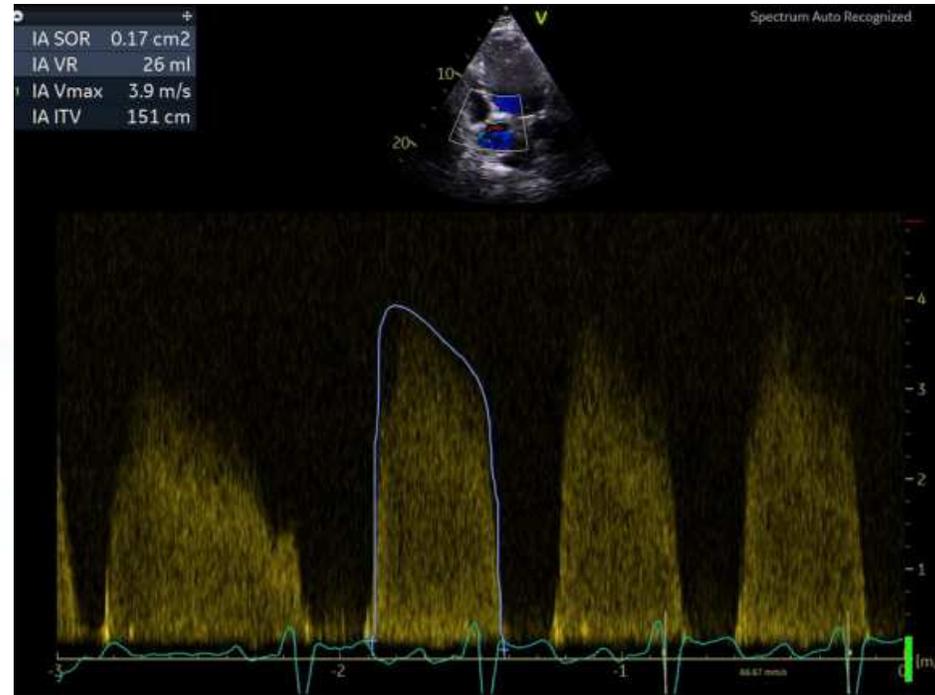
CENTRAL ILLUSTRATION: Overall Survival of Patients After Ross Procedures



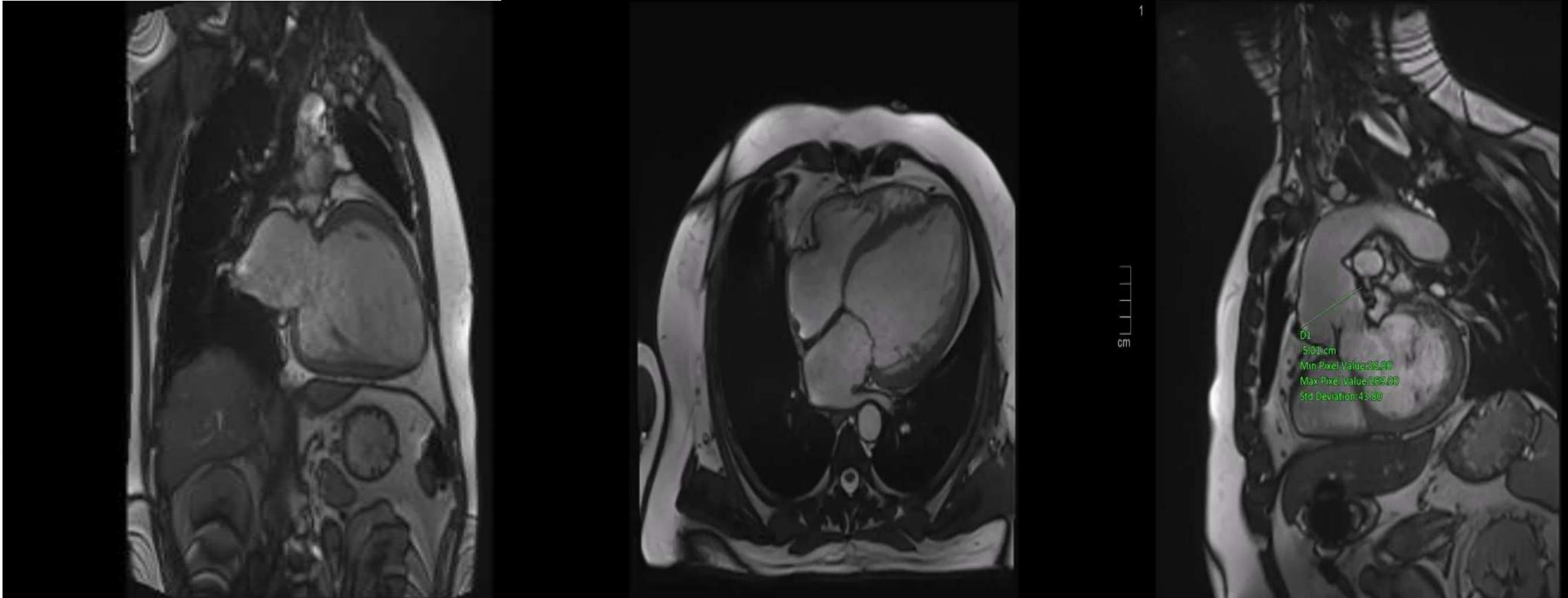
Aboud, A. et al. J Am Coll Cardiol. 2021;77(11):1412-22.

ETT

IAO pure dilatation VG FE 25-30%



IRM



Bilan de faisabilité TAVI : TDM



Bilan de faisabilité TAVI : TDM

Live case #6 - IAO ● En direct

SIEMENS Healthineers

TRIAL (62 days left)

Getting Started

Orientation

Measurements

Report

Aortic Valve ES

Workflow Assistant

1. Define Centerline
2. Adjust Annulus Plane
3. Measurements

Virtual Valve

Edit Orientation

Offset (mm)

Calcium Quantification

Threshold (HU)

Score Leaflets Separately

Export...

Perpendicular Plane

RC

LC

NC

Min: 0.294 mm
Max: 0.340 mm
Avg: 0.317 mm
Area derived @: 31.5 mm²
Perimeter derived @: 31.5 mm
Area: 781.5 mm²
Perimeter: 99.8 mm

Distance: 0.1 mm

Angio

RAO: 0°
Caudal: 0°

Hockey Puck (MIP)

LC

NC

CAV1 CRA

RAO

LAO

RAO: 59°
Caudal: 21°

Stretched Vessel

Stretched Vessel

XA TAVI TAVI 0,80 Bv44 Q4 67%
5/23/2024
91.0%

Basal plane
Cursor

Distance: 0.1 mm

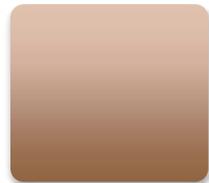
Distance: 0.1 mm

3mensio

Pourquoi un TAVI ?



Patient refused redo-surgery as he wants to continue his physical activity



High Surgical Risk
EuroSCORE II estimated as 28.3%.



Despite optimal therapy, no major impact on EF and persistence of severe AR



Heart Transplantation was also discussed but refused by the patient

Bilan faisabilité TAVI : problématique

- Taille anneau
- Peu de calcifications
- Dilatation du VG
- Angle aorte 90°
- Approche verticale
- Position basse ostium CD
- Age

Choix de la prothèse TAVI la plus adaptée

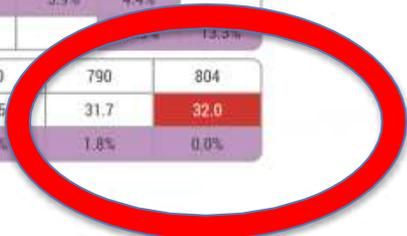
Diameter (mm)	Perimeter (mm)	Area (mm ²)	Sapien 3*				Evolut R				Acurate Neo			Portico				Lotus			JenaValve†			Allegra			
			20	23	26	29	23	26	29	34	S	M	L	23	25	27	29	23	25	27	23	25	27	23	27	31	
17.8	56	250					56.5																				
18.2	57.1	260																									
18.5	58.2	270	273																								
18.9	59.3	280												60													
19.2	60.4	290																							19		
19.5	61.4	300																									
19.9	62.4	310					62.8										62.8										
20.2	63.4	320																									
20.5	64.4	330																									
20.8	65.3	340	345	338																							
21.1	66.3	350								66			66								21						
21.4	67.2	360																									
21.7	68.2	370																									
22	69.1	380								72											22.9				22		
22.3	70	390																									
22.6	70.9	400																									
22.9	71.8	410																									
23.1	72.6	420					72.3						73	72			72.3					23					
23.4	73.5	430	430																								
23.7	74.3	440																									
23.9	75.2	450																									
24.2	76	460																									
24.5	76.8	470																									
24.7	77.6	480																									
25	78.4	490								79			79				78.5				24.9	25			25		
25.2	79.2	500																									
25.5	80	510																									
25.7	80.8	520																									
26	81.6	530					81.7																				
26.2	82.4	540																									
26.5	83.1	550				546	540																				
26.7	83.9	560																									
26.9	84.6	570																									
27.2	85.4	580										85		85			84.8				27						
27.4	86.1	590																									
27.6	86.8	600																									
27.9	87.5	610																									
28.1	88.2	620																									28
28.3	89	630																									
28.6	89.7	640																									
28.8	90.4	650																									
29	91	660																									
29.2	91.7	670																									
29.4	92.4	680					680																				
29.6	93.1	690																									
29.9	93.8	700																									
30.1	94.4	710																									

Choix de la prothèse TAVI la plus adaptée

Myval THV Detailed Sizing Guide

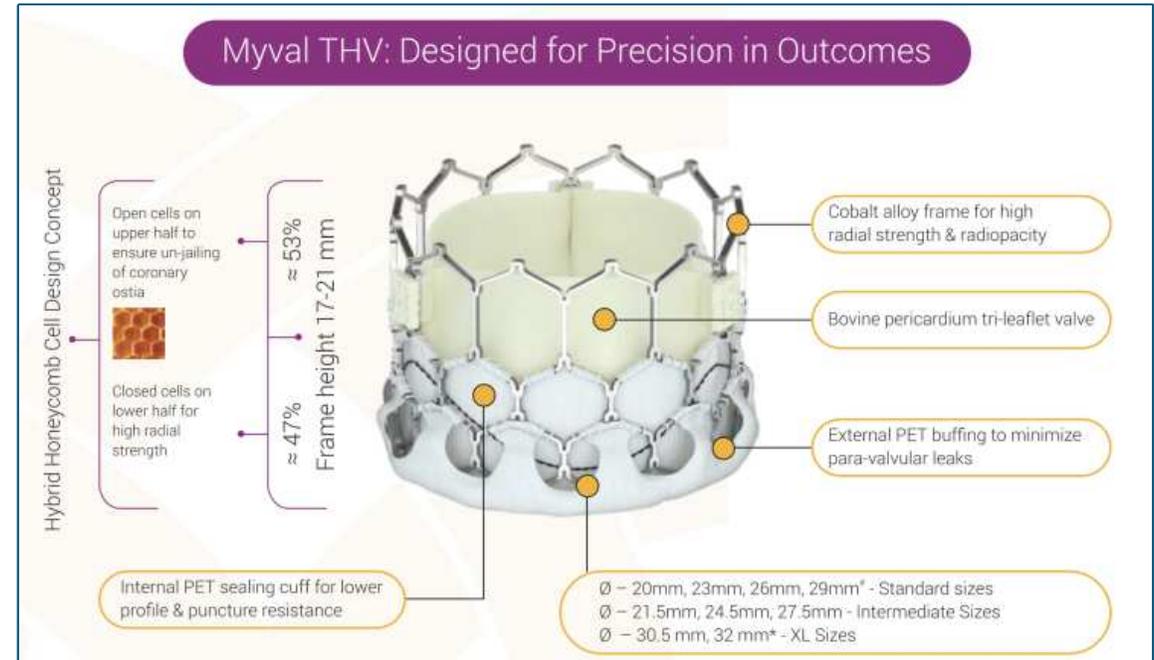
3D Annular area mm ²		270	280	290	300	310	314	320	330	340	350	
3D area derived diameter mm		18.5	18.9	19.2	19.5	19.9	20.0	20.2	20.5	20.8	21.1	
% Annular area over/under	20 mm	16.4%	12.2%	8.3%	4.7%	1.3%						
	21.5 mm						16%	13%	10%	7%	4%	
	23 mm											
3D Annular area mm ²		370	380	390	400	410	415	420	430	440	450	460
3D area derived diameter mm		21.7	22.0	22.3	22.6	22.8	23.0	23.1	23.4	23.7	23.9	24.2
% Annular area over/under	23 mm	12.3%	9.3%	6.5%	3.9%	1.3%						
	24.5 mm					15.0%	13.6%	12.2%	9.6%	7.1%	4.8%	2.5%
	26 mm											
3D Annular area mm ²		480	490	500	510	520	531	540	550	560	570	580
3D area derived diameter mm		24.7	25.0	25.2	25.5	25.7	26.0	26.2	26.5	26.7	26.9	27.2
% Annular area over/under	26 mm	10.6%	8.4%	6.2%	4.1%	2.1%						
	27.5 mm					14.2%	11.9%	10.0%	8.0%	6.1%	4.2%	
	29 mm											13.9%
3D Annular area mm ²		600	610	620	630	640	650	661	670	680	690	700
3D area derived diameter mm		27.6	27.9	28.1	28.3	28.5	28.8	29.0	29.2	29.4	29.6	29.9
% Annular area over/under	29 mm	10.1%	8.3%	6.5%	4.8%							
	30.5 mm					14.2%	12.4%	10.5%	9.0%	7.4%	5.9%	4.4%
	32 mm											
3D Annular area mm ²		720	731	740	750	760	770	780	790	804		
3D area derived diameter mm		30.3	30.5	30.7	30.9	31.1	31.3	31.5	31.7	32.0		
% Annular area over/under	32 mm	11.7%	10.0%	8.7%	7.2%	5.8%	4.4%	3.1%	1.8%	0.0%		

Commercially available THVs					
	Self-expanding THVs			Balloon-expandable THVs	
	Evolute PRO+	Accurate Neo2	Navitor	Myval	Sapien Ultra 3
					
Frame	Nitinol	Nitinol	Nitinol	Cobalt-Nickel	Cobalt-Chromium
Valve tissue	Porcine Pericardial	Porcine Pericardial	Bovine pericardial	Bovine pericardial	Bovine pericardial
Valve sizes (mm)	23, 26, 29, 34	23, 25, 27	23, 25, 27, 29	20, 21.5, 23, 24.5, 26, 27.5, 29, 30.5, 32	20, 23, 26, 29
Sheath sizes (Fr)	14 (23, 26, 29 mm) 18 (34 mm)	14	14 (23, 25 mm) 15 (27, 29 mm)	14	14 (20, 23, 26 mm) 16 (29 mm)
Design	Supra-annular	Supra-annular	Intra-annular	Intra-annular	Intra-annular
Repositioning	Yes	No	Yes	No	No



Procédure

- AG
 - Double abord fémoral 14F/5F
 - Abord radial gauche 5F
 - Introducteur PYTHON
 - SAFARI L (5cm)
 - Myval OPTACOR 32mm
(+4cc)
- Et...stand by chirurgical



Live case #6 - IAO

● En direct



06/2024
:35:17
2/24

10 sec

0% IQ = 1.986

VI Faible Dose



PHENO04
VE30A.221220
HFS
AE

RB 20%

Live case #6 - IAO

• En direct



Live case #6 - IAO

● En direct

06/2024
05:24



Live case #6 - IAO

PHENO04
VE30A.221220
HFS
AE

13/06/2024
17:08:48
8 - 32/32
3.01 sec

100% IQ = 1.828
TAVI Faible Dose
cm 32
A

2^e angiographie

WC-2000

PACS

En direct

Partage 3D

centre cardio thoraciqu...
NAEOTOM Alpha
syngo CT VB10A
HFS

RA

Anesthésie 1

17:06

89

110/58 (79)

7,5

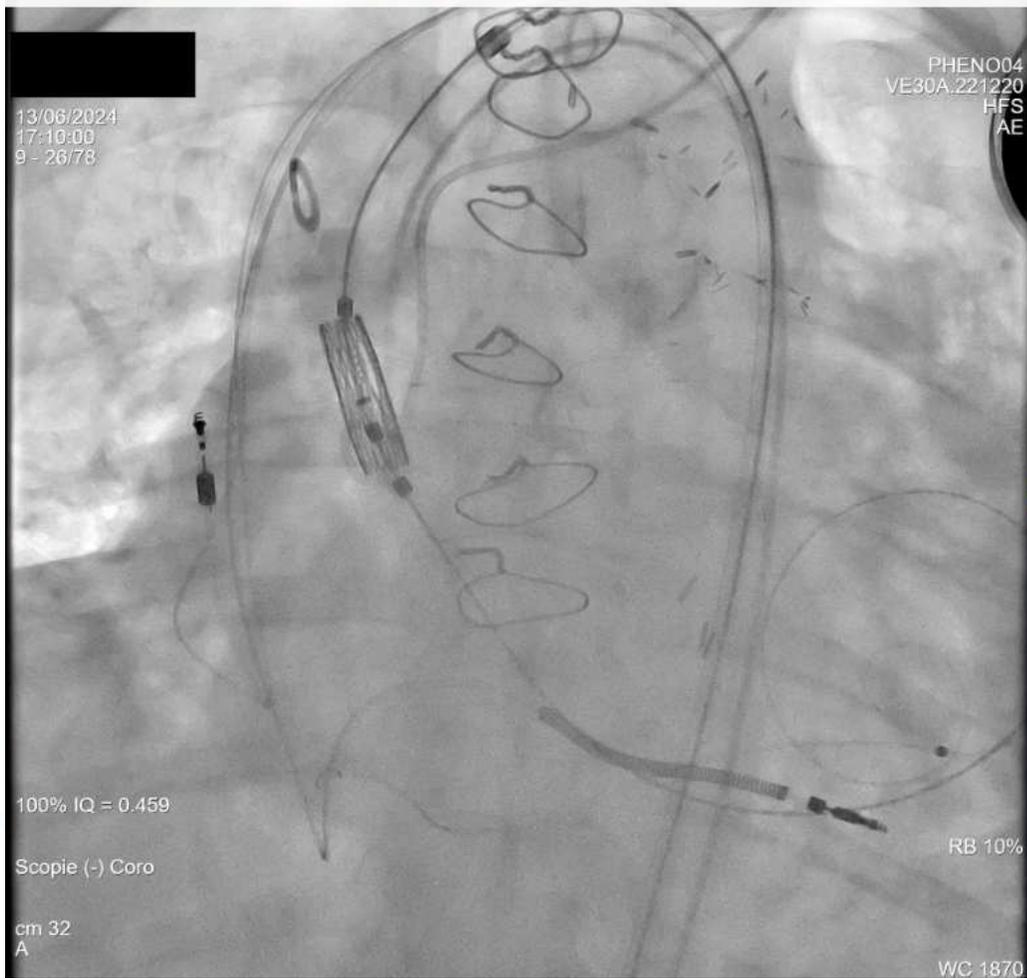
93

95/36

(60)

Live case #6 - IAO

En direct



En direct

17:07

92

92/55 = (70)

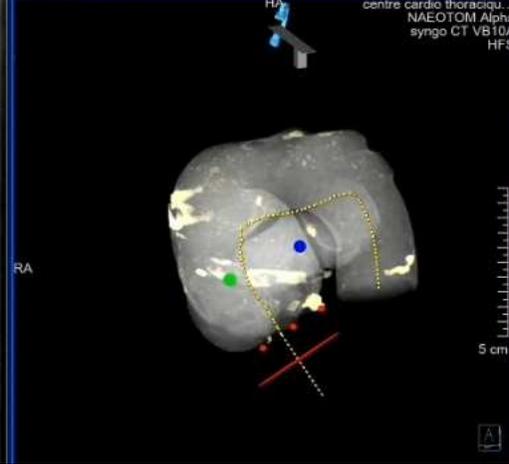
3,8

93

95/36

(60)

Partage 3D



Anesthésie 1

17:07

92

92/55 = (70)

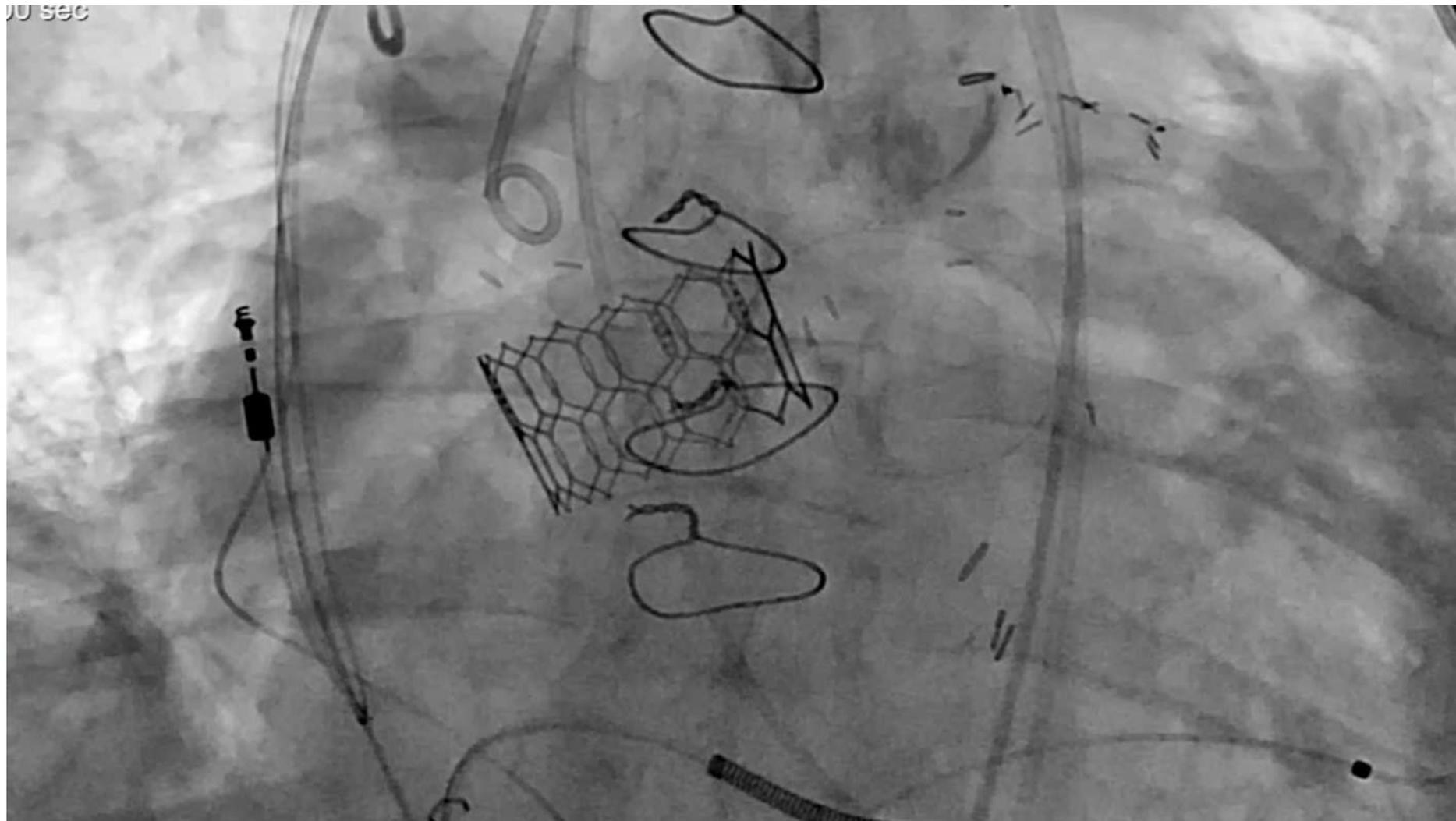
3,8

93

95/36

(60)

Résultat final



Take home message

- Mesures précises et connaissance technique de l'anatomie de votre valve
- Le VIV doit être pris en compte dans les scénarios cliniques à haut risque
- Futurs dispositifs pour traitement de l'anneau X-Large nécessaires