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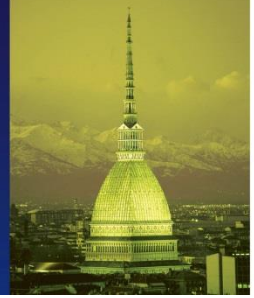

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ECOCARDIOGRAPHIST

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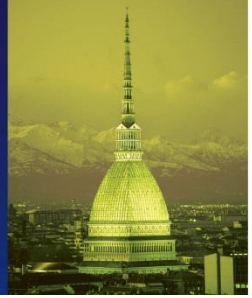

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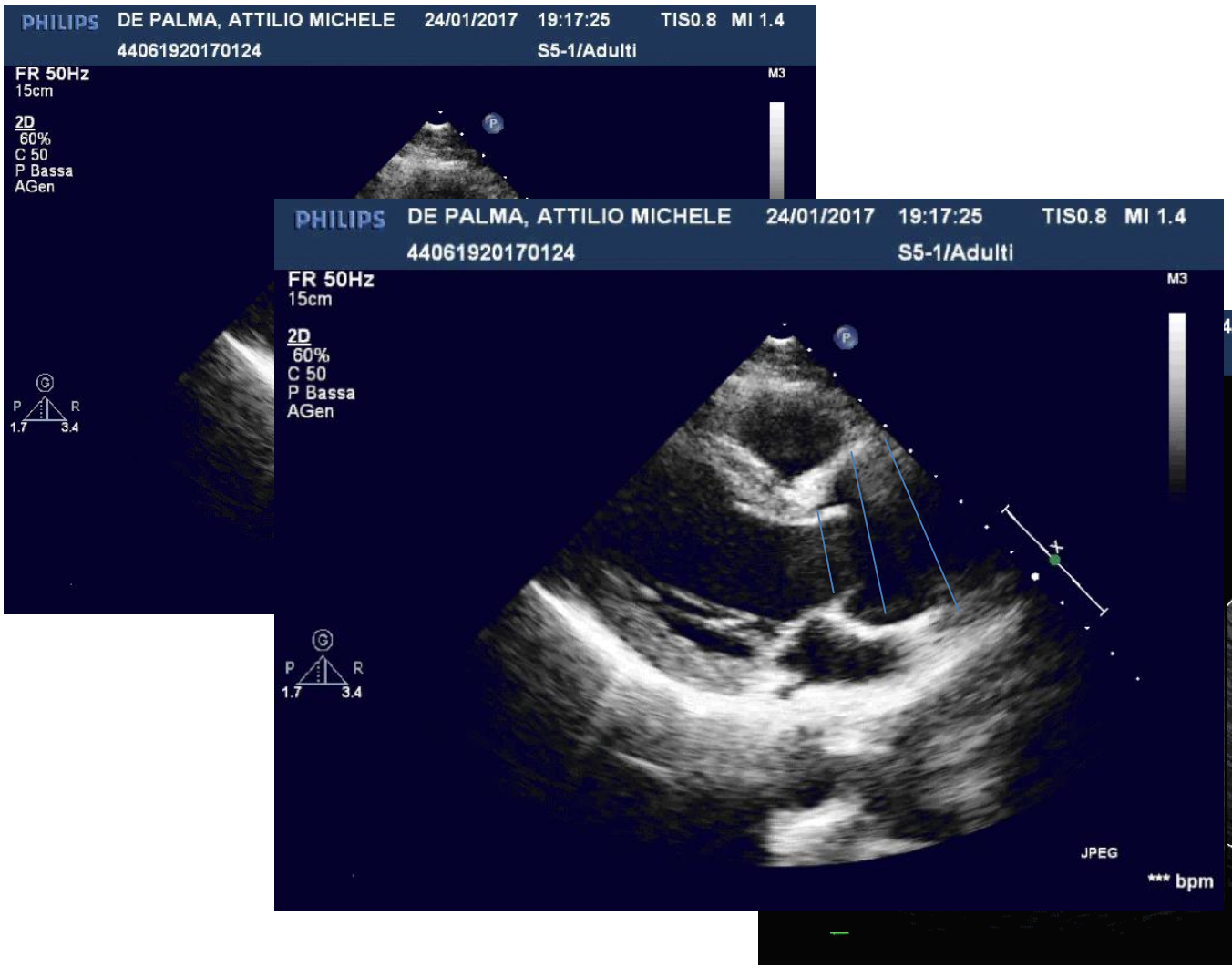

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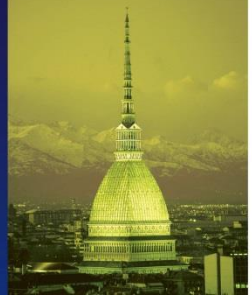

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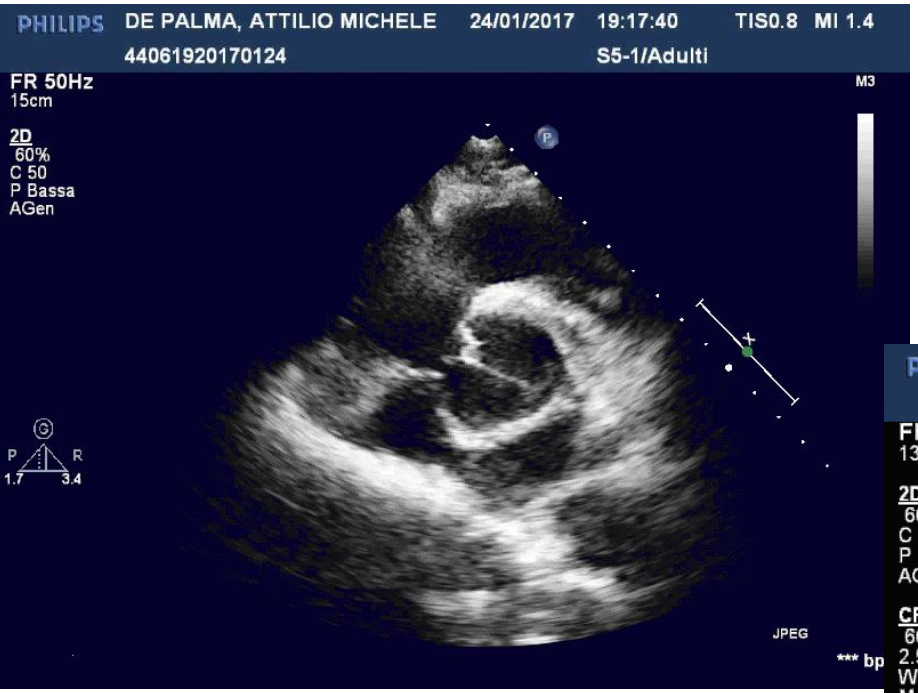
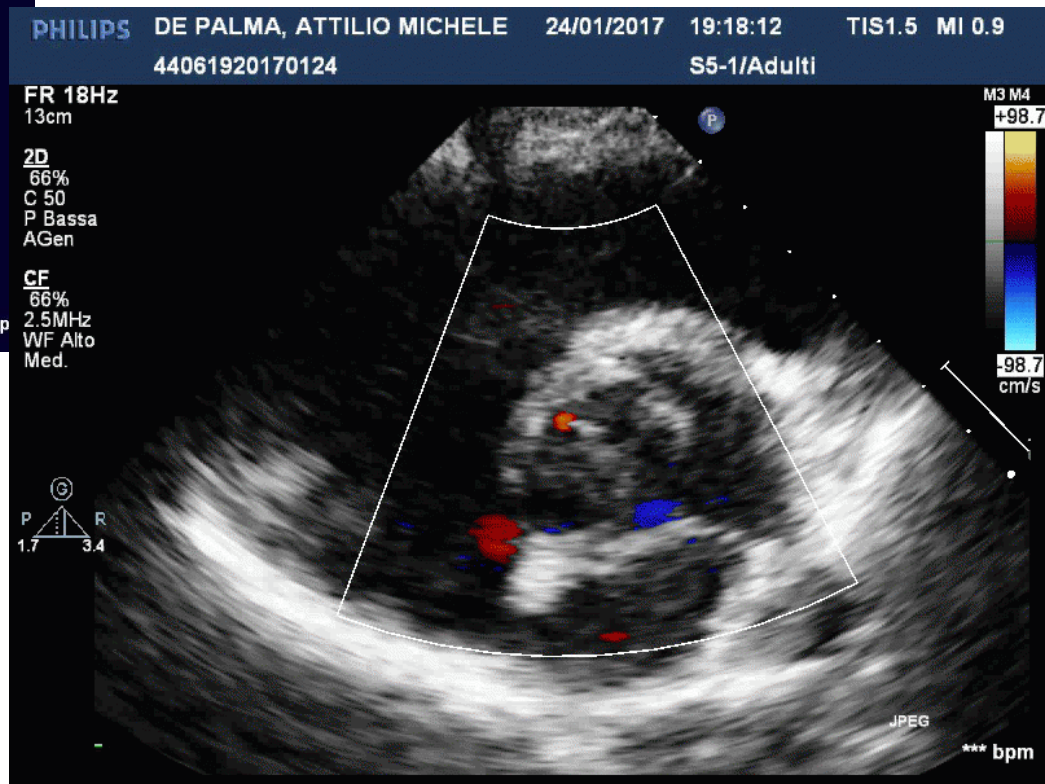
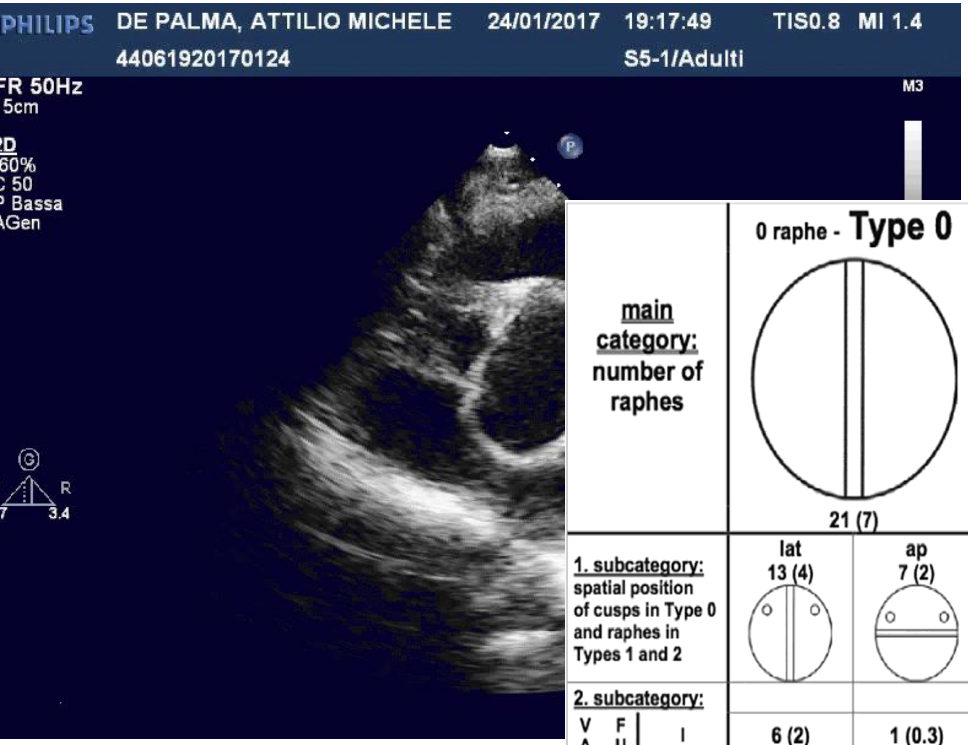
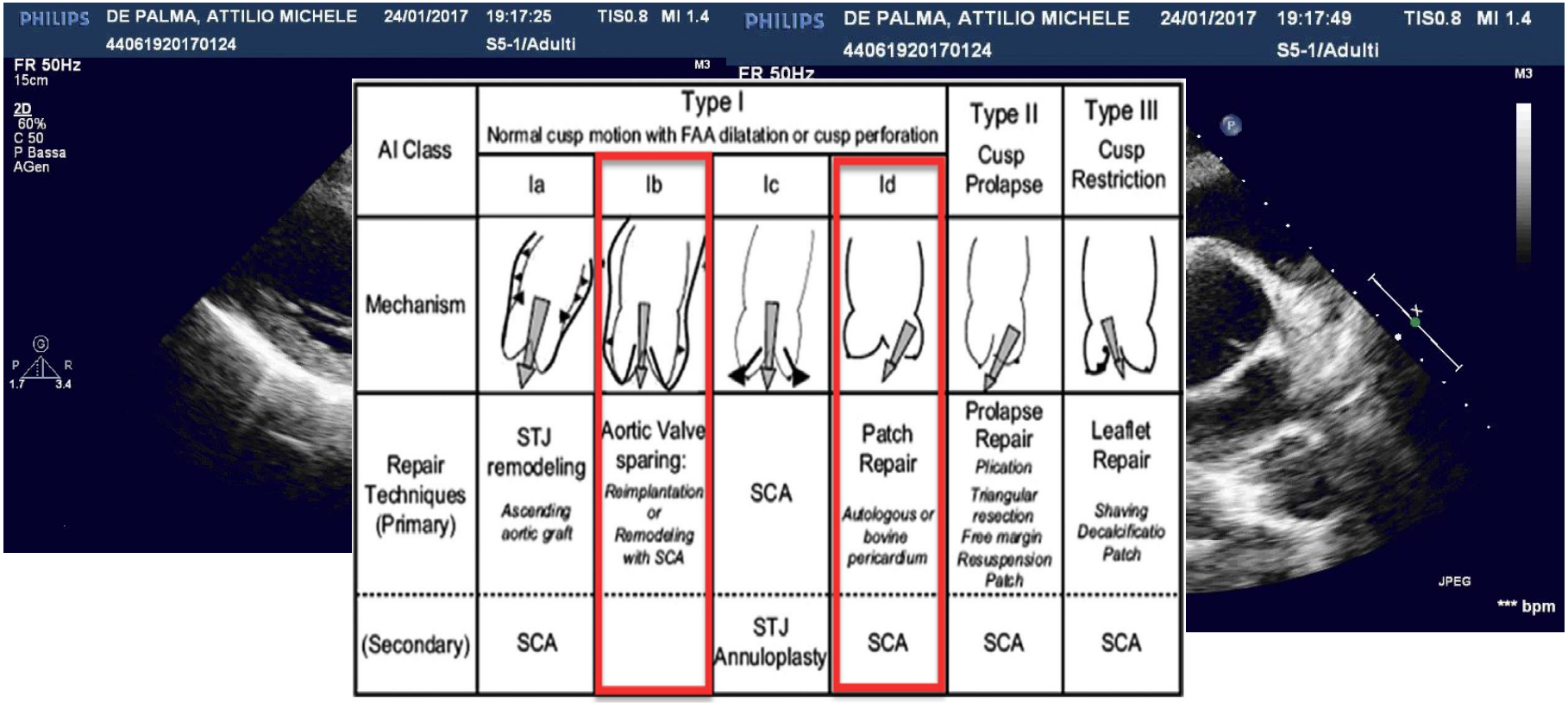






main category: number of raphes	0 raphe - Type 0		1 raphe - Type 1			2 raphes - Type 2
	21 (7)		269 (88)			14 (5)
1. subcategory: spatial position of cusps in Type 0 and raphes in Types 1 and 2	lat 13 (4)	ap 7 (2)	L – R 216 (71)	R – N 45 (15)	N – L 8 (3)	L – R / R – N 14 (5)
2. subcategory: VALVULAR FUNCTION						
I	6 (2)	1 (0.3)	79 (26)	22 (7)	3 (1)	6 (2)
S	7 (2)	5 (2)	119 (39)	15 (5)	3 (1)	6 (2)
B (I + S)		1 (0.3)	15 (5)	7 (2)	2 (1)	2 (1)
No			3 (1)	1 (0.3)		

Fig 1. The Sievers classification of the bicuspid aortic valve. The left coronary sinus is on the left (surgeon's view). The numbers represent the number of specimens from the Sievers original analysis (percent in parenthesis). The main category in this classification depends on the number of raphes. The first subcategory is determined by the spatial position of the cusps (type 0) and the raphes (types 1 and 2). The second subcategory is determined by the valvular function, characterized as follows: *I,* predominant insufficiency; *S,* predominant stenosis; *B (I + S),* balanced insufficiency and stenosis; *No,* Normal function. Used with permission.[13]



AI Class	Type I: Normal cusp motion with FAA dilatation or cusp perforation				Type II: Cusp Prolapse	Type III: Cusp Restriction
	Ia	Ib	Ic	Id		
Mechanism						
Repair Techniques (Primary)	STJ remodeling *Ascending aortic graft*	Aortic Valve sparing: *Reimplantation or Remodeling with SCA*	SCA	Patch Repair *Autologous or bovine pericardium*	Prolapse Repair *Plication Triangular resection Free margin Resuspension Patch*	Leaflet Repair *Shaving Decalcificatio Patch*
(Secondary)	SCA		STJ Annuloplasty	SCA	SCA	SCA

Fig 10. El Khoury classification for bicuspid aortic valve repair. The mechanism of aortic insufficiency (AI) is classified based on aortic cusp motion. Type I refers to normal motion, type II to excessive motion (prolapse), and type III to restricted motion. The most common clinical presentations in bicuspid aortic valve repair are types 1b and II together usually with a Sievers type 1 L-R phenotype. FAA, functional aortic annulus; SCA, subcommissural annuloplasty; STJ, sinotubular junction. (Figure used with permission from Prodromo J, D'Anconna G, Arnaducci A, et al: Aortic valve repair for aortic insufficiency: a review. J Cardiothorac Vasc Anesth 26:923-932, 2012.)

EDITORIAL

CURRENT OPINION

Guidelines for management of bicuspid aortic valve aneurysms: what's the clinician to do?

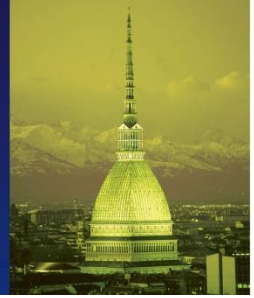
Alan C. Braverman

Curr Opin Cardiol 2014;29:489-91

The timing of prophylactic ascending aortic aneurysm surgery in the setting of bicuspid aortic valve disease is complex, with multiple factors influencing the decision. The 2014 ACC/AHA Valve guidelines recommend prophylactic replacement of the aortic root and/or ascending aorta once the aortic diameter exceeds 5.5 cm. This aortic size threshold for surgery is at a larger diameter than had been recommended by the 2010 Thoracic Aortic Disease guidelines, the 2013 Society of Thoracic Surgeons Clinical Practice Guidelines, or the 2006 ACC/AHA Valve guidelines. Five recent societies or committees recently published their guidelines to assist with managing these cases. Making the decision regarding the timing of bicuspid aortic valve aneurysm surgery even more difficult are the small, but important, differences in recommendations provided among recent guidelines addressing this issue.

Keywords
aortic aneurysm, bicuspid aortic valve, guidelines

Lower thresholds for intervention may be considered according to body surface area in patients of small stature or in the case of rapid progression, aortic valve regurgitation, planned pregnancy, and patient's preference.	IIb	C
Interventions on aortic arch aneurysms		
Surgery should be considered in patients who have isolated aortic arch aneurysm with maximal diameter ≥55 mm.	IIa	C
Aortic arch repair may be considered in patients with aortic arch aneurysm who already have an indication for surgery of an adjacent aneurysm located in the ascending or descending aorta.	IIb	C



ESC European Society of Cardiology
European Heart Journal (2017) **38**, 2739–2791
doi:10.1093/eurheartj/ehx391

ESC/EACTS GUIDELINES

2017 ESC/EACTS Guidelines for the management of valvular heart disease

The Task Force for the Management of Valvular Heart Disease of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

Indications for surgery in (A) severe aortic regurgitatio and (B) aortic root disease (irrespective of the severity of aortic regurgitation)

Indications for surgery	Class[a]	Level[b]
A. Severe aortic regurgitation		
Surgery is indicated in symptomatic patients.[57,58,66,67]	I	B
Surgery is indicated in asymptomatic patients with resting LVEF ≤50%.[57,58]	I	B
Surgery is indicated in patients undergoing CABG or surgery of the ascending aorta or of another valve.	I	C
Heart Team discussion is recommended in selected patients[c] in whom aortic valve repair may be a feasible alternative to valve replacement.	I	C
Surgery should be considered in asymptomatic patients with resting ejection fraction >50% with severe LV dilatation: LVEDD >70 mm or LVESD >50 mm (or LVESD >25 mm/m^2 BSA in patients with small body size).[58,66]	IIa	B

B. Aortic root or tubular ascending aortic aneurysm[d] (irrespective of the severity of aortic regurgitation)		
Aortic valve repair, using the reimplantation or remodelling with aortic annuloplasty technique, is recommended in young patients with aortic root dilation and tricuspid aortic valves, when performed by experienced surgeons.	I	C
Surgery is indicated in patients with Marfan syndrome who have aortic root disease with a maximal ascending aortic diameter ≥50 mm.	I	C
Surgery should be considered in patients who have aortic root disease with maximal ascending aortic diameter:	IIa	C
● ≥45 mm in the presence of Marfan syndrome and additional risk factors[e] or patients with a *TGFBR1* or *TGFBR2* mutation (including Loeys–Dietz syndrome).[f]	IIa	C
● ≥50 mm in the presence of a bicuspid valve with additional risk factors[e] or coarctation.	IIa	C
● ≥55 mm for all other patients.	IIa	C
When surgery is primarily indicated for the aortic valve, replacement of the aortic root or tubular ascending aorta should be considered when ≥45 mm, particularly in the presence of a bicuspid valve.[g]	IIa	C

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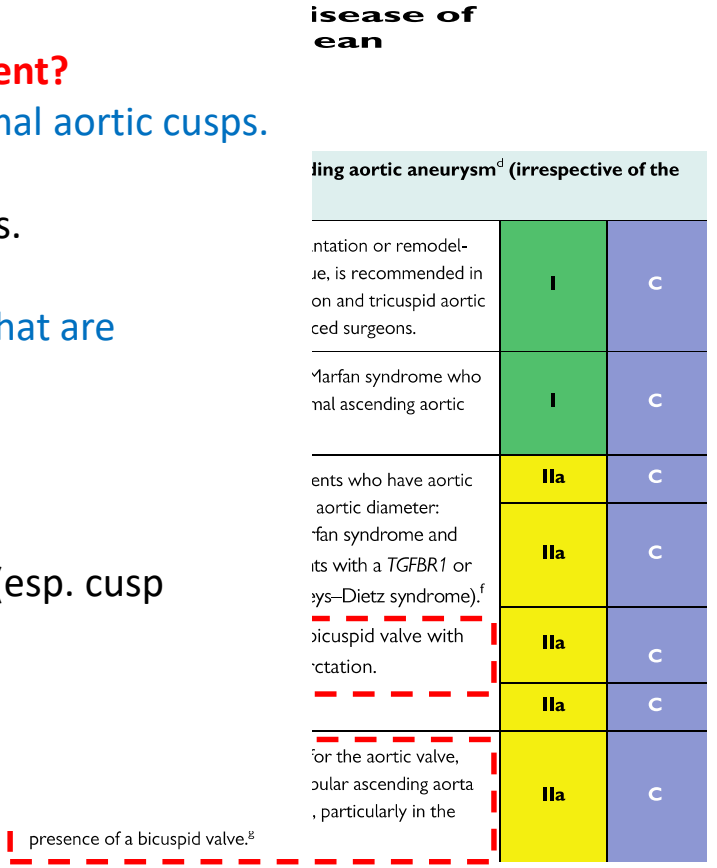
ESC/EACTS GUIDELINES

2017 ESC/EACTS Guidelines for the

Candidates for Valve Sparing Aortic Root Replacement?

- Any patient with an aortic root aneurysm and normal aortic cusps.
- Acute Type A Aortic dissection – patient in extremis.
- Patients with root aneurysm and abnormal cusps that are repairable.
- **Bicuspid aortic valve – gaining experience**
- Severe aortic insufficiency heightens the difficulty (esp. cusp pathology).



isease of
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ling aortic aneurysm[d] (irrespective of the		
ntation or remodel- ue, is recommended in on and tricuspid aortic ced surgeons.	I	C
Marfan syndrome who nal ascending aortic	I	C
ents who have aortic aortic diameter:	IIa	C
fan syndrome and its with a *TGFBR1* or eys–Dietz syndrome).[f]	IIa	C
bicuspid valve with ctation.	IIa	C
	IIa	C
for the aortic valve, bular ascending aorta , particularly in the presence of a bicuspid valve.[g]	IIa	C

< 4 mm

< 9 mm

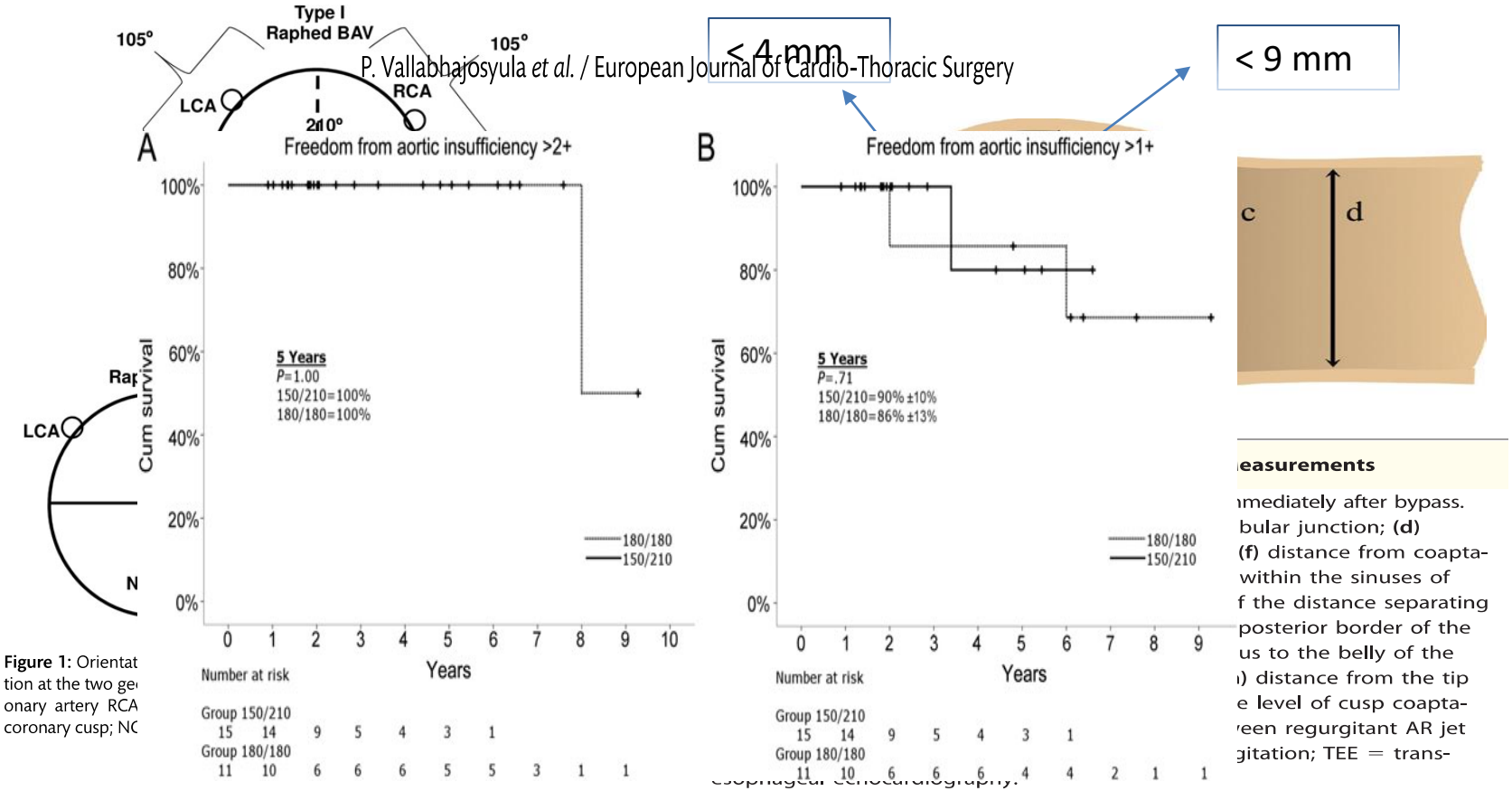

Figure 1: Orientat
tion at the two ge
onary artery RCA
coronary cusp; NC

easurements

mediately after bypass.
bular junction; **(d)**
(f) distance from coapta-
within the sinuses of
f the distance separating
posterior border of the
us to the belly of the
) distance from the tip
e level of cusp coapta-
een regurgitant AR jet
gitation; TEE = trans-

esophageal echocardiography.

Figure 2: Kaplan–Meier actuarial survival curves comparing the 150°/210° orientation group to the 180°/180° orientation group. (**A**) Freedom from aortic insufficiency >2+. (**B**) Freedom from aortic insufficiency >1+.

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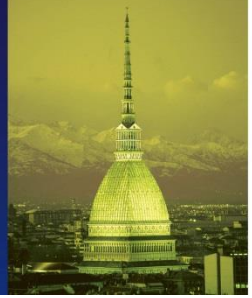

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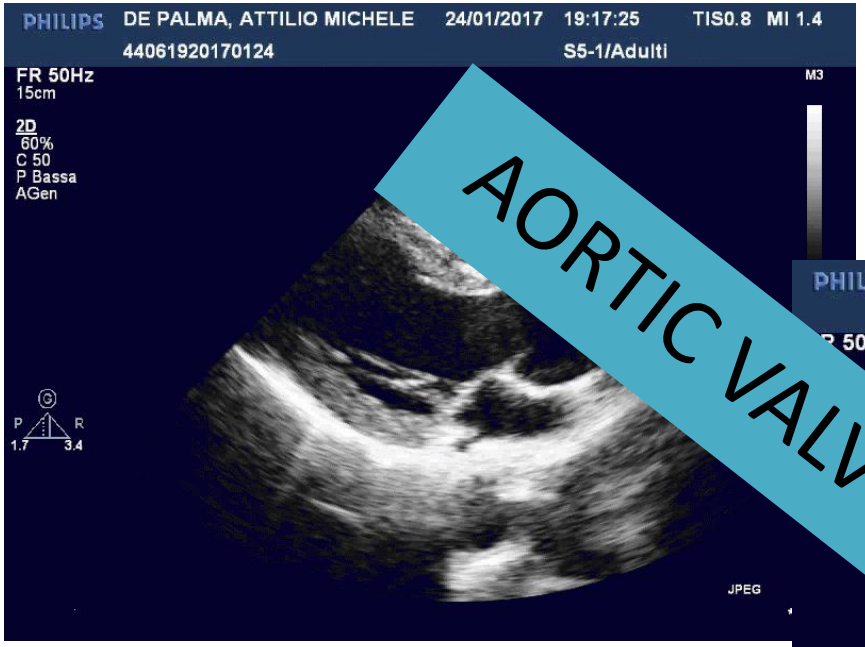
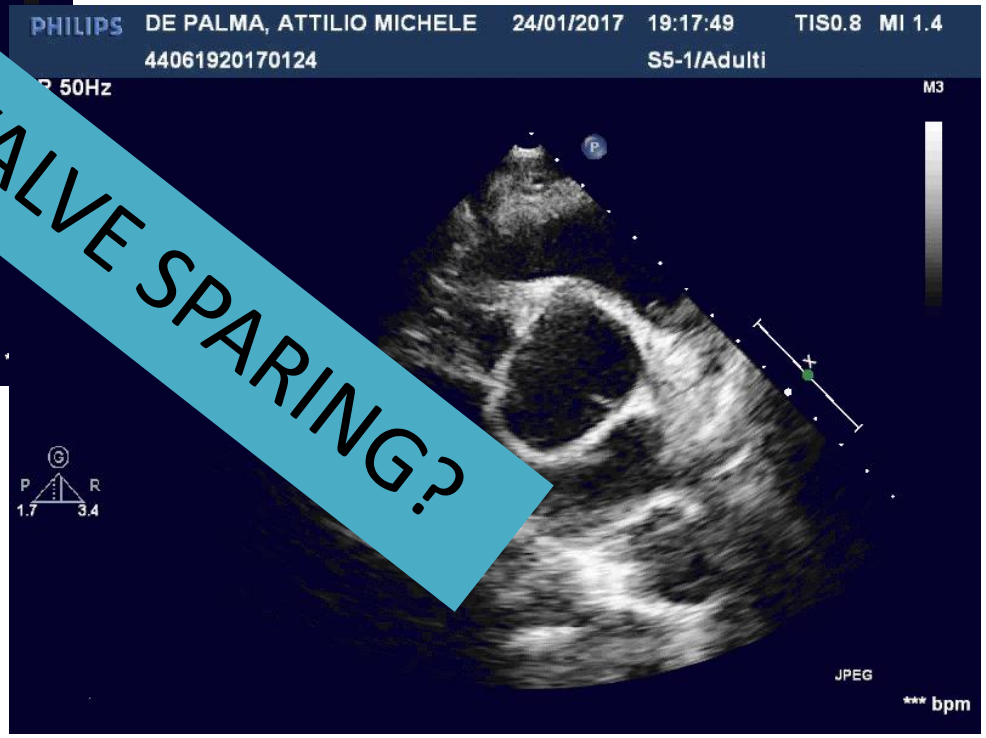
AORTIC VALVE SPARING?





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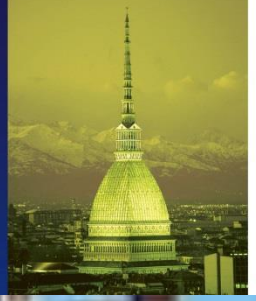

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THANKS

**Medicine in a science
of UNCERTAINTY and
an art of PROBABILITY**

William Osler