



IV congresso nazionale di ecocardiochirurgia
10/12.3.2010

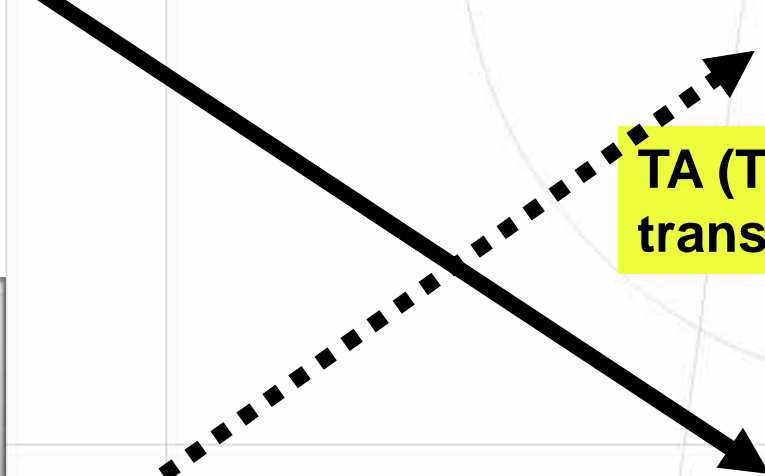
Lo spazio della sostituzione transapicale della valvola aortica.

*Le indicazioni, la tecnica, i risultati di una
tecnica solo apparentemente più cruenta*

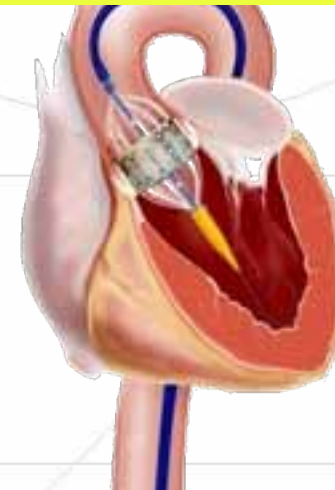
Dr. E. Vitali

Direttore Dip.to Cardiovascolare Humanitas

Quale accesso?



**TA (Transapicale) o
transaortica (CV)**



TF (Transfemorale)

Corevalve: non solo dalle arterie periferiche



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Transapical implantation of a self-expanding aortic valve bioprosthesis – animal feasibility study[☆]

Arie-Pieter Kappetein^{a,*}, Nicolo Piazza^b, Jean-Claude Laborde^c,
Peter P. de Jaegere^b, Patrick W. Serruys^b

Catheterization and Cardiovascular Interventions 00:000–0

In press

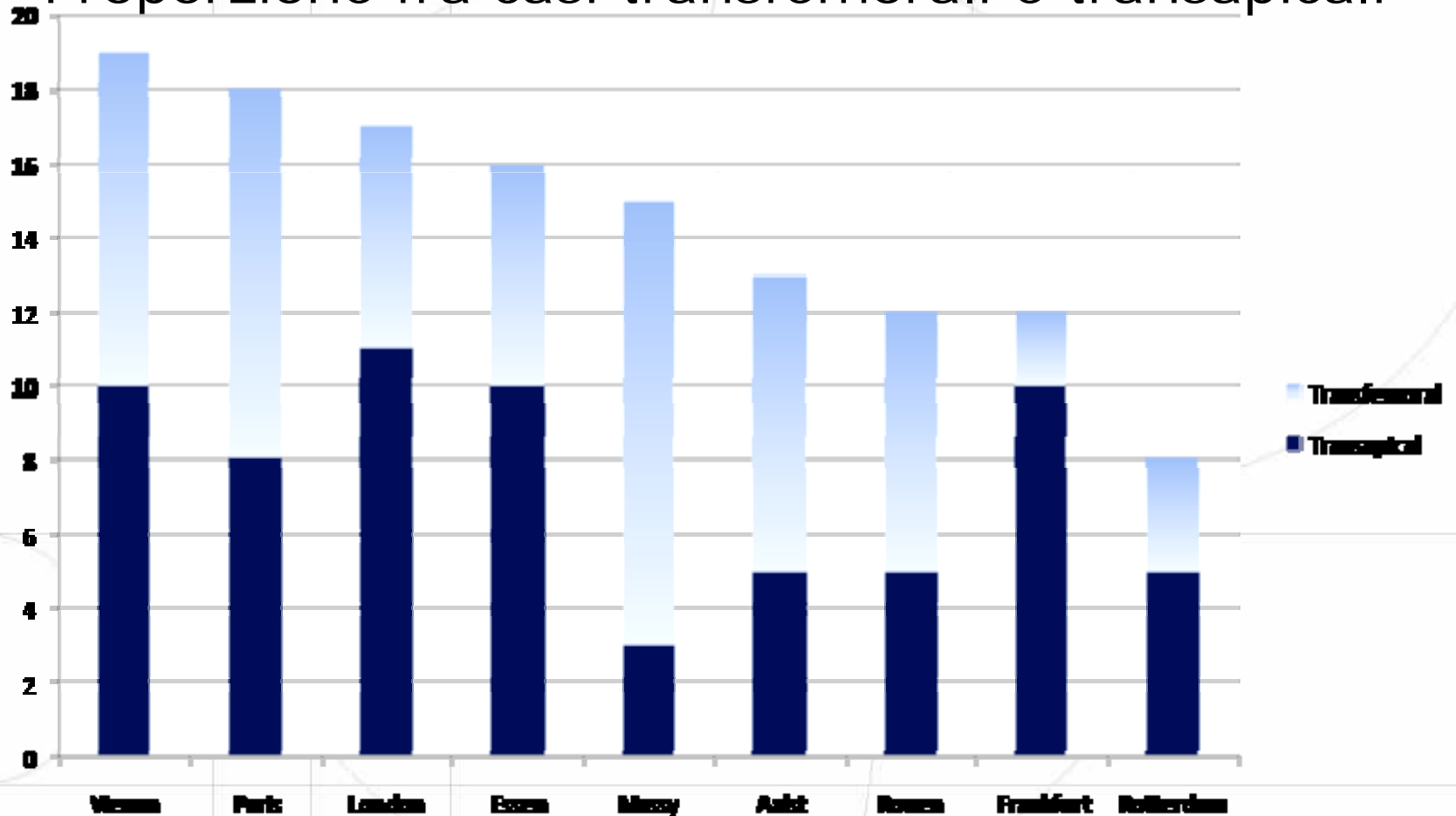
Case Report

Transaortic Transcatheter Aortic Valve Implantation: A Novel Approach for the Truly “No-Access Option” Patients

George Latsios,^{*} MD, Ulrich Gerckens, MD, and Eberhard Grube, MD

Quale accesso?

Proporzione fra casi transfemorali e transapicali



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Quale accesso?

Gli indirizzi del produttore



Edwards SAPIEN™ Transcatheter Heart Valve: **Contraindications**

- Non-valvular aortic stenosis
- **Congenital aortic stenosis, unicuspid, or bicuspid aortic valve**
- Non-calcific acquired aortic stenosis
- Evidence of intracardiac mass, thrombus or vegetation
- **Untreated clinically significant coronary artery disease requiring revascularization**
- Severe deformation of the chest
- Severe coagulation problems
- Active bacterial endocarditis or other active infections
- Myocardial infarction (MI) within 1 month
- Unstable angina during index hospitalization
- Recent pulmonary emboli
- Recent cerebrovascular accident (CVA)
- Patients unable to tolerate anticoagulation therapy
- Significant atheroma of the femoral and iliac vessels
- Severe tortuosities of the femoro-iliac vessels
- Femoro-iliac vessels < 7 mm
- Patients with bilateral iliofemoral bypass
- Hypertrophic cardiomyopathy with or without obstruction (HOCM)
- **Severe ventricular dysfunction with ejection fraction < 20%**



TRANSAPICAL

Quale accesso?

EVOLVING TECHNOLOGY

Prevalence of significant peripheral artery disease in patients evaluated for percutaneous aortic valve insertion: Preprocedural assessment with multidetector computed tomography

Vikram Kurra, MD,^{a,b} Paul Schoenhagen, MD,^{a,b} Eric E. Roselli, MD,^a Samir R. Kapadia, MD,^a E. Murat Tuzcu, MD,^a Roy Greenberg, MD,^a Mateen Akhtar, MD,^a Milind Y. Desai, MD,^{a,b} Scott D. Flamm, MD,^{a,b} Sandra S. Halliburton, PhD,^b Lars G. Svensson, MD,^a and Srikanth Sola, MD^{a,b}

From the Heart & Vascular Institute^a and the Imaging Institute,^b Cleveland Clinic, Cleveland, Ohio.

The Journal of Thoracic and Cardiovascular Surgery • May 2009

Results: One hundred patients (79 ± 9 years, 59% male) were included. A total of 35 (35%) patients had at least one criterion of unsuitable iliofemoral anatomy, including 27 patients with small minimal luminal diameter (<8 mm), 12 patients with severe circumferential calcification at the iliac bifurcation ($>60\%$), and 4 with severe angulation of the iliac arteries ($<90^\circ$).

Quale accesso?



Le misure contano...

a. Indirizzo "*Marketing-oriented*"

**Riduzione calibro
introduttori**



**Facilitare l'accesso
periferico ("cardiologico")**

b. Indirizzo "*Patient-oriented*"

**Sviluppo protesi più
grandi (per anelli
valvolari > 24 mm)**



Trattare più pazienti!

**Il 20% dei pazienti indirizzati a THV viene scartato
per anello valvolare aortico troppo grande!!!**

Quale accesso?

Quando è consigliabile o obbligatorio, l'approccio **transapicale**:

1. Arterie femorali o iliache <7 mm, o bypass iliofemorale
2. Estese calcificazioni delle arterie femorali o iliache o alla biforcazione aorto-iliaca
3. Severa tortuosità dei vasi femorali o iliaci o dell'aorta
4. Radice aortica orizzontalizzata
5. Stretto raggio di curvatura dell'arco aortico
6. Malattia aortica importante (aneurisma, tortuosità...)
7. Ateromi aortici (arco, discendente) visti al TEE
8. Aorta a porcellana
9. Stenosi aortica calcifica serratissima che renda molto difficoltoso il "crossing" retrogrado



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Post CE Mark Experience/ SOURCE Registry 30 Day Results

At 30 day	Transapical
Survival*	88.4%
NYHA	Class I: 38.9% Class II: 55.6% Class III: 5.6% Class IV: 0.0%
MI	3.4%
Stroke	1.7%
Vascular Complications	0.0%

Collocazione dell'approccio TA:

2 anni fa

- Tecnica più nuova e meno collaudata rispetto all'approccio TF



skill inferiore

- Impiegata prevalentemente come seconda scelta (TF first), in pazienti non eligibili per procedura TF



pazienti peggiori

Risultati TA peggiori rispetto a TF

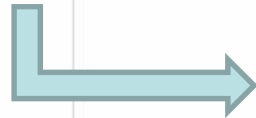
Collocazione dell'approccio TA: oggi

- Tecnica collaudata come la TF



skill equiparabili

- Laddove non è impiegata sistematicamente come seconda scelta



pazienti equiparabili

Risultati TA simili rispetto a TF

Results of Transfemoral or Transapical Aortic Valve Implantation Following a Uniform Assessment in High-Risk Patients With Aortic Stenosis

Dominique Himbert, MD,* Fleur Descoutures, MD,* Nawwar Al-Attar, MD, PhD,† Bernard Iung, MD,* Gregory Ducrocq, MD,* Delphine Détaint, MD,* Eric Brochet, MD,* David Messika-Zeitoun, MD,* Fady Francis, MD,‡ Hassan Ibrahim, MD,§ Patrick Nataf, MD,† Alec Vahanian, MD*

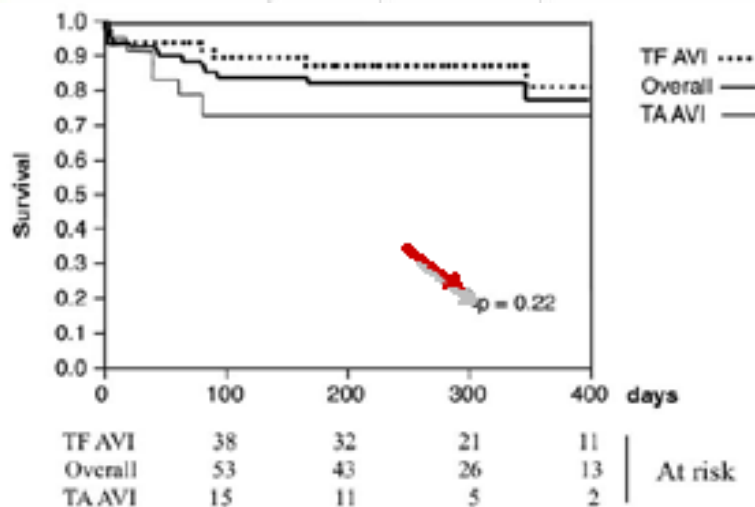


Figure 2 Survival After TAVI

Table 5

Multivariate Analysis of the Predictors of Late Mortality in Patients Treated With TAVI

Model	Hazard Ratio	95% Confidence Interval	p Value
Model using the EuroSCORE			
Early* versus late† experience	8.9	2.3-34.6	0.002
Transapical versus transfemoral	2.7	0.9-8.1	0.08
Logistic EuroSCORE (1-point increase)	0.98	0.93-1.02	0.28
Model using the STS-PROM			
Early* versus late† experience	7.2	1.9-27.1	0.004
Transapical versus transfemoral	2.5	0.8-7.7	0.12
STS-PROM score (1-point increase)	0.99	0.93-1.06	0.86

*First 25 patients. †Last 50 patients.

Abbreviations as in Table 1.

TF vs TA: popolazioni simili, ma diverse

Survival after transapical and transfemoral aortic valve implantation: Talking about two different patient populations

Sabine Bleiziffer, MD, Hendrik Ruge, MD, Domenico Mazzitelli, MD, Andrea Hutter, MD, Anke Opitz, MD, Robert Bauernschmitt, MD, PhD, and Rüdiger Lange, MD, PhD

J Thorac Cardiovasc Surg 2009;138:1073-80

TABLE 1. Preoperative patient characteristics

Parameter	Transfemoral	Transapical	P value				
	TAVI (n = 153)	TAVI (n = 50)		Coronary heart disease	78/153 (51%)	33/50 (66%)	.045
Age (y)	81.4 ± 6.7	81.5 ± 5.9	.946	Previous PTCA/stent	28/153 (18%)	14/50 (28%)	
Female gender (n)	80/153 (52%)	39/50 (78%)	.001*	Previous coronary surgery	25/153 (16%)	9/50 (18%)	
Logistic EuroSCORE (%)	22.1 ± 13.6	22.0 ± 14.9	.972	Peripheral vessel disease	26/153 (17%)	26/50 (52%)	<.001
STS score (%)	6.5 ± 4.1	6.3 ± 3.8	.786	Cerebrovascular disease	24/153 (16%)	16/50 (32%)	.012
NYHA class	3.1 ± 0.3	3.1 ± 0.2	.075	Previous stroke	17/153 (11%)	4/50 (8%)	.362
Self-assessed health state (%)	52.7 ± 18.0	47.7 ± 19.8	.160	Previous cardiac surgery	28/153 (18%)	11/50 (22%)	.349
Preoperative BNP value	6157 ± 7956	12472 ± 28722	.025	High-grade atrioventricular valve lesion	32/153 (21%)	8/50 (16%)	.295
Preoperative valve orifice area (cm ²)	0.66 ± 0.2	0.58 ± 0.2	.019	COPD	35/153 (23%)	6/50 (12%)	.096
				Pulmonary hypertension	34/153 (22%)	14/50 (28%)	.257
				Renal insufficiency	31/153 (20%)	10/50 (20%)	.573
				Ejection fraction < 50%	64/153 (42%)	17/50 (34%)	.208

TF vs TA: un problema dell'intero tragitto, non solo della porta d'accesso

Results: Thirty-day survival was 88.8% after transfemoral versus 91.7% after transapical implantation ($P = .918$).

... whereas neurologic events did not occur in the transapical group ($P = .041$).

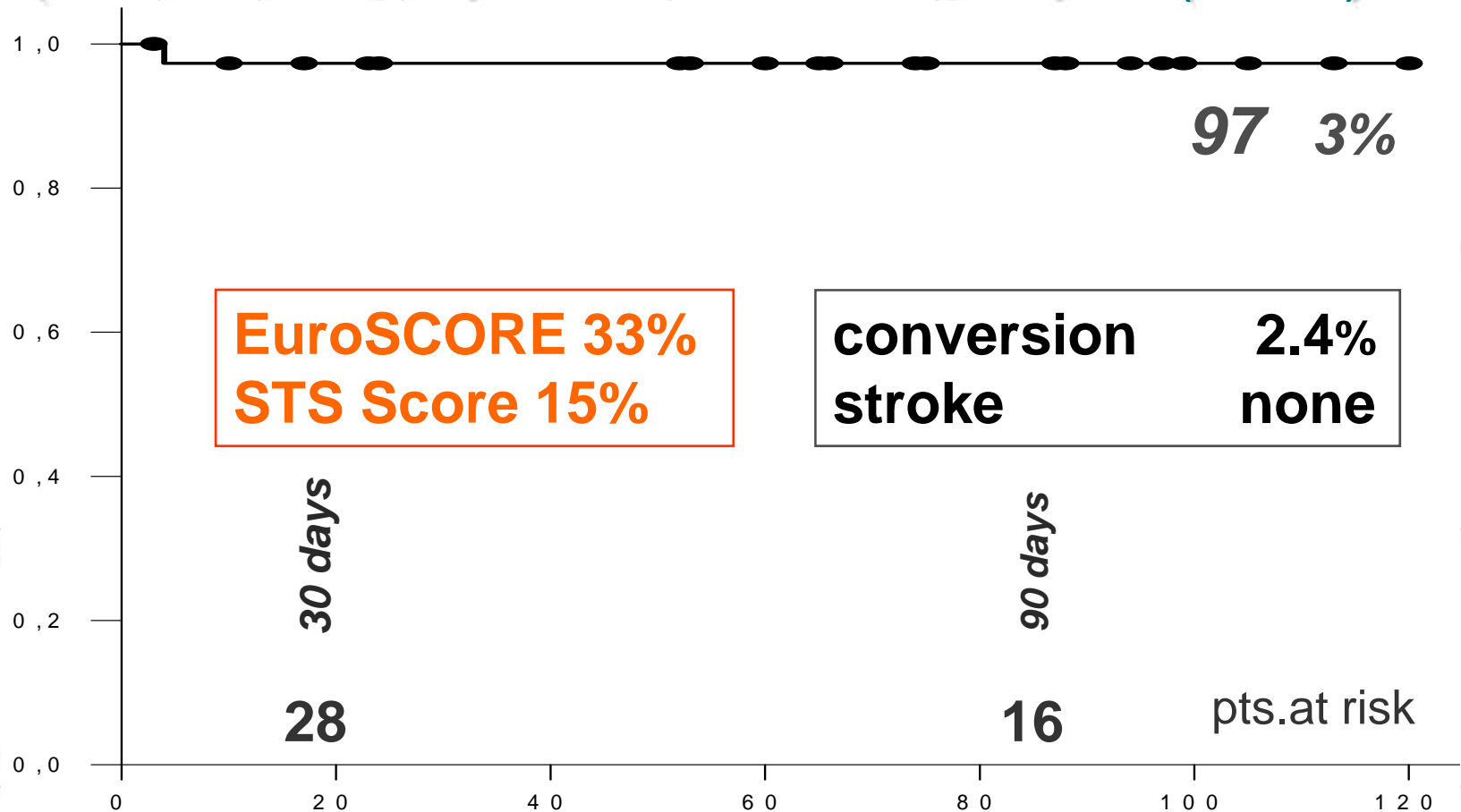
TABLE 2. Intraoperative data

Parameter	Transfemoral TAVI (n = 153)	Transapical TAVI (n = 50)	P value
Contrast agent (mL)	152 ± 65	116 ± 50	<.001
Fluoroscopy time (min)	26.6 ± 9.9	14.8 ± 9.6	<.001
Dose-area-product ($\mu\text{Gy} \cdot \text{cm}^2$)	29,927 ± 18,349	19,580 ± 18,049	.001
Procedure time (min)	76.4 ± 34.4	95.4 ± 26.1	<.001
Intraprocedural cardiac depression	27/153 (18%)	14/50 (28%)	.086

Conclusions: ... The neurologic risk profile of the patients should be included in the decision-making process before transcatheter aortic valve implantation, inasmuch as neurologic events may be reduced with the transapical access.

L'esperienza di Lipsia: TA first

Sopravvivenza – esperienza “recente” di Lipsia (n=41)



August 31, 2008

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Editorial

Transapical aortic valve implantation: is it ready for prime time?

Michael J. Mack*

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TX, USA*

The results from Leipzig showing excellent outcomes with TA in the 'all comer' patient population are comparable to outcomes in 'TF first' selected patient population. Unfortunately, the TF first approach adopted in most centres causes selection bias, which mitigates 'for TF' and 'against TA' results, making balanced comparisons of the two techniques impossible.

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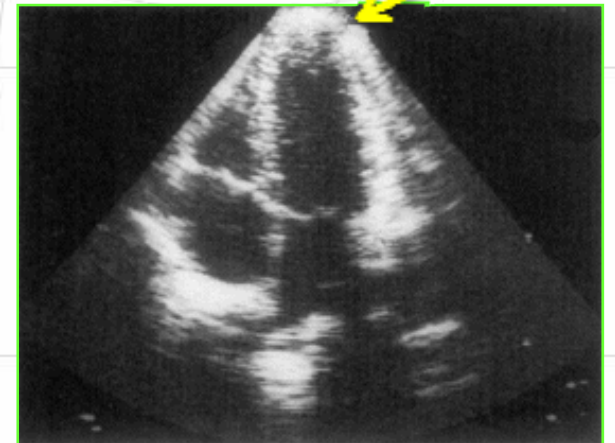
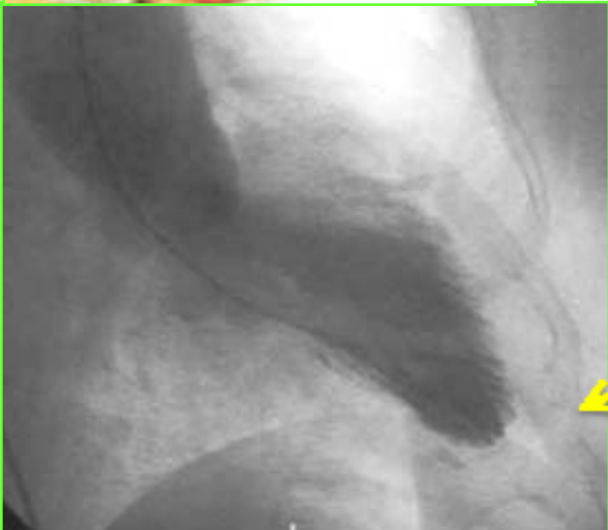
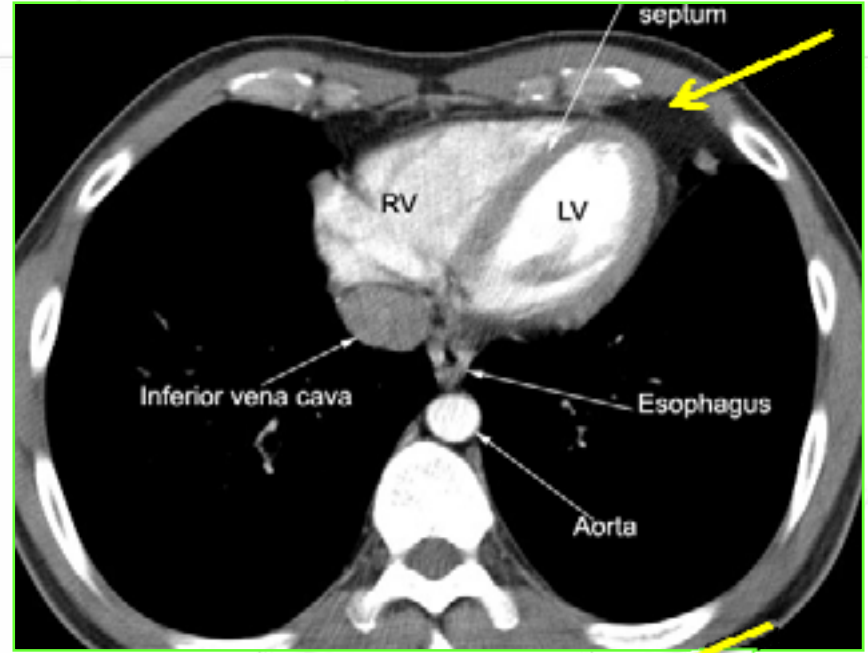
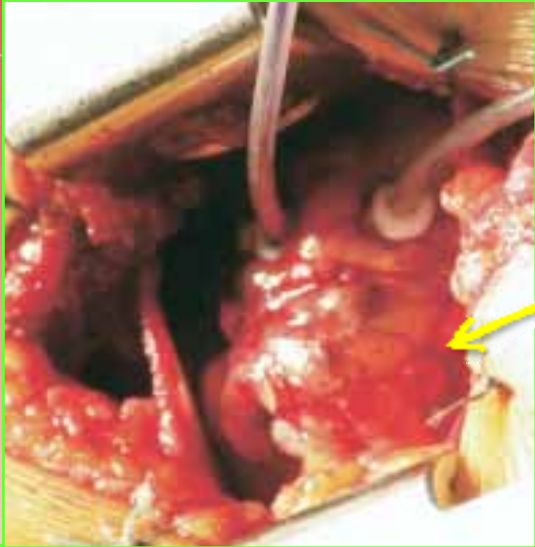
Verso il "TA first?"

L'approccio TA presenta alcuni vantaggi:

- Semplicità di impianto
- Minor incidenza di eventi neurologici
- Non complicanze vascolari periferiche

- (Minor incidenza di impianto PM)

Ricordi di anatomia



L'(ennesima) anomalia italiana

In tutto il mondo, ad oggi, sono **79** le protesi valvolari aortiche Corevalve impiantate con accesso dall'arteria succlavia

Di queste, ben **54** (circa il 68%!!!) sono state impiantate in Italia