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IX CONGRESSO NAZIONALE ECOCARDIOCHIRURGIA 2017

MITRACLIP E TAVI: PROCEDURE IN CONTINUA EVOLUZIONE

***"Ecocardiografia TEE 3D nell'assistenza alle procedure
interventistiche. Come evitare pericolosi errori di
posizionamento dei devices"***

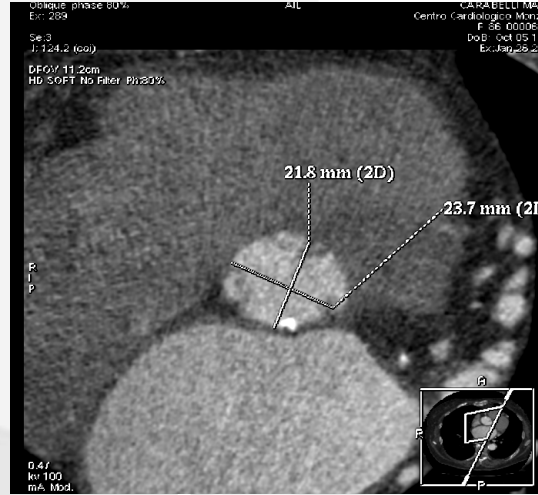
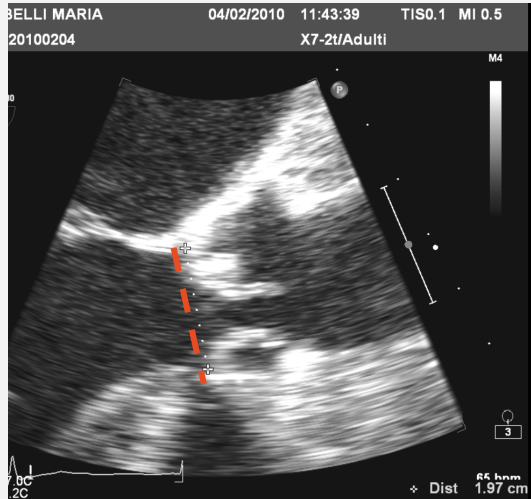
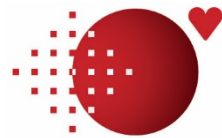
Gloria Tamborini

***Responsabile Servizio Interventistica Strutturale
Centro Cardiologico Monzino, IRCCS, Milano***

Come evitare pericolosi errori di posizionamento dei devices ?

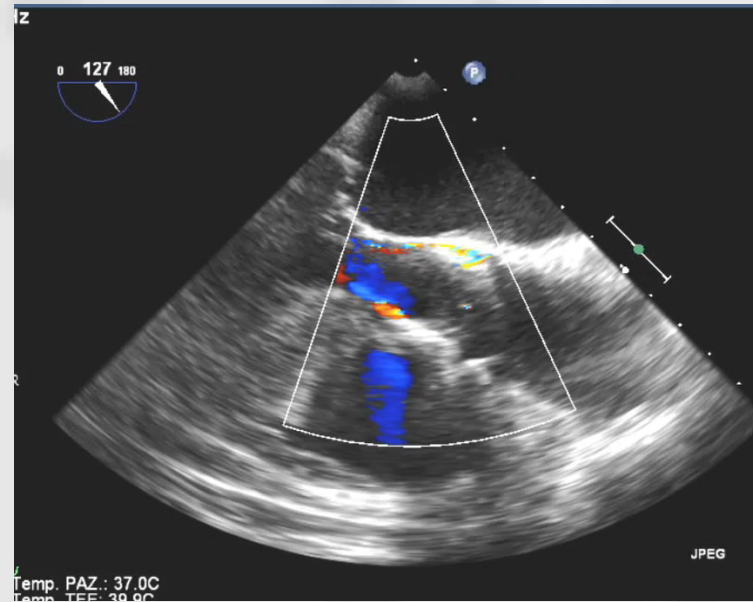
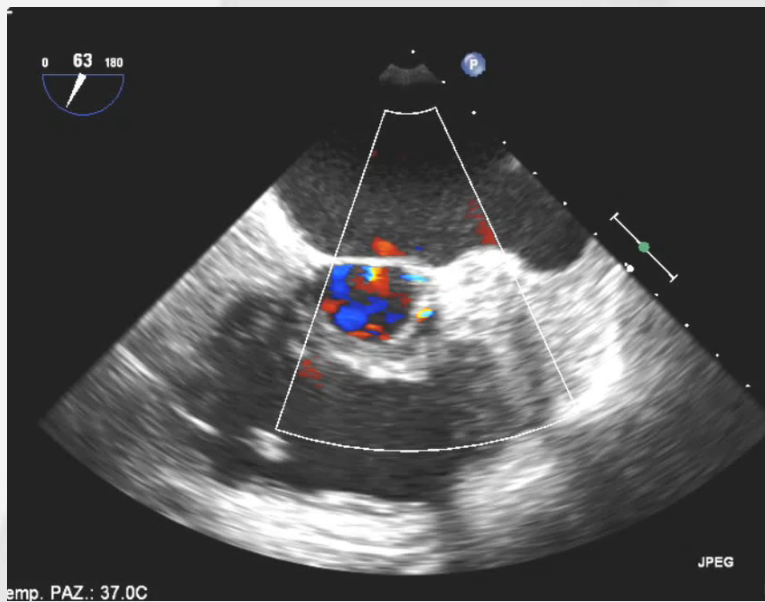
- 1. Il device deve essere di size corretto**
- 2. Il device deve essere impiantato nella corretta sede**
 - x non**
 - a) Dislocarsi**
 - b) Interferire con le coronarie**
 - c) Interferire con la mitrale**
 - d) Avere rigurgito**

Giusto sizing della protesi: Caso 1:

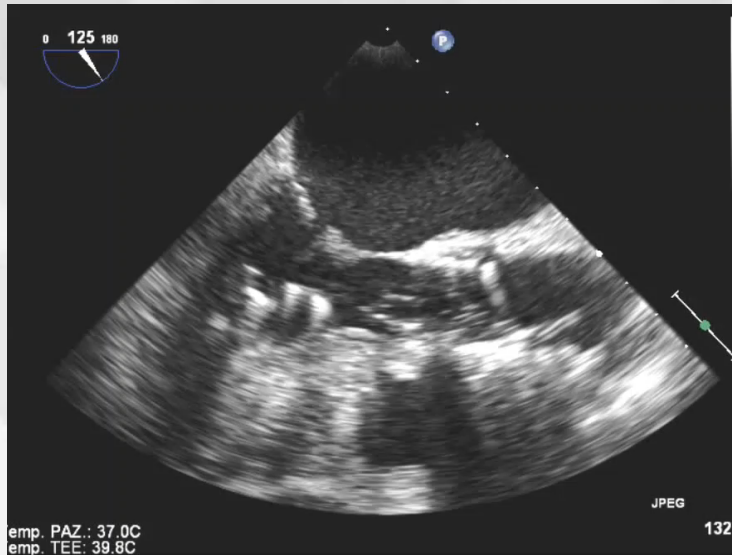


Medtronic CoreValve	Edwards Sapien XT
Aortic annulus diameter	
26-mm prosthesis: 20-23 mm 29-mm prosthesis: 23-27 mm 31-mm prosthesis: 26-29 mm	23-mm prosthesis: 18-22 mm 26-mm prosthesis: 21-25 mm 29-mm prosthesis: 24-27 mm
Minimum iliofemoral diameter	
26-mm prosthesis: ≥ 6 mm 29-mm prosthesis: ≥ 6 mm 31-mm prosthesis: ≥ 6 mm	23-mm prosthesis: ≥ 5.3 mm 26-mm prosthesis: ≥ 6 mm

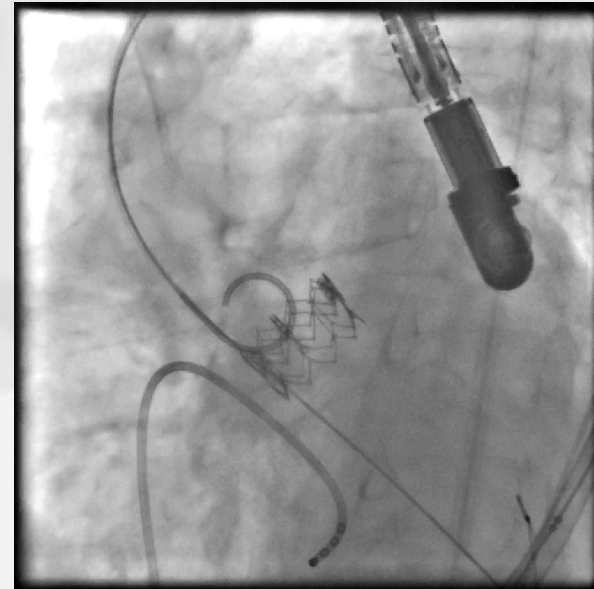
Diametro 2DTTE 20 mm, TAC 21,8 x 23.7 mm >>scelta ES N° 23



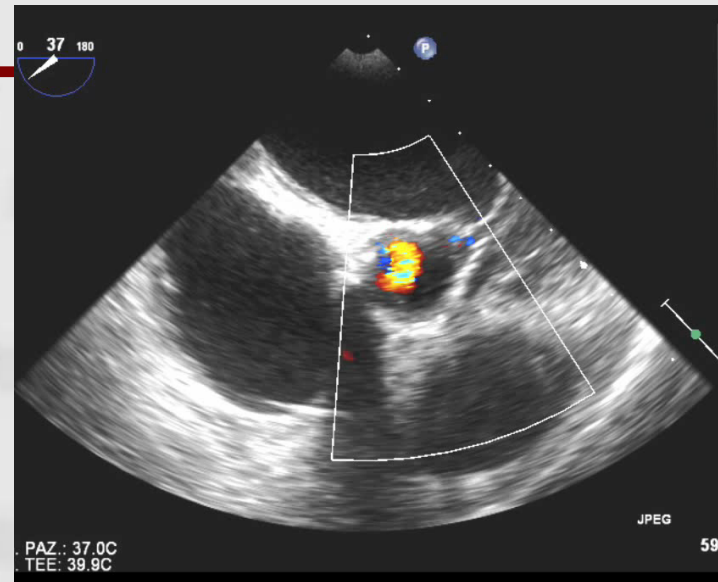
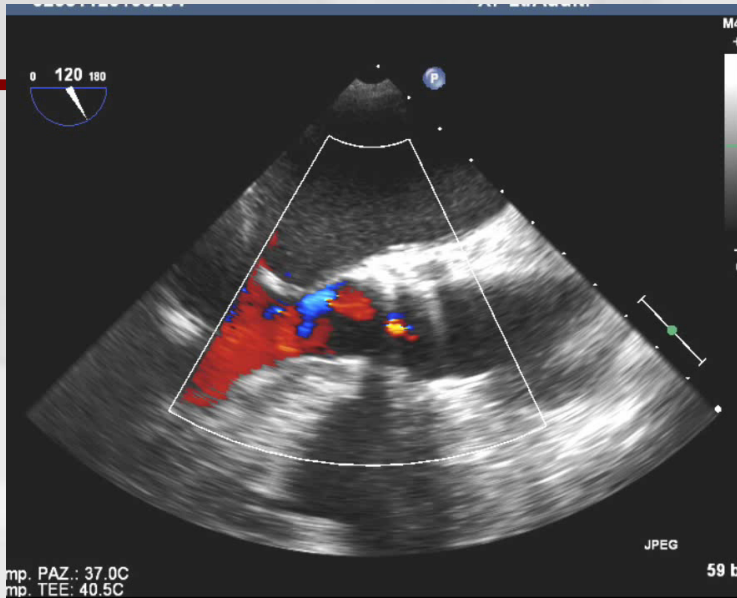
reballooning



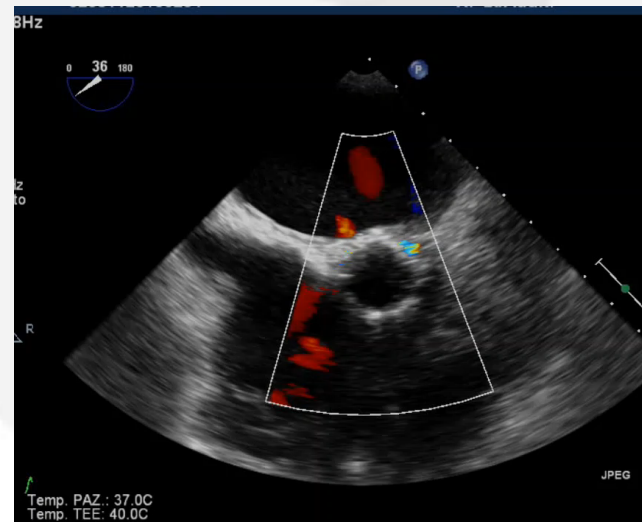
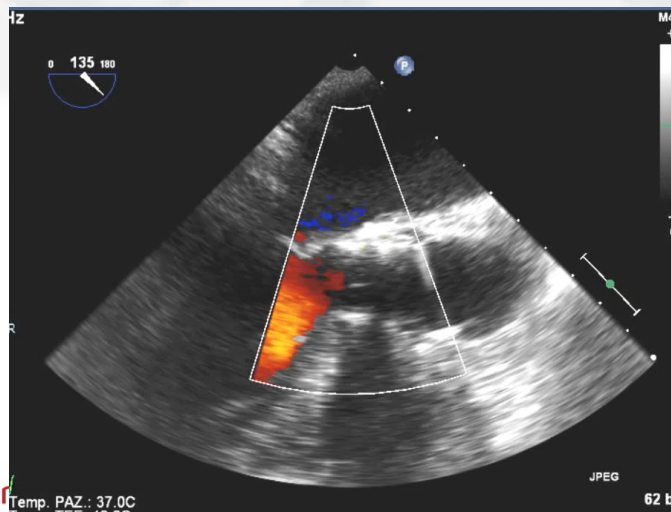
Post-reballooning



Dopo reballoning



Dopo l'impianto di una seconda protesi : Valve in valve



CLINICAL RESEARCH

Interventional Cardiology

Multimodal Assessment of the Aortic Annulus Diameter

Implications for Transcatheter Aortic Valve Implantation

David Messika-Zeitoun, MD, PhD,*† Jean-Michel Serfaty, MD, PhD,† Eric Brochet, MD,‡

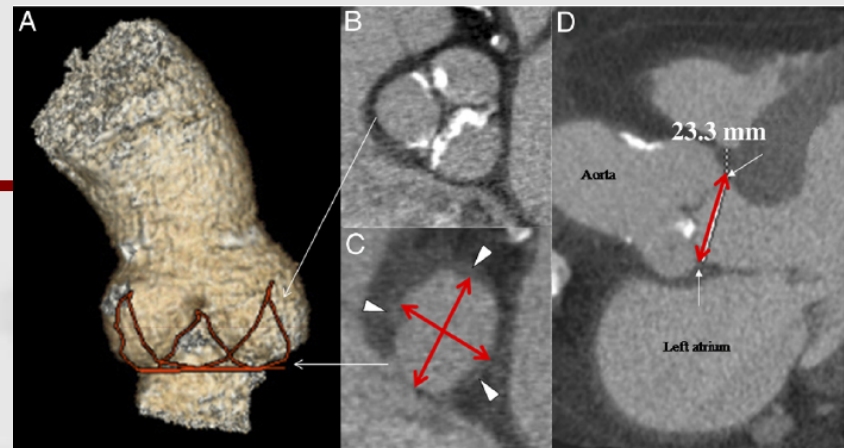
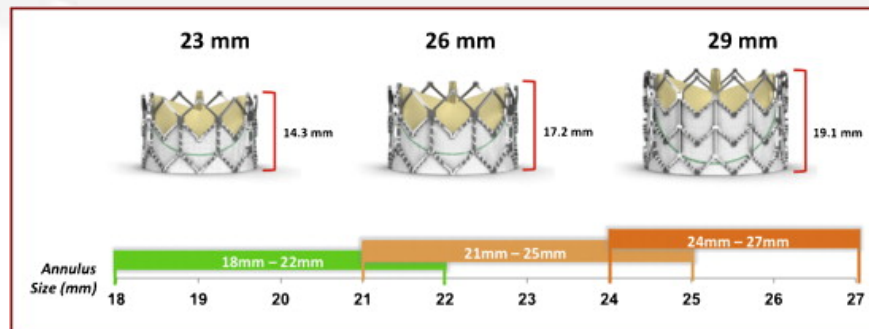


Table 2 Impact of the Method of Aortic Annulus Measurement on TAVI Strategy

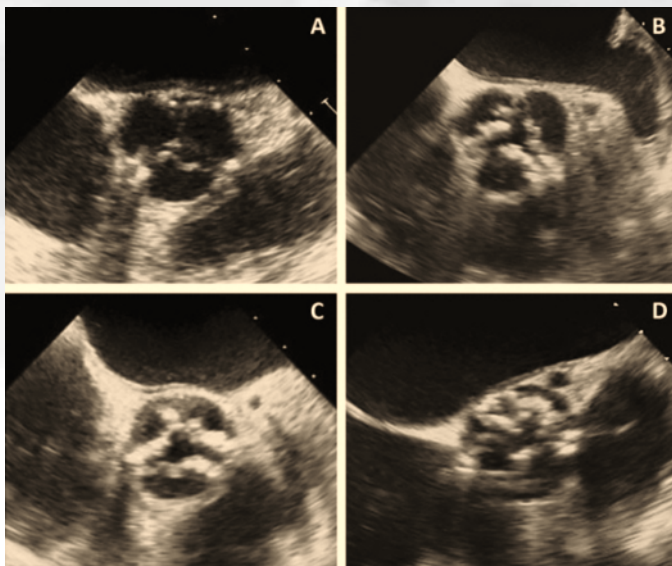
	TAVI Strategy			Agreement With TTE		Agreement With TEE	
	23-mm Prosthesis	26-mm Prosthesis	No Implantation	n (%)	Kappa	n (%)	Kappa
Echocardiographic measurements							
TTE	5	29	11	—	—	37 (83)	0.68
TEE	6	25	14	37 (83)	0.68	—	—
MSCT measurements							
Virtual basal ring							
Long-axis	0	10	35	16 (36)	0.03	19 (42)	0.07
Short-axis	16	21	8	21 (47)	0.13	19 (42)	0.09
Mean	4	24	17	28 (62)	0.32	28 (62)	0.34
3-chamber view	7	25	13	27 (60)	0.28	26 (58)	0.27



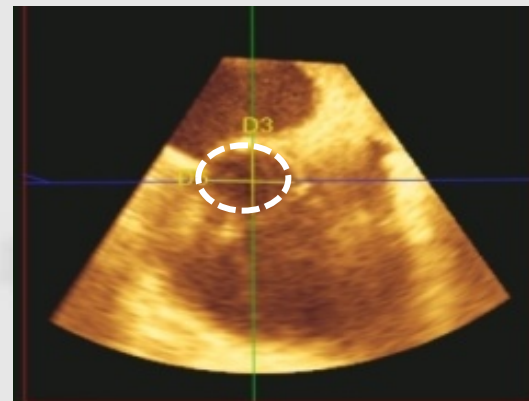
Intraoperative 2D and 3D transoesophageal echocardiographic predictors of aortic regurgitation after transcatheter aortic valve implantation

Paola Gripari,¹ See Hooi Ewe,² Laura Fusini,¹ Manuela Muratori,¹
Arnold C T Ng,³ Claudia Cefalù,¹ Victoria Delgado,² Martin J Schalij,²
Jeroen J Bax,² Nina Ajmone Marsan,² Gloria Tamborini,¹ Mauro Pepi¹

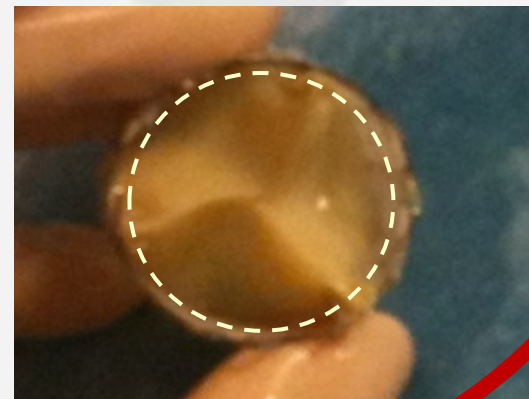
Commissural calcifications



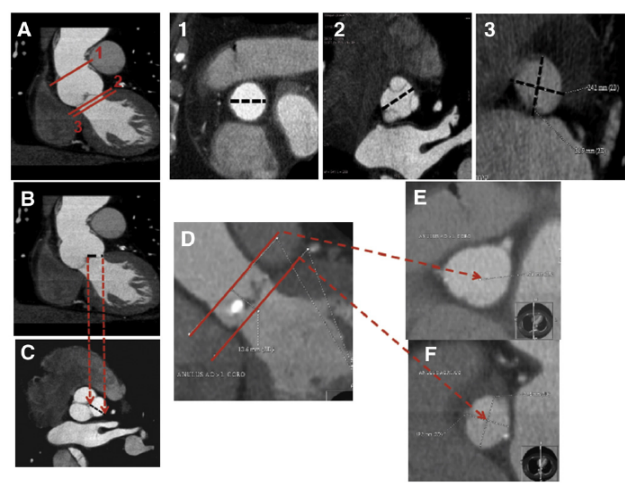
Area cover index



1 -

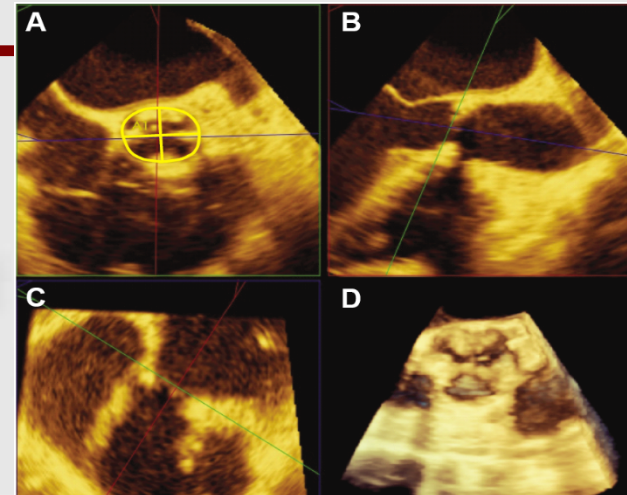


TAC



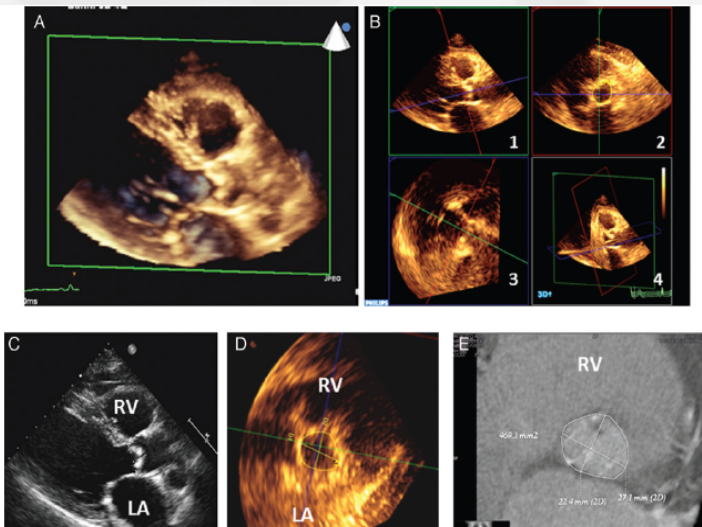
Pontone et al. Am Heart 2011

3DTEE



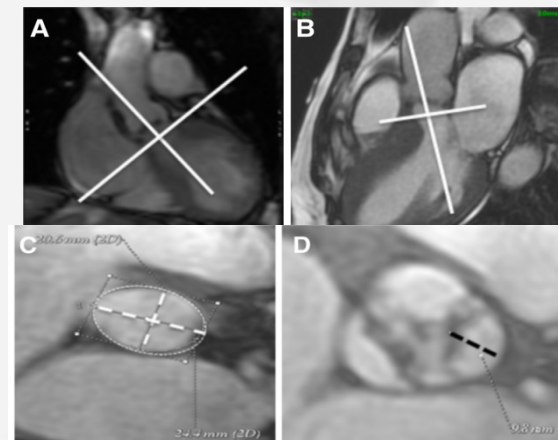
Tamborini G. et al. Jacc Imaging 2012

3DTTE



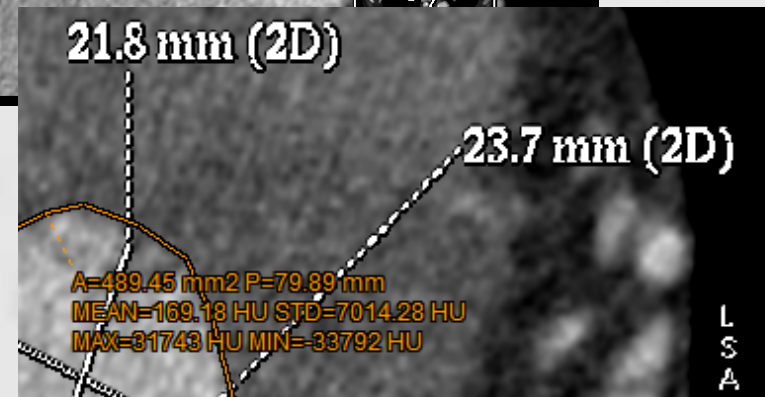
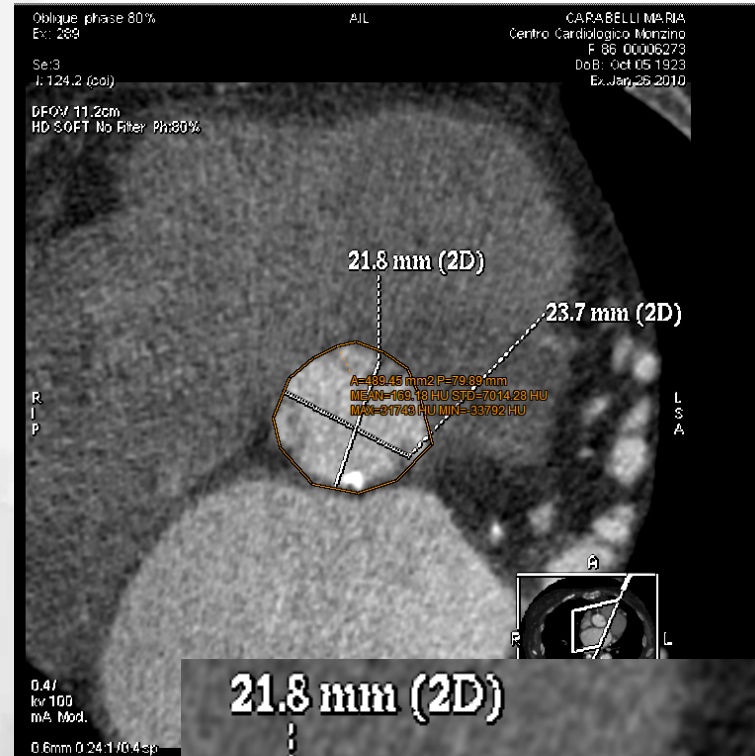
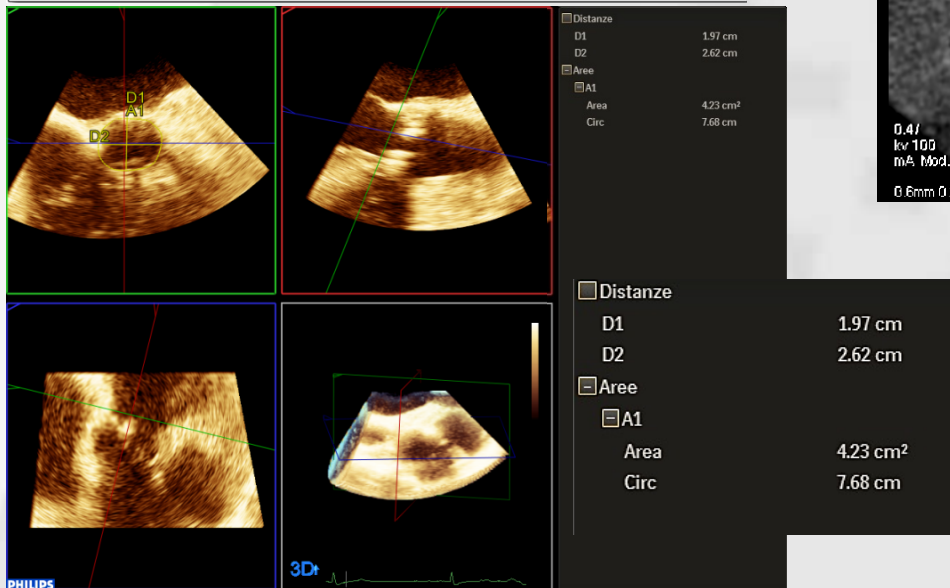
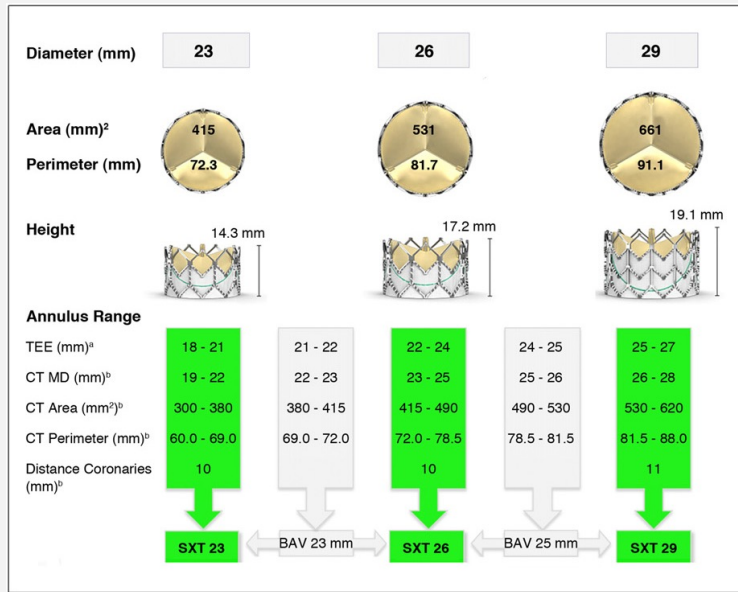
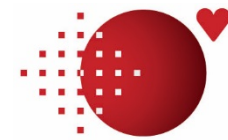
Tamborini G. et al. Eur Heart J. 2014

RMN

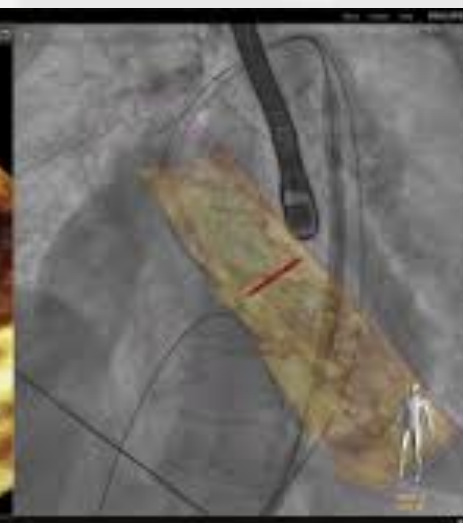
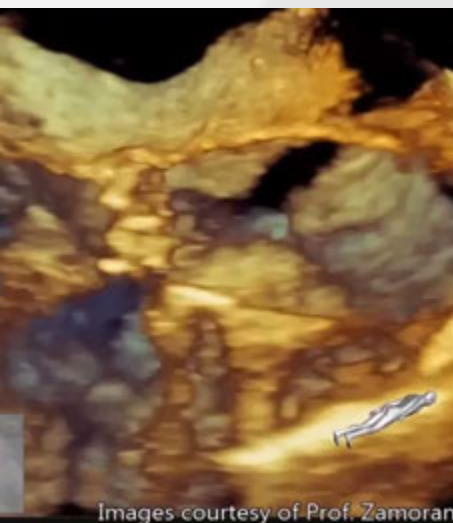
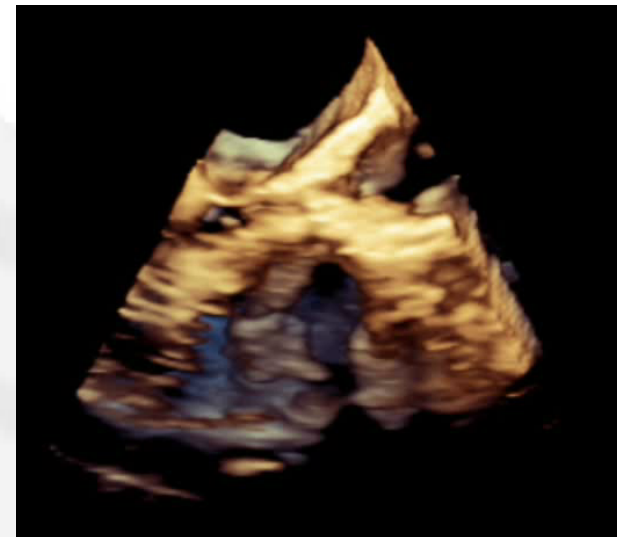
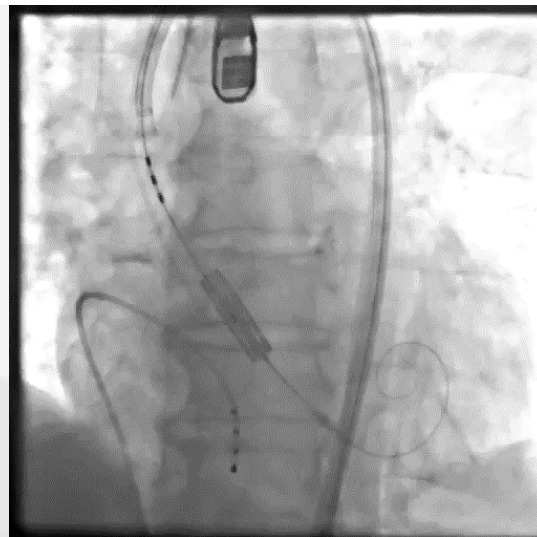
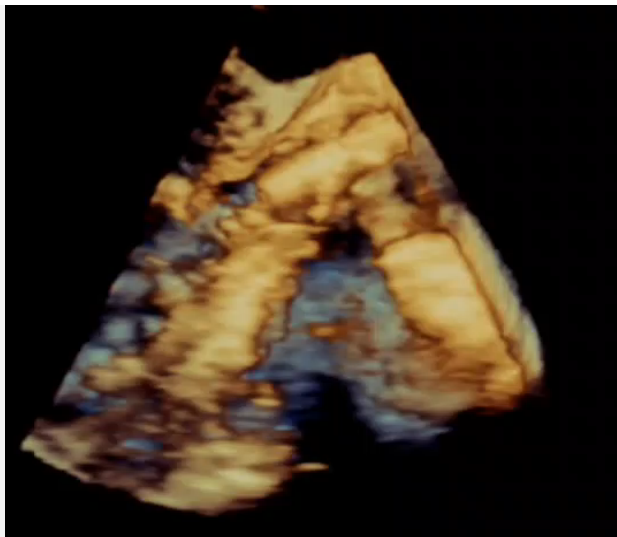


Pontone et al. Am J Cardiol 2013

....Se avessimo usato un dato 3D ?

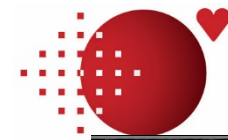


2) Il device deve essere impiantato nella corretta sede

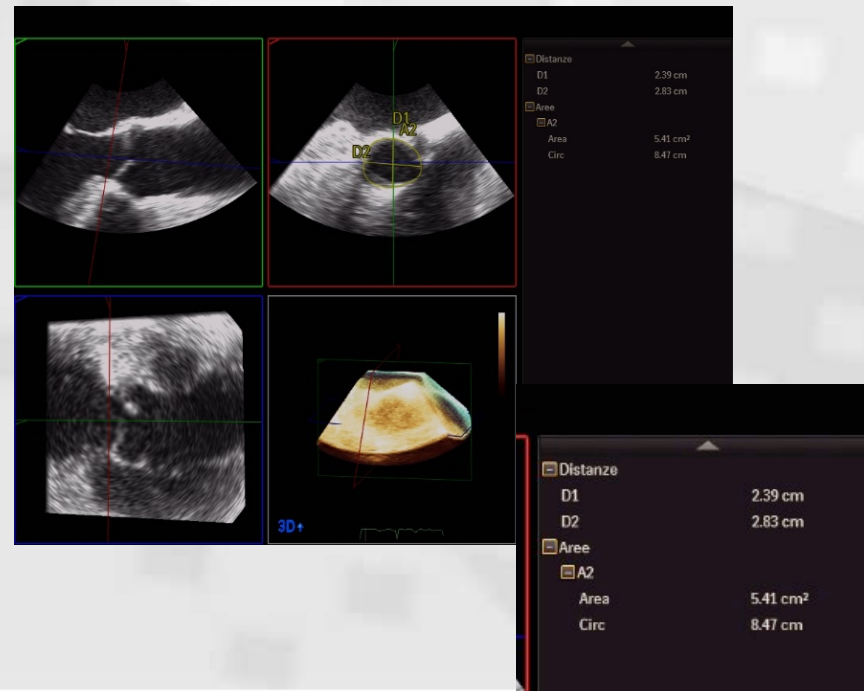
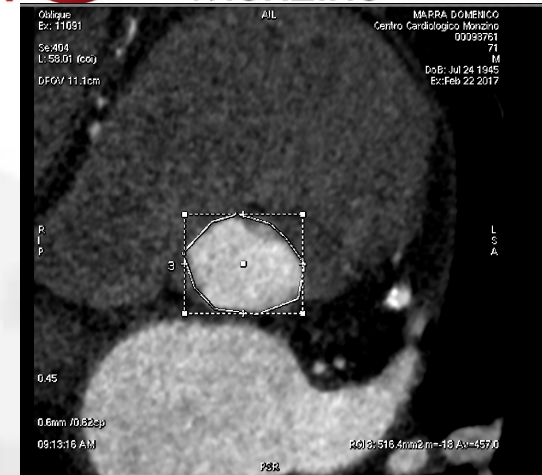
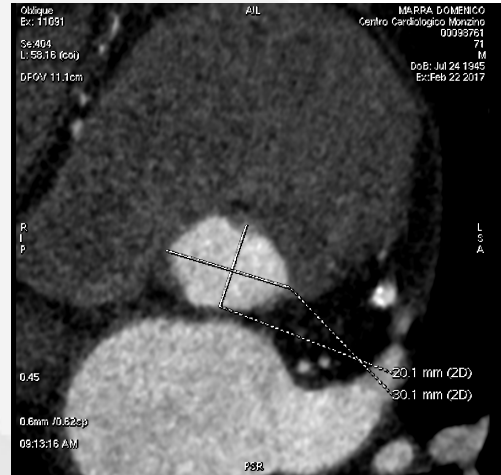


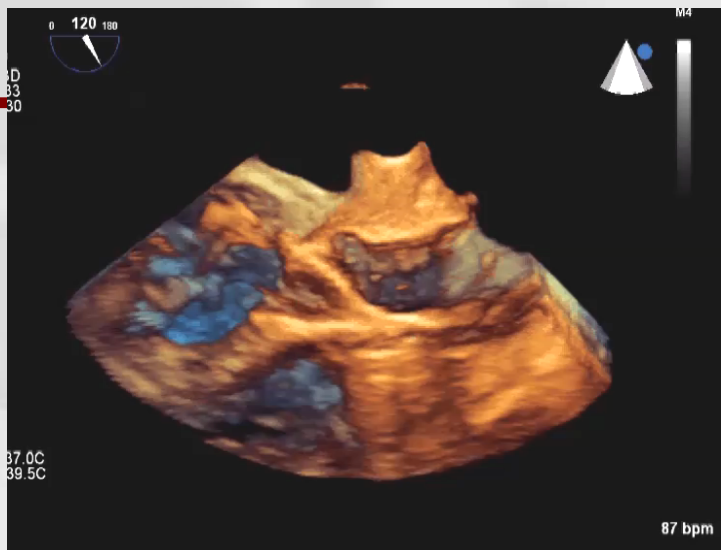
Images courtesy of Prof. Zamorano, Hospital Ramón y Cajal, Madrid

a) PER NON DISLOCARSI: CASO 2



Centro Cardiologico
Monzino

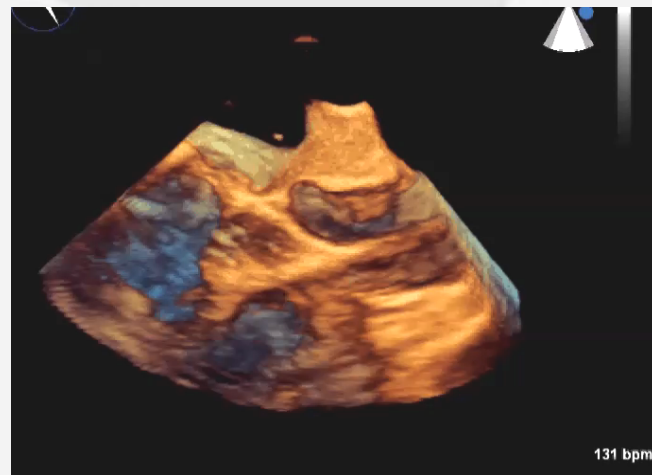
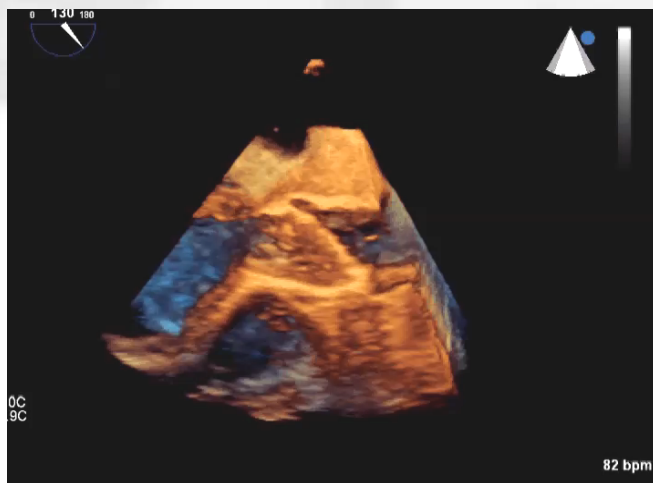




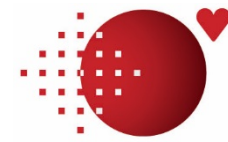
PROTESI SOPRA L'ANELLO



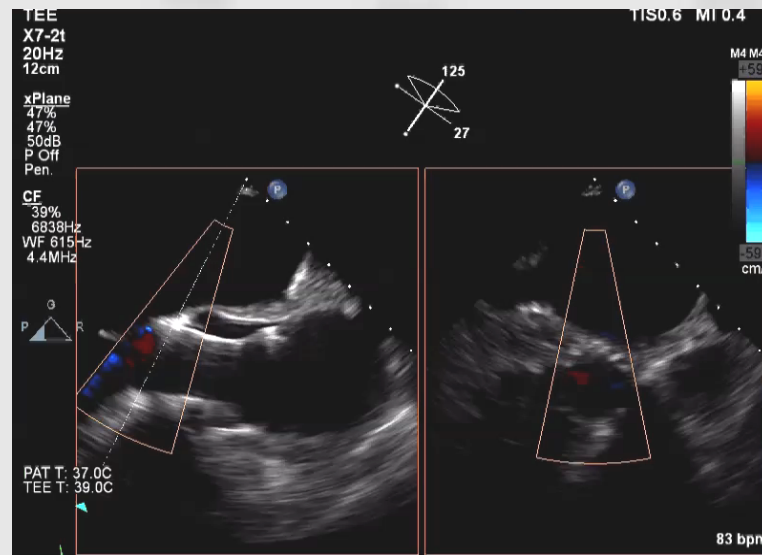
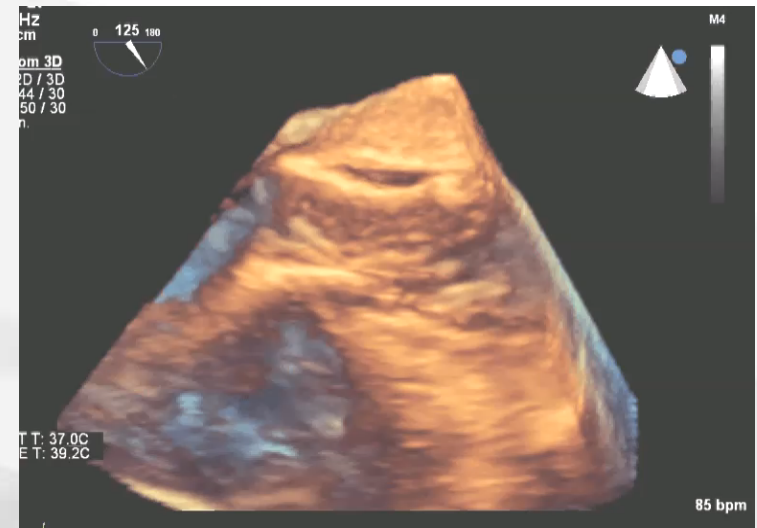
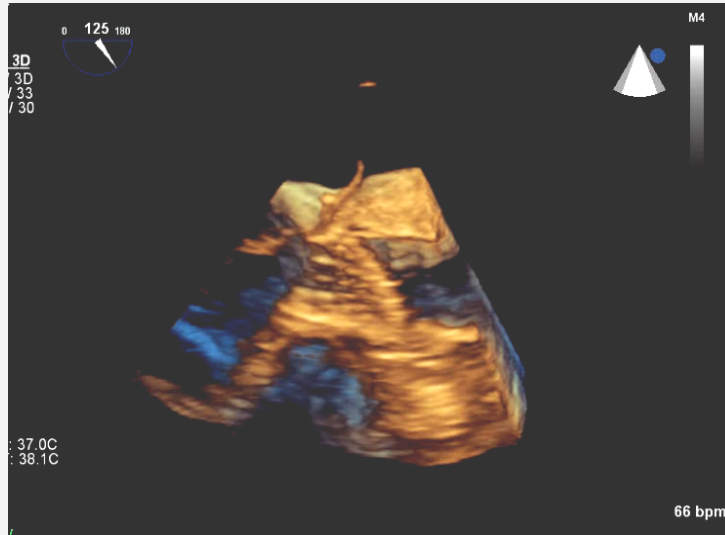
PROTESI IN VENTRICOLO



PROTESI IN SEDE



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Monzino



b) per non interferire con le coronarie

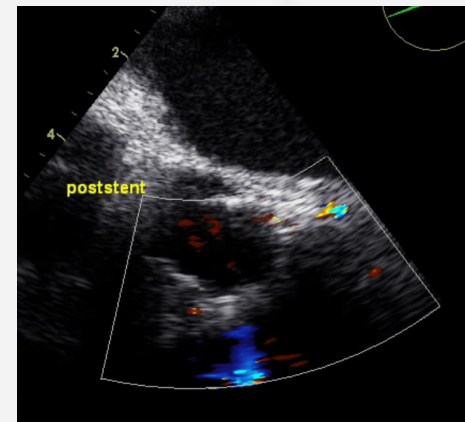
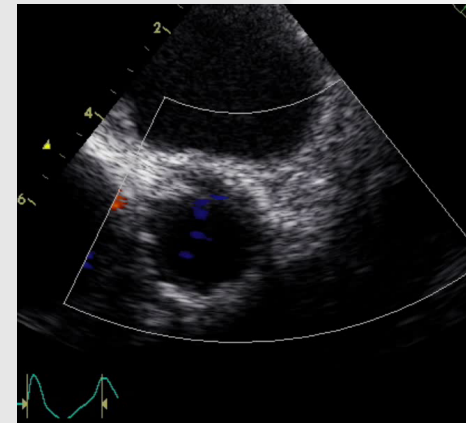
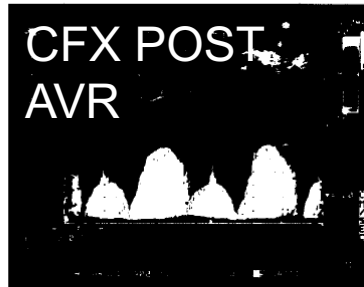
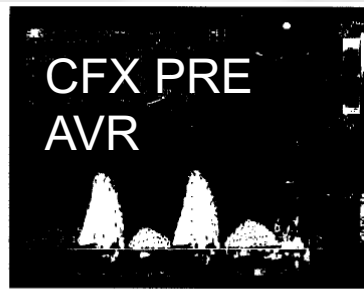
Left Main Coronary Artery Occlusion After Percutaneous Aortic Valve Implantation

Antonio L. Bartorelli, MD, FESC, FACC,
Daniele Andreini, MD, Erminio Sisillo, MD,
Gloria Tamborini, MD, Melissa Fusari, MD, and
Paolo Biglioli, MD

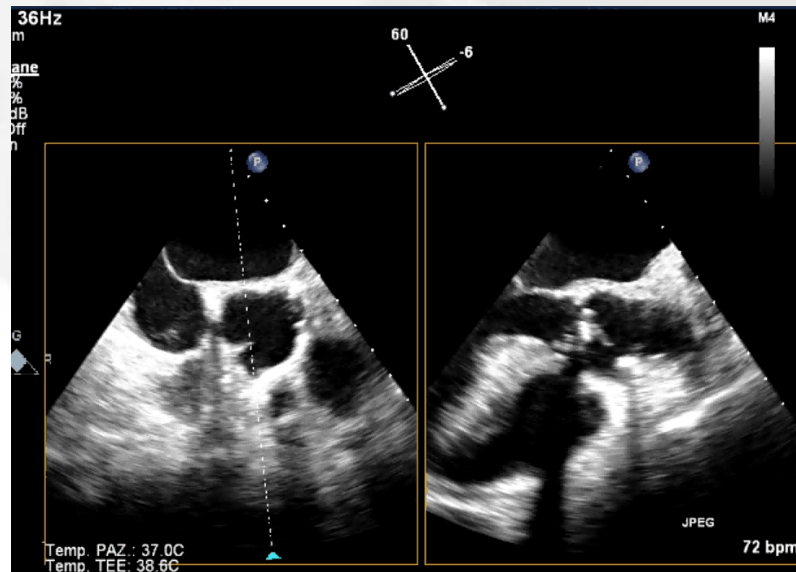
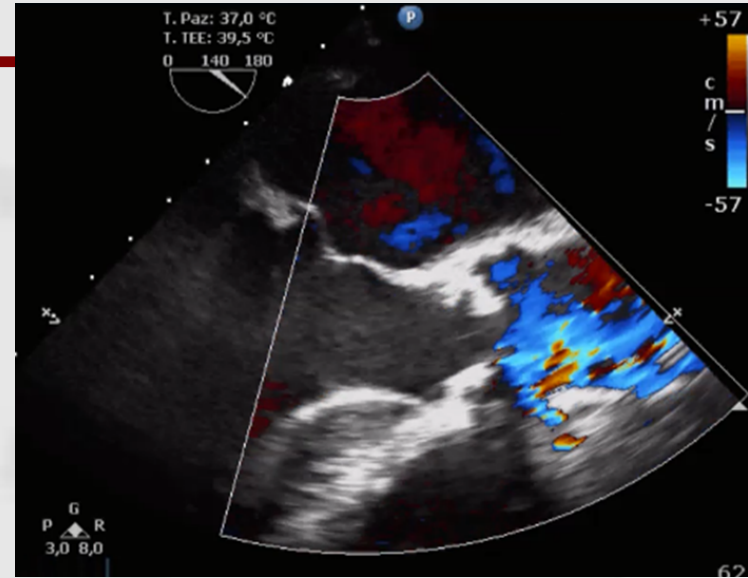
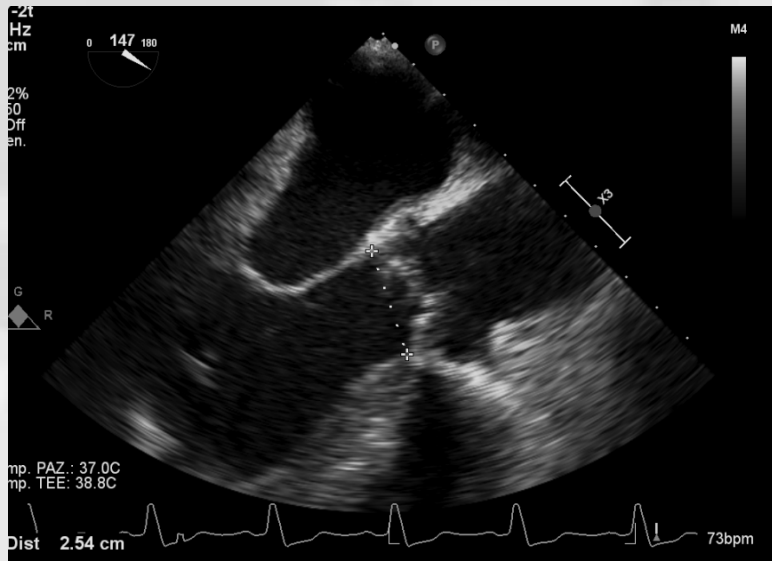
Am J Cardiol 1996

Influences of Aortic Pressure Gradient and Ventricular Septal Thickness With Systolic Coronary Flow in Aortic Valve Stenosis

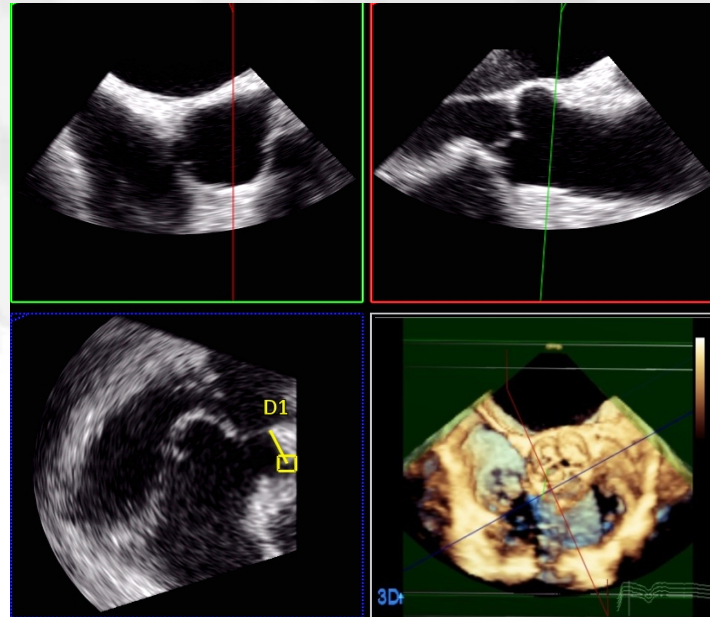
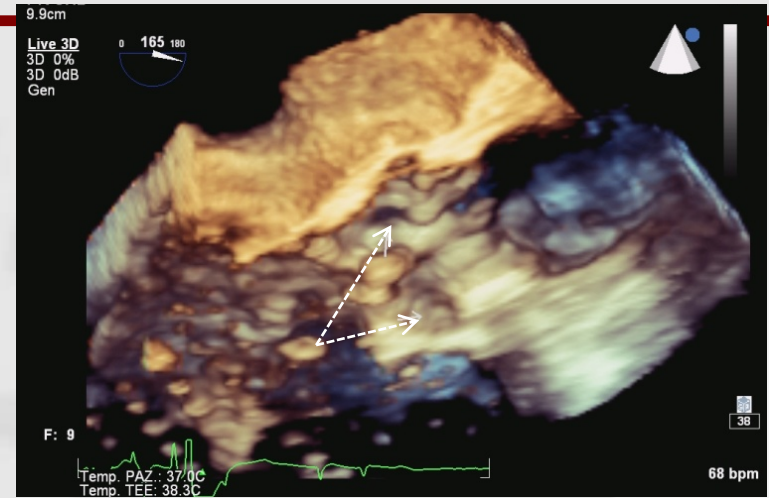
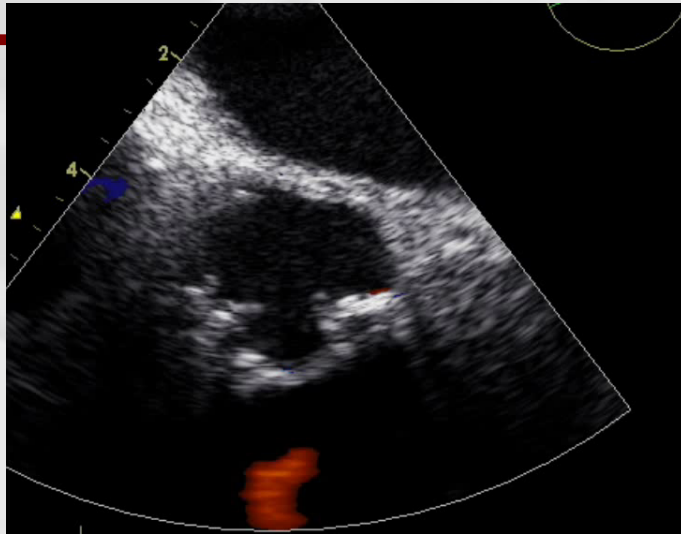
Gloria Tamborini, MD, Paolo Barbier, MD, Elisabetta Doria, MD, Claudia Galli, MD,
Anna Maltagliati, MD, Deborah Ossoli, MD, Giuseppe Susini, MD, and Mauro Pepi, MD



Distanza ostio coronarico destro-annulus

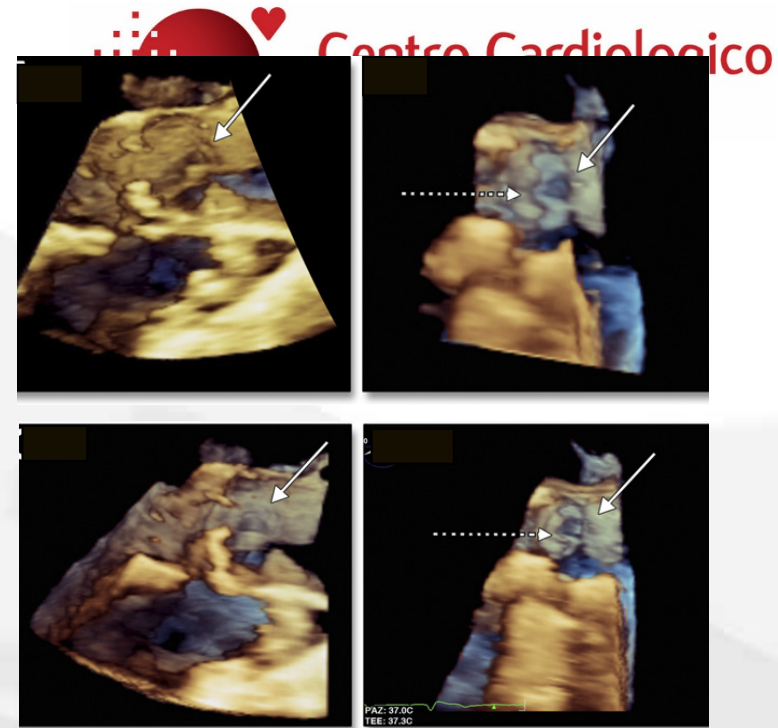
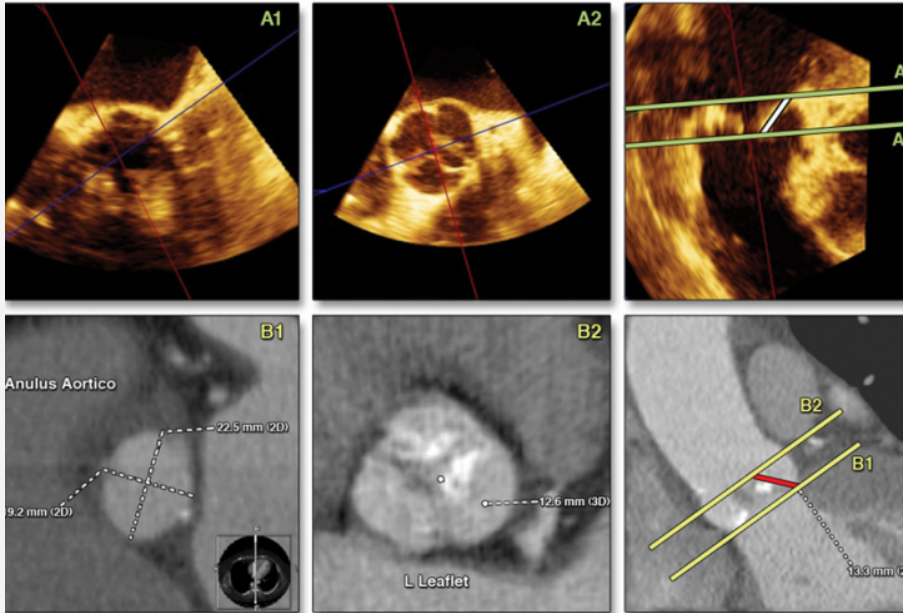


Distanza ostio coronarico sinistro-annulus

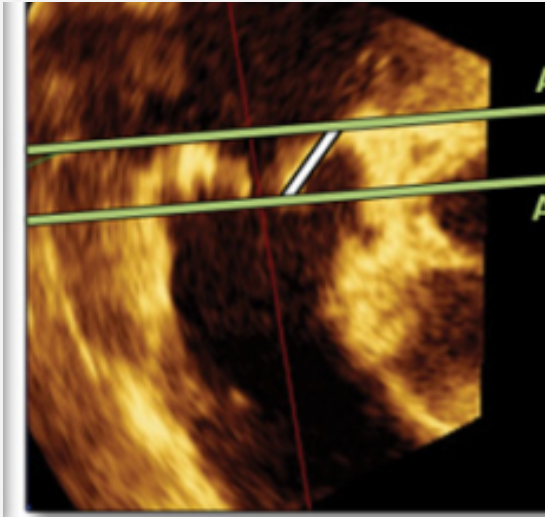
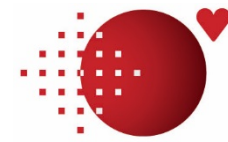


Feasibility and Accuracy of 3DTEE Versus CT for the Evaluation of Aortic Valve Annulus to Left Main Ostium Distance Before Transcatheter Aortic Valve Implantation

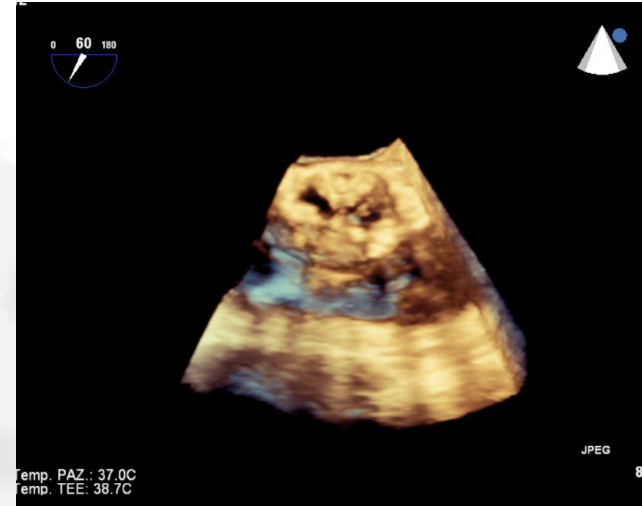
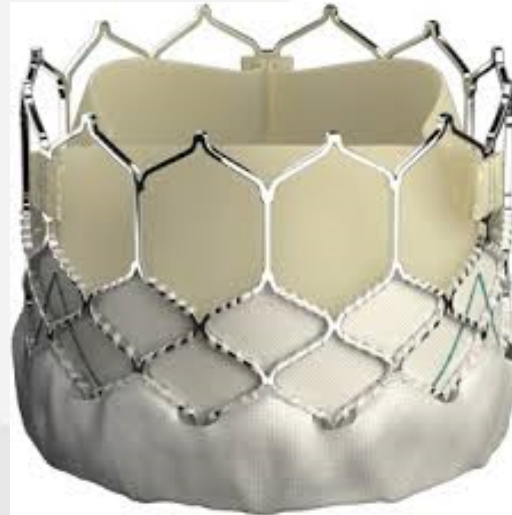
Gloria Tamborini, MD,* Laura Fusini, MS,* Paola Gripari, MD,* Manuela Muratori, MD,*
Claudia Cefalù, MD,* Francesco Maffessanti, PhD,* Francesco Alamanni, MD,*†
Antonio Bartorelli, MD,*† Gianluca Pontone, MD,* Daniele Andreini, MD,*
Erika Bertella, MD,* Cesare Fiorentini, MD,*† Mauro Pepi, MD*



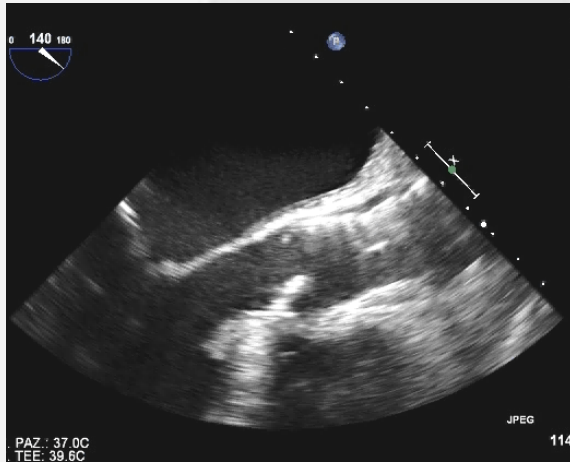
- The mean distance prosthesis-left main was 2 ± 2 mm
- The upper edge of the prosthesis reached (6 cases) or overlapped (10 cases, 8%) the left main



Distanza annulus-ostio
coronarico



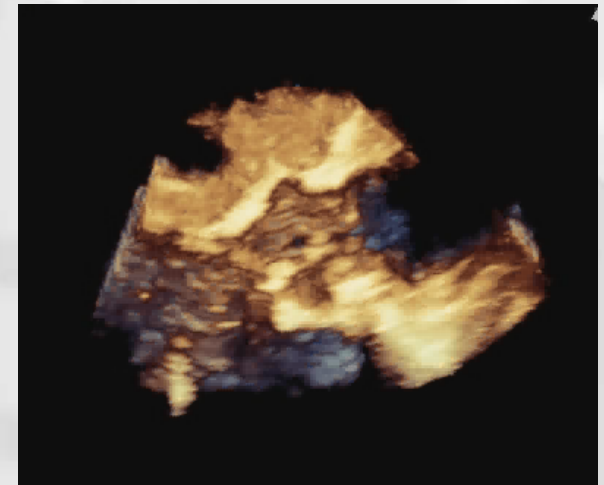
Anatomia delle cuspidi



Sede di impianto della
protesi

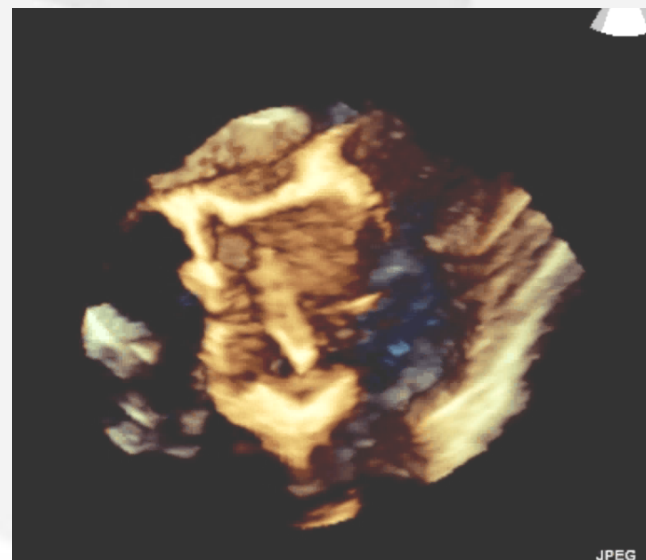
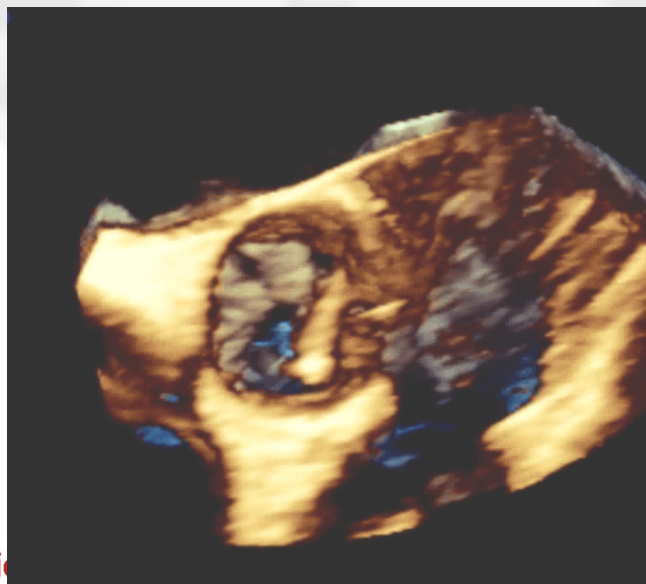
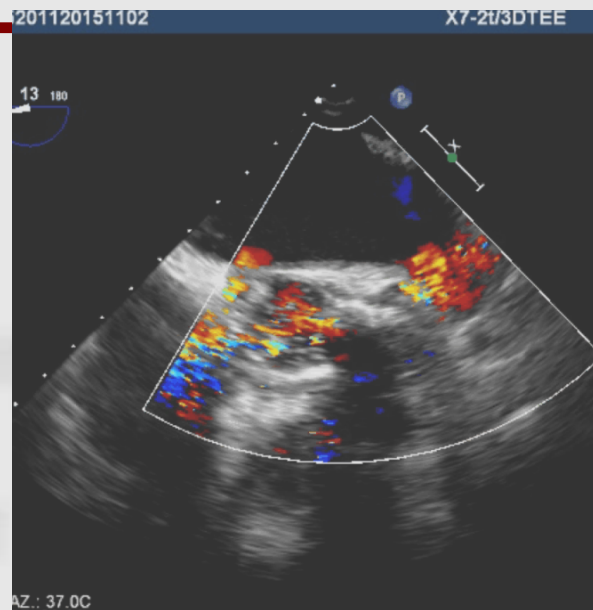


Morfologia della protesi

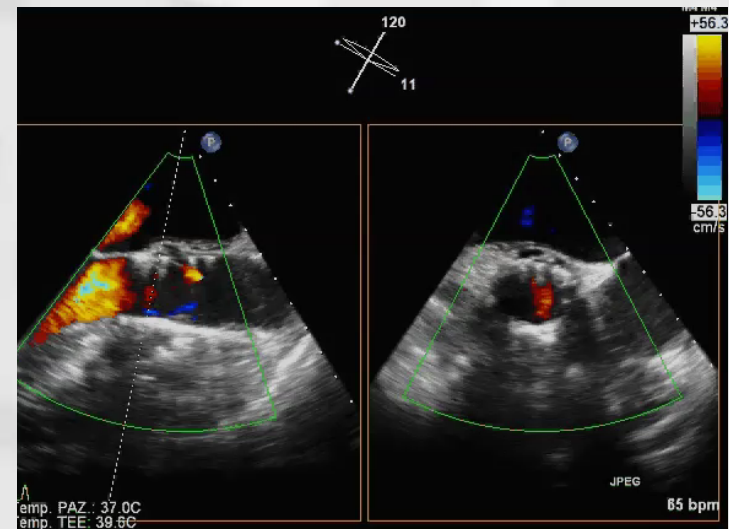
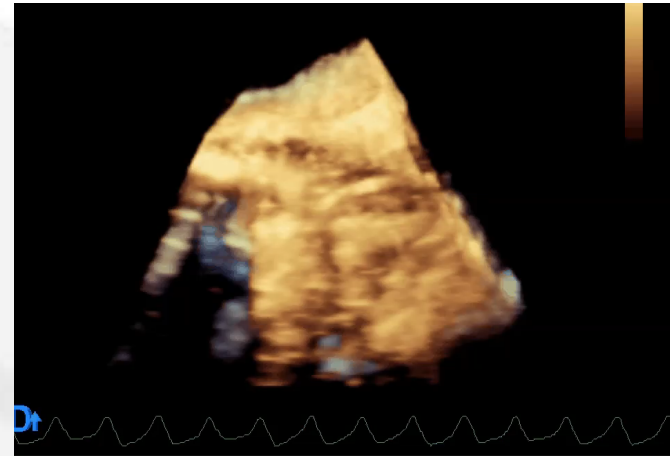
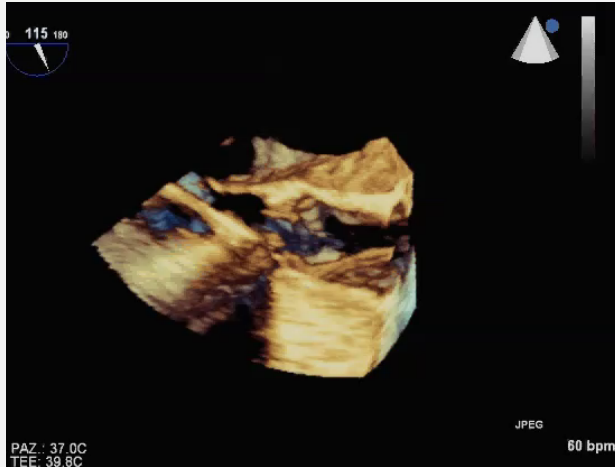
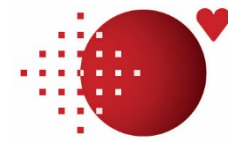


Ampiezza seni di
Valsalva

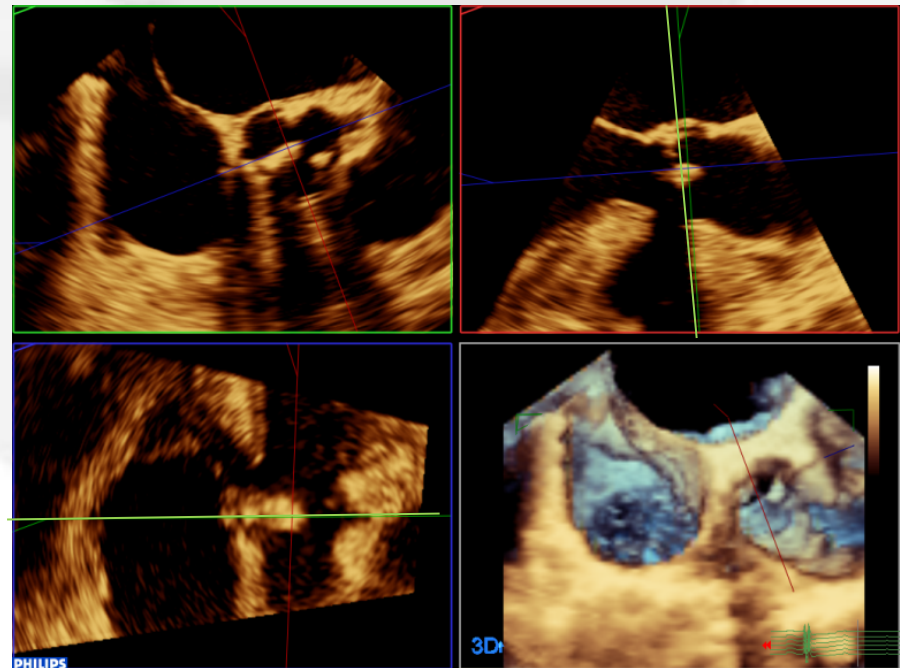
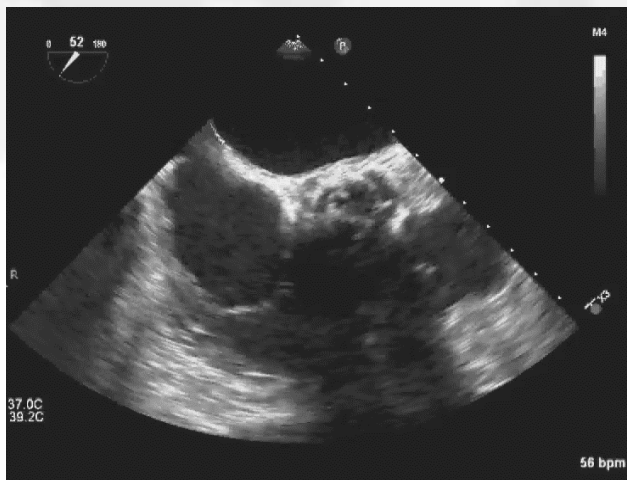
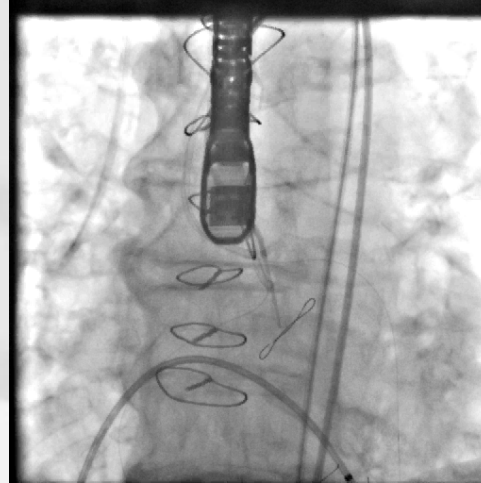
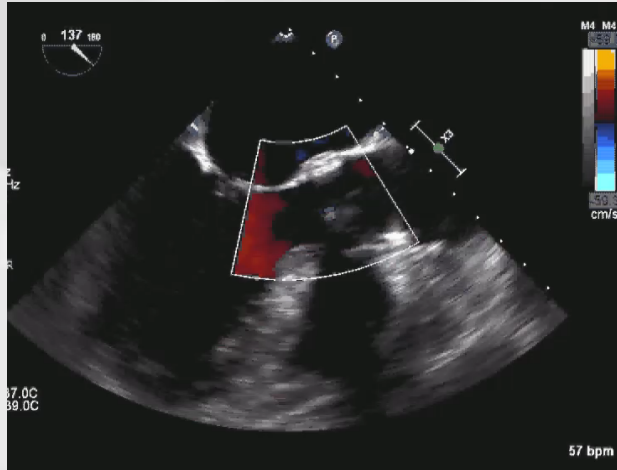
CASO 3: ostio coronarico unico



Ostio coronarico unico

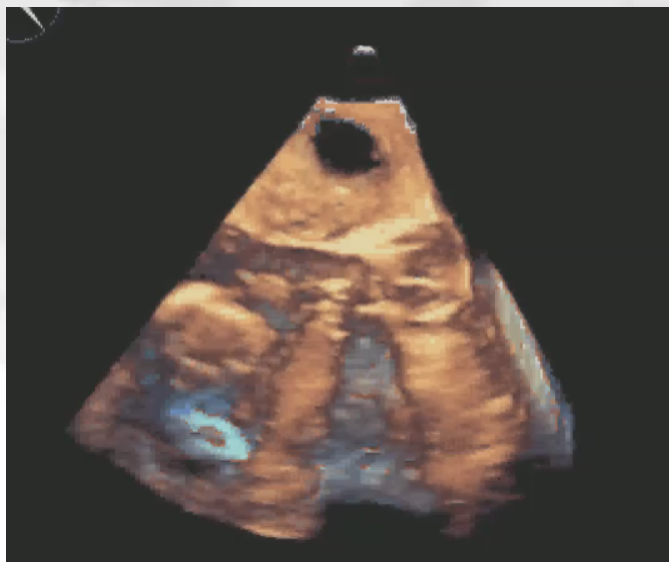


CASO 3: *Valve-in-valve in protesi Soprano degenerata*

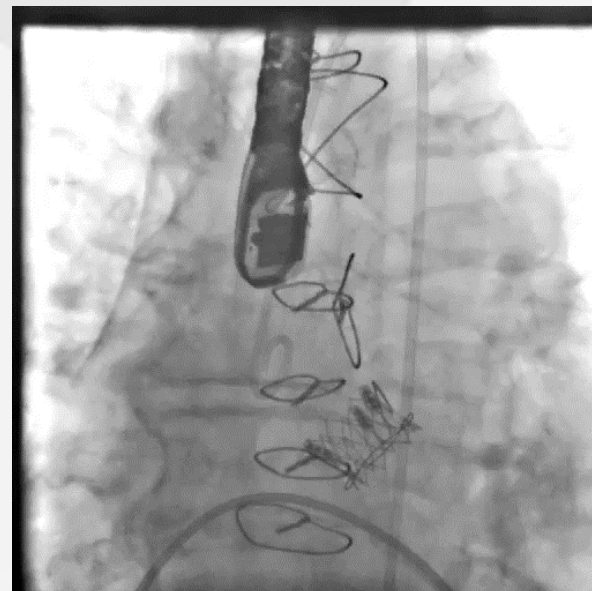


En face view vavola aortica:

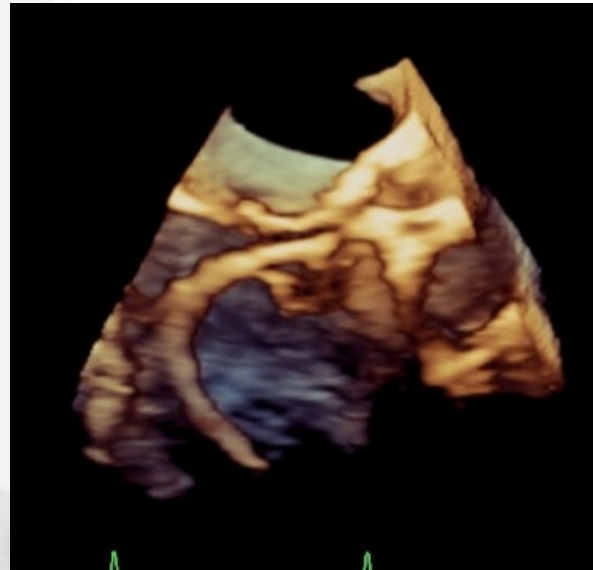
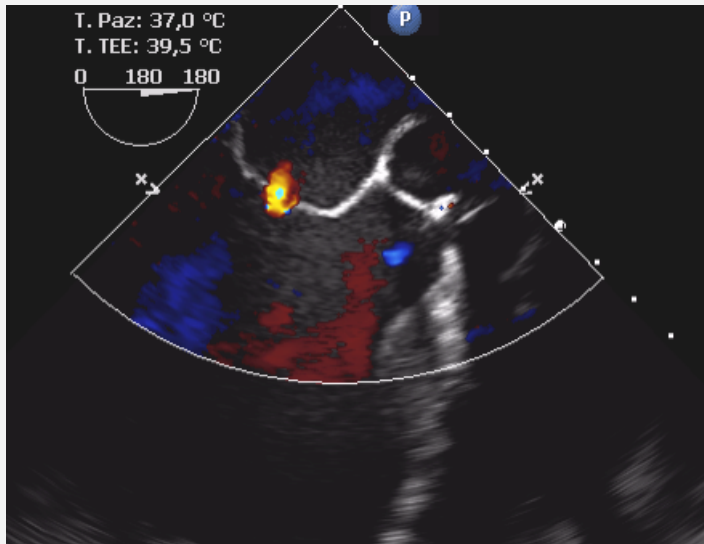
- ***Filo guida in coronaria destra***
- ***Filo guida in coronaria sinistra***
- ***Catetere attraverso la valvola per l'impianto***



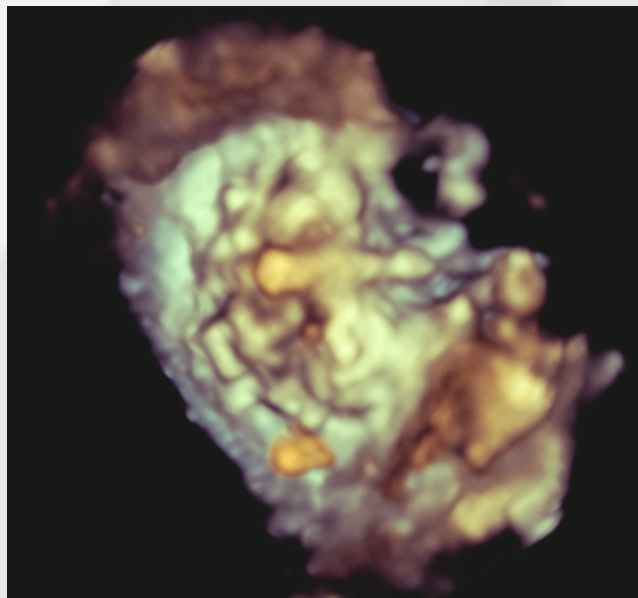
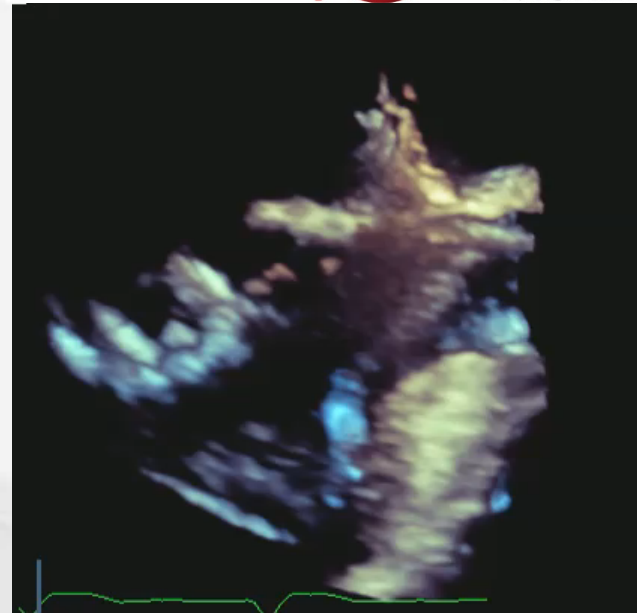
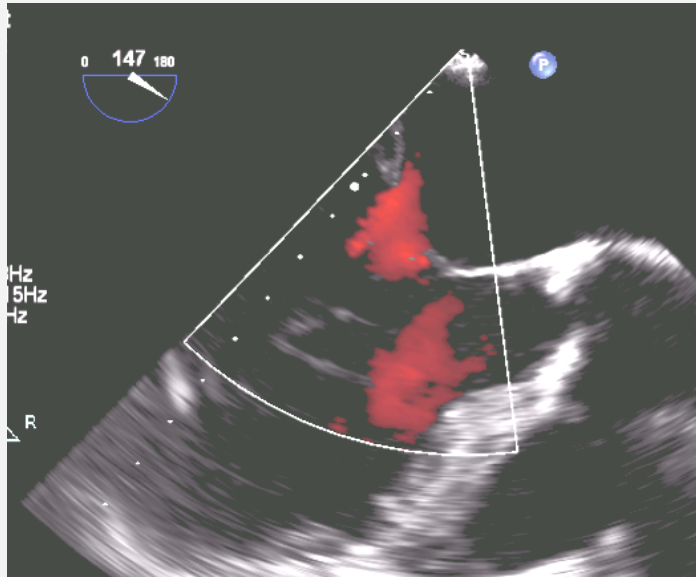
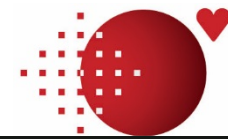
Impianto



c) *per non interferire con la mitrale*



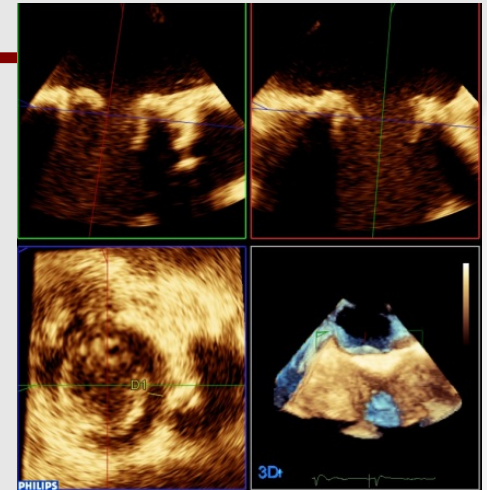
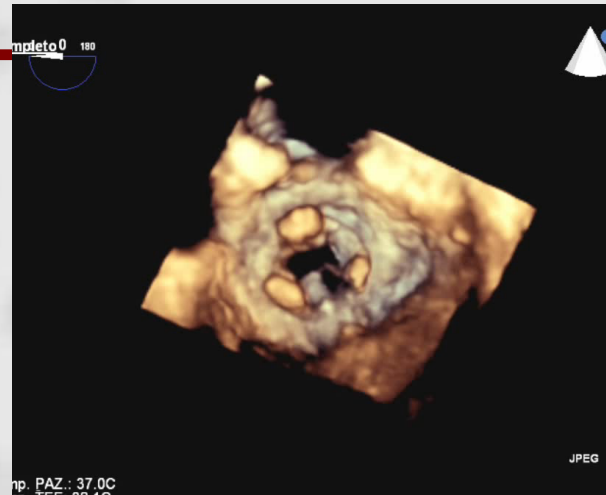
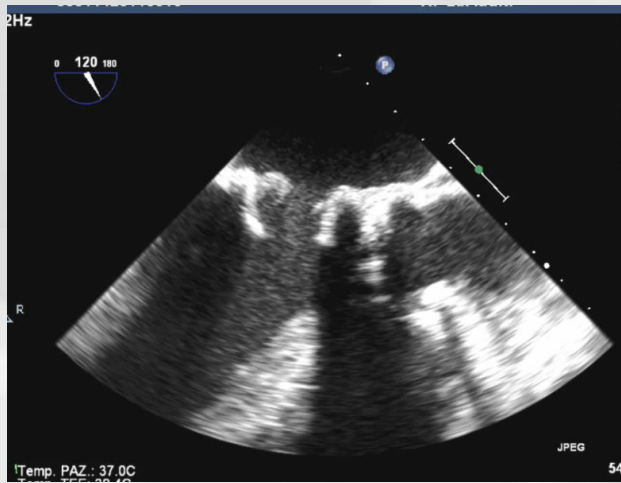
caso 5



***En face view della mitrale
dal ventricolo :
interferenza del catetere
Con la mitrale***

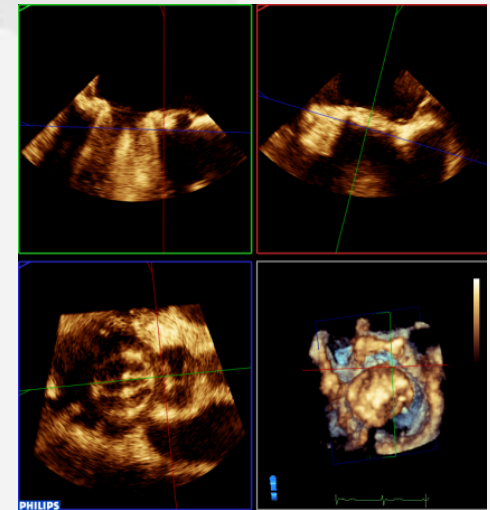
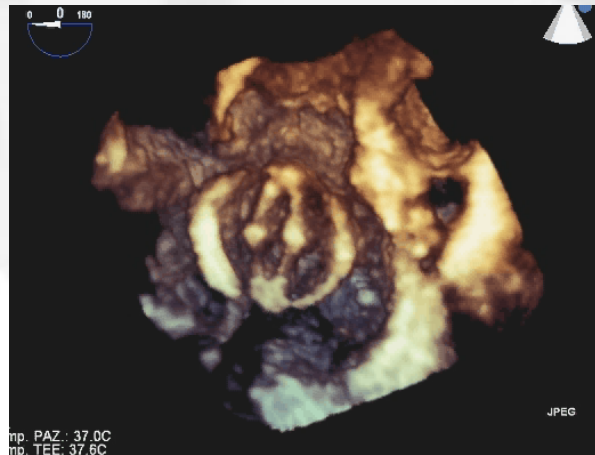
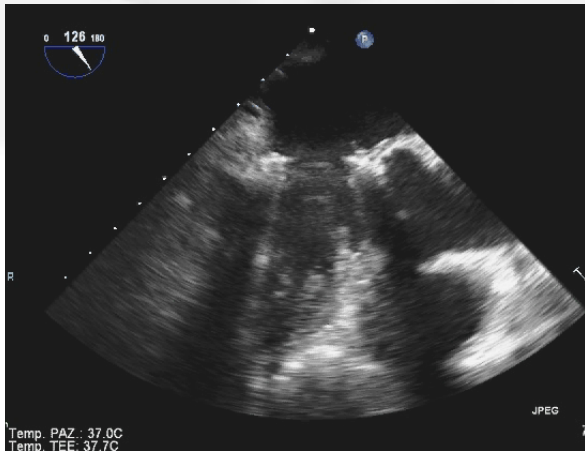
caso 6

Impianto in presenza di protesi biologica mitralica

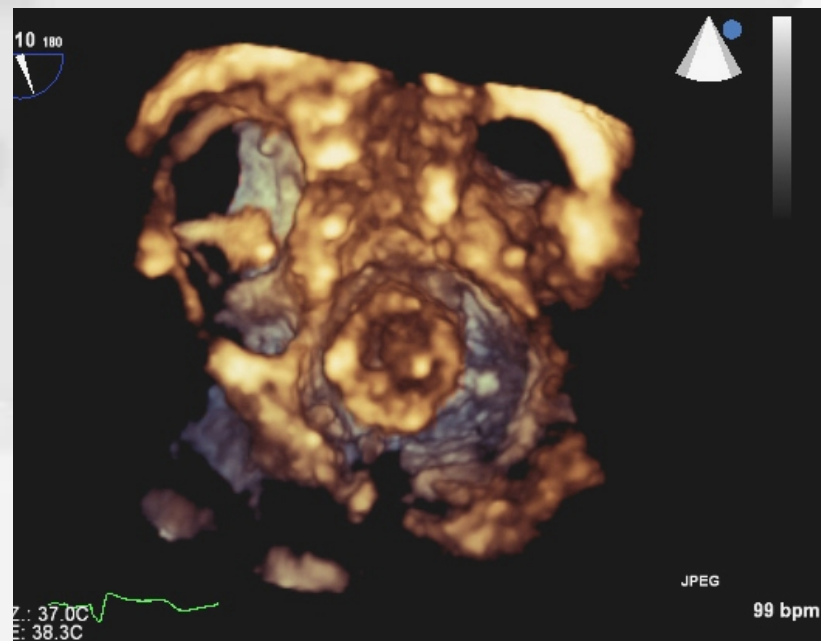
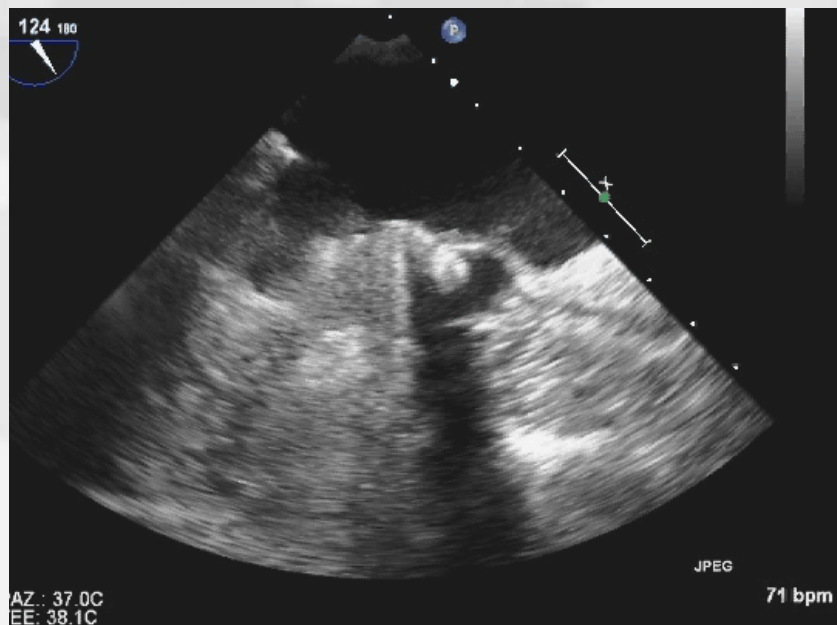


caso 7

Impianto in presenza di protesi meccanica mitralica

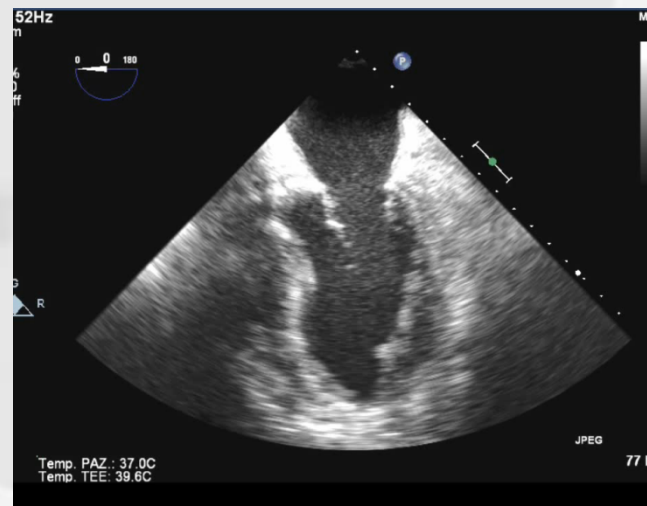
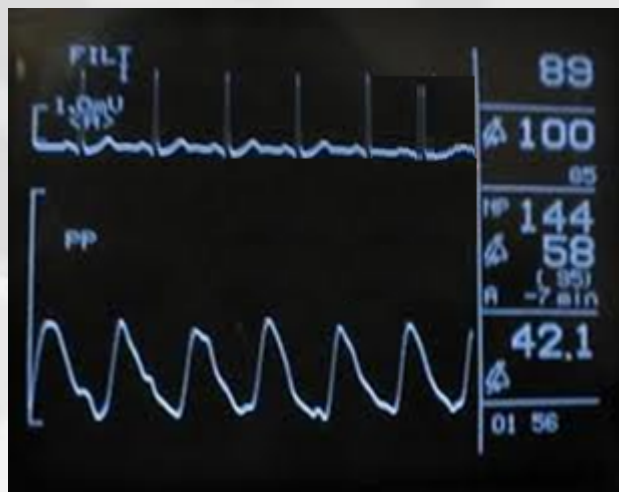
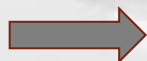


Impianto TAVI in paziente con protesi mitralica bidisco

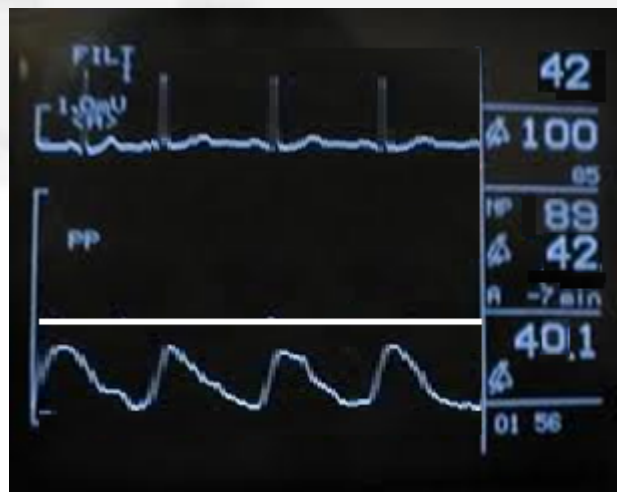


MONITORAGGIO DEGLI IMPREVISTI

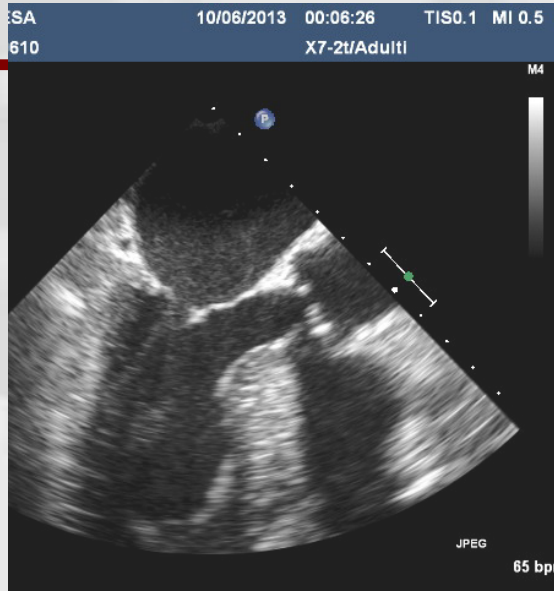
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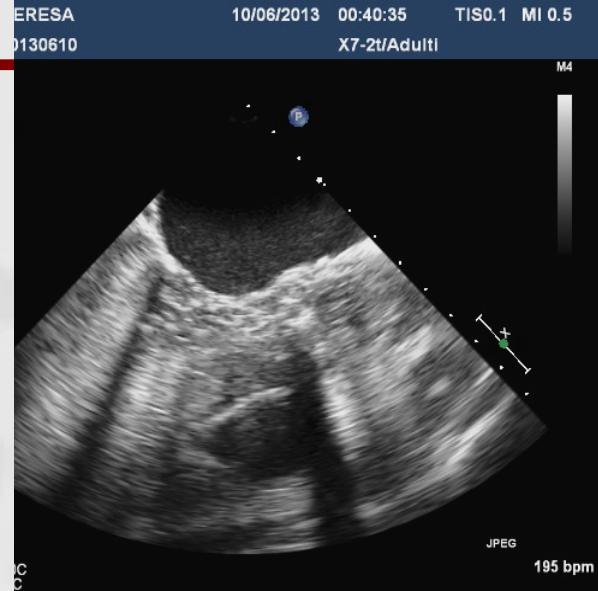
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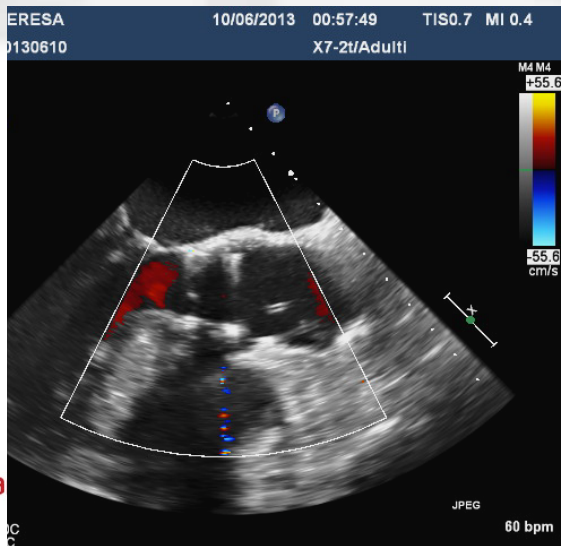
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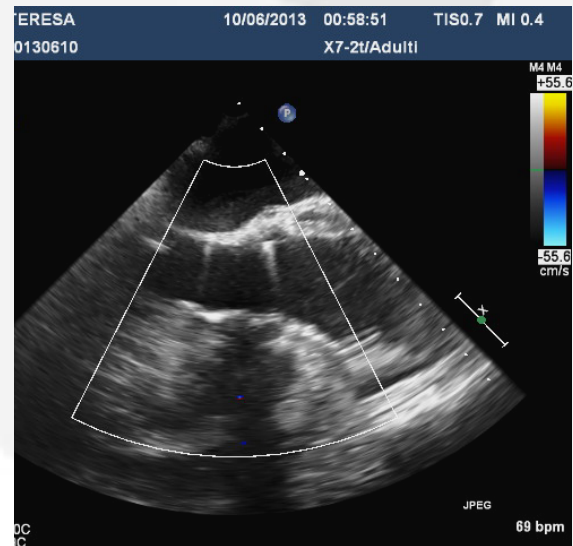
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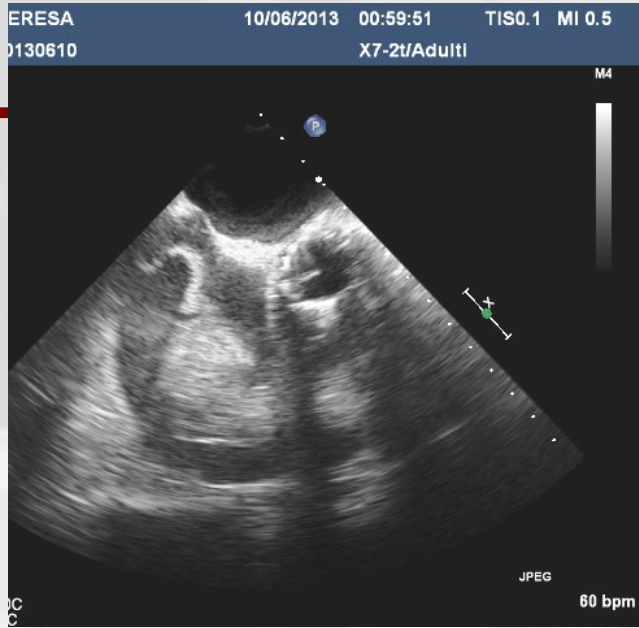
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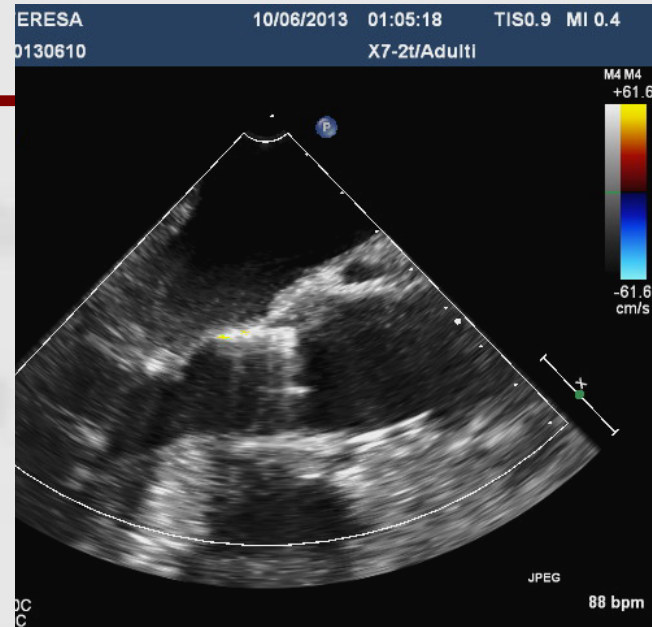
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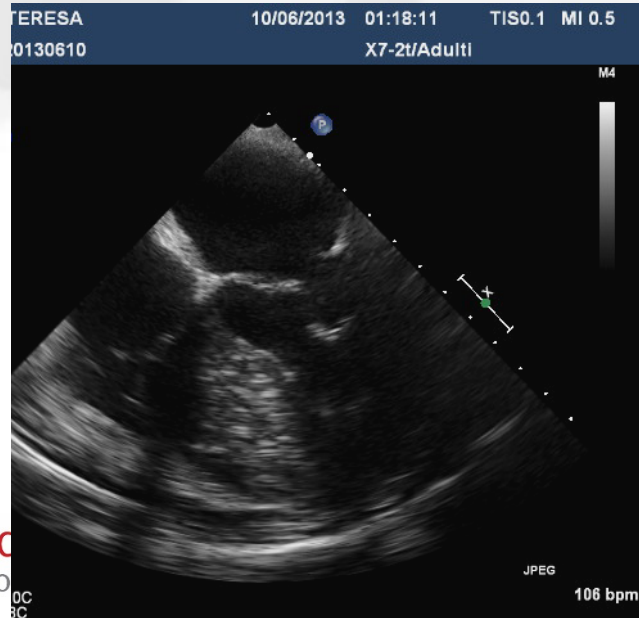
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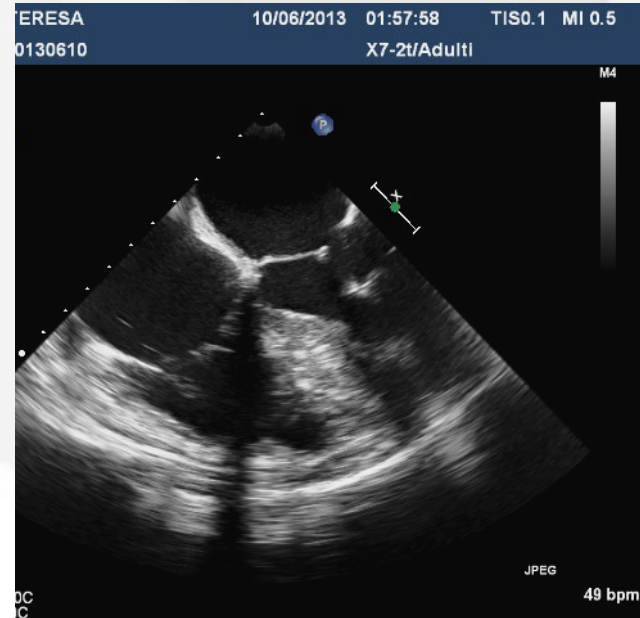
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01:18:11



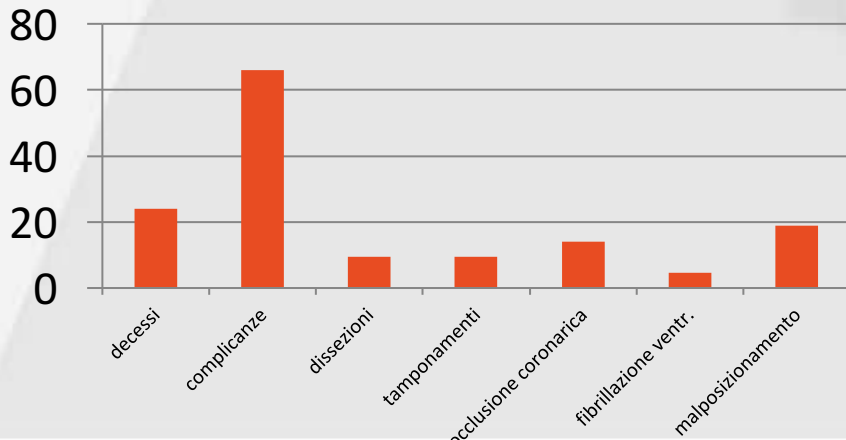
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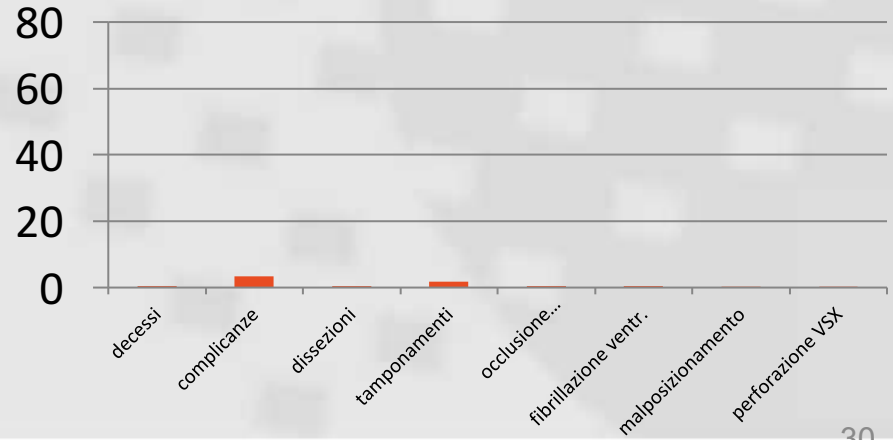


	Totali	Con TEE	Senza TEE
	N (%)	N (%)	N (%)
Dal 2008 al febbraio 2017	750	729 (97%)	21 (3%)
Decessi in sala	8 (1.06%)	3 (0.4%)	5 (24%)
Complicanze cardiache «maggiori» (escluso PM)			
Complicanze	39 (5%)	25 (3.4%)	14 (66%)
Dissezione/ematoma AA	5 (0.5%)	3 (0.4%) sopravvissuti	2 (9.5%) deceduti
Tamponamento (perforazione V dx/ematoma radice)	15 (1.4%)	13 (1.7%) sopravvissuti	2 (9.5%) 1 deceduto
Occlusioni coronariche	7 (0.9%)	4 (0.5%) sopravvissuti	3 (14%) 1 deceduto
FV	4 (0.5%)	3 (0.4%)	1 (4.7%)
Malposizionamento protesi	5 (0.5%)	1 (0.1%)	4 (19%)
Perforazione ventricolo sx	1 (0.1%) con TEE	deceduto	

NO TEE



SI TEE



Grazie x l'attenzione



Optimal Imaging for Guiding TAVR: Transesophageal or Transthoracic Echocardiography, or Just Fluoroscopy?

Itzhak Kronzon, MD, Vladimir Jelnin, MD, Carlos E. Ruiz, MD, PhD, Muhamed Saric, MD, PhD, Mathew Russell Williams, MD, Albert M. Kasel, MD, Anupama Shivaraju, MD, Antonio Colombo, MD, Adnan Kastrati, MD
 Section Editor: Partho P. Sengupta, MD

Jacc Imaging 2015

TABLE 1 TTE Versus TEE in TAVR Guidance		
	TTE	TEE
Procedure invasiveness	<ul style="list-style-type: none"> • Noninvasive 	<ul style="list-style-type: none"> • Semi-invasive
Sedation requirement during TAVR	<ul style="list-style-type: none"> • Moderate sedation 	<ul style="list-style-type: none"> • General anesthesia
Imaging advantages	<ul style="list-style-type: none"> • 2D & Doppler TTE is the primary means for quantitative and qualitative assessment of aortic stenosis and its impact on cardiac anatomy and function • Provides diagnostic, TAVR-relevant information with a potentially better safety profile compared with TEE 	<ul style="list-style-type: none"> • Provides higher image resolution than TTE • 3D TTE has significant incremental value
Imaging disadvantages	<ul style="list-style-type: none"> • Quality of imaging determined by availability and location of imaging windows • Imaging may be limited by obesity, hyperinflation of lungs, chest deformity, and supine position • 3D TTE typically has limited incremental value • Shadowing of posterior PARs by TAVR prosthesis may occur 	<ul style="list-style-type: none"> • TEE imaging may lead to injuries of oropharynx, esophagus, and the stomach
Potential for disruption of surgical field sterility	<ul style="list-style-type: none"> • Present but can be minimized with the use of sterile TTE probe covers 	<ul style="list-style-type: none"> • Minimal
Impact of TAVR vascular access point to echocardiographic imaging	<ul style="list-style-type: none"> • Best suited for percutaneous transfemoral TAVR approach 	<ul style="list-style-type: none"> • Can be provided with any TAVR access point

2D = 2-dimensional; 3D = 3-dimensional; PAR = perivalvular aortic regurgitation; TAVR = transcatheter aortic valve replacement; TEE = transesophageal echocardiography; TTE = transthoracic echocardiography.