



Hospices
Civils de
Lyon



Neochord for Secondary MR *JF Obadia (Lyon), A Colli (Padua)*



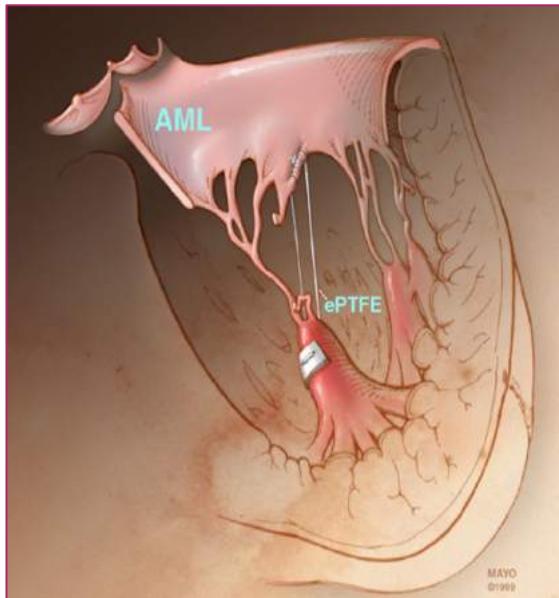
Cardiothoracic and Vascular Surgery Department
Hôpital Louis Pradel
LYON - France



<u>Affiliation/Financial Relationship</u>	<u>List of companies</u>
> Grant/Research Support	Boeringher, Abbott, Medtronic, Edwards, Neochord
> Consulting Fees/Honoraria	Edwards, Saint Jude Medical, Medtronic, Servier, Novartis
> Major Stock Shareholder/Equity	
> Royalty Income	Landanger, Delacroix-Chevalier
> Ownership/Founder	
> Intellectual Property Rights	Landanger, Delacroix-Chevalier
> Other Financial Benefit	Sorin, Astra Zeneca



Transapical Off Pump MV Repair



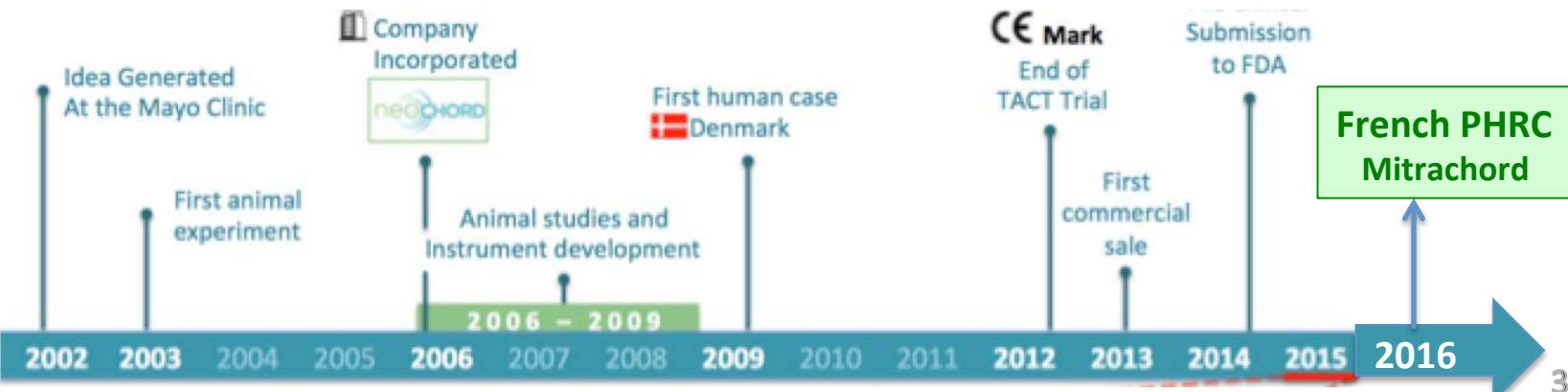
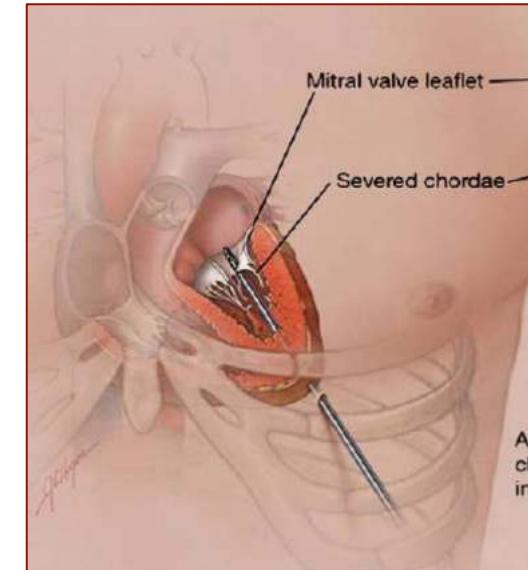
2009 : 1^{er} patient

2013 : CE mark

2014 : 100 Pts

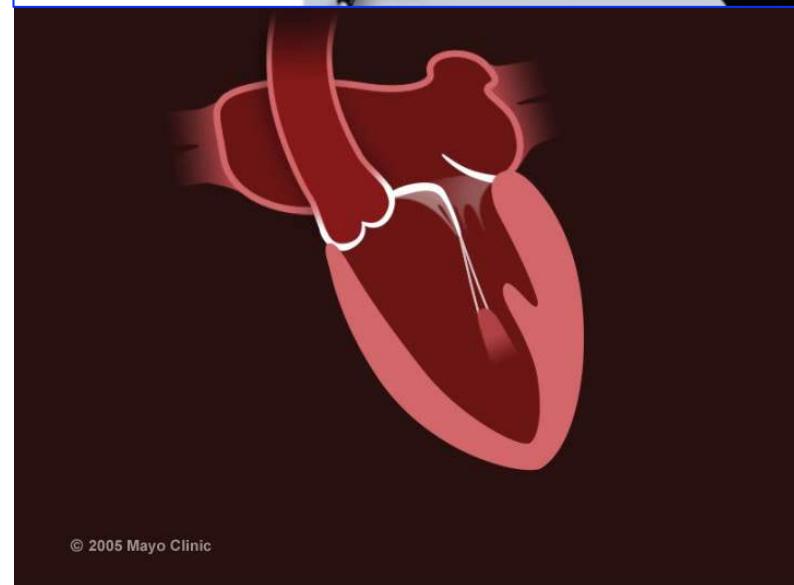
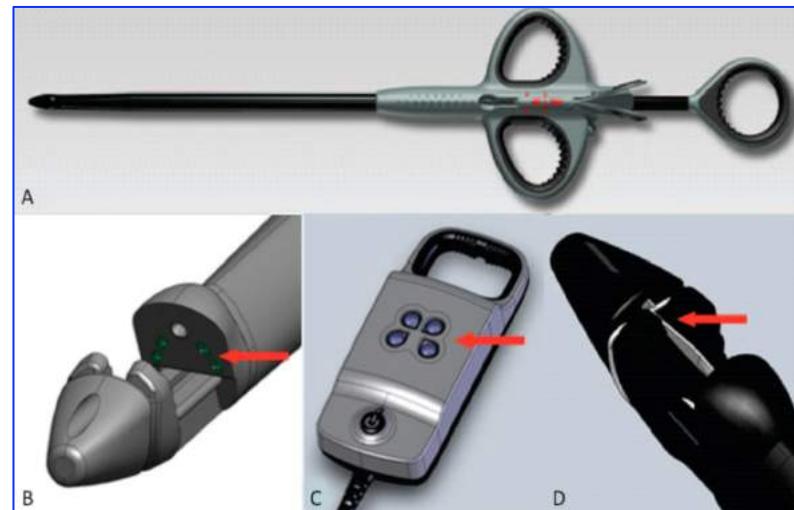
2015 : 300 Pts

2016 : > 500 Pts





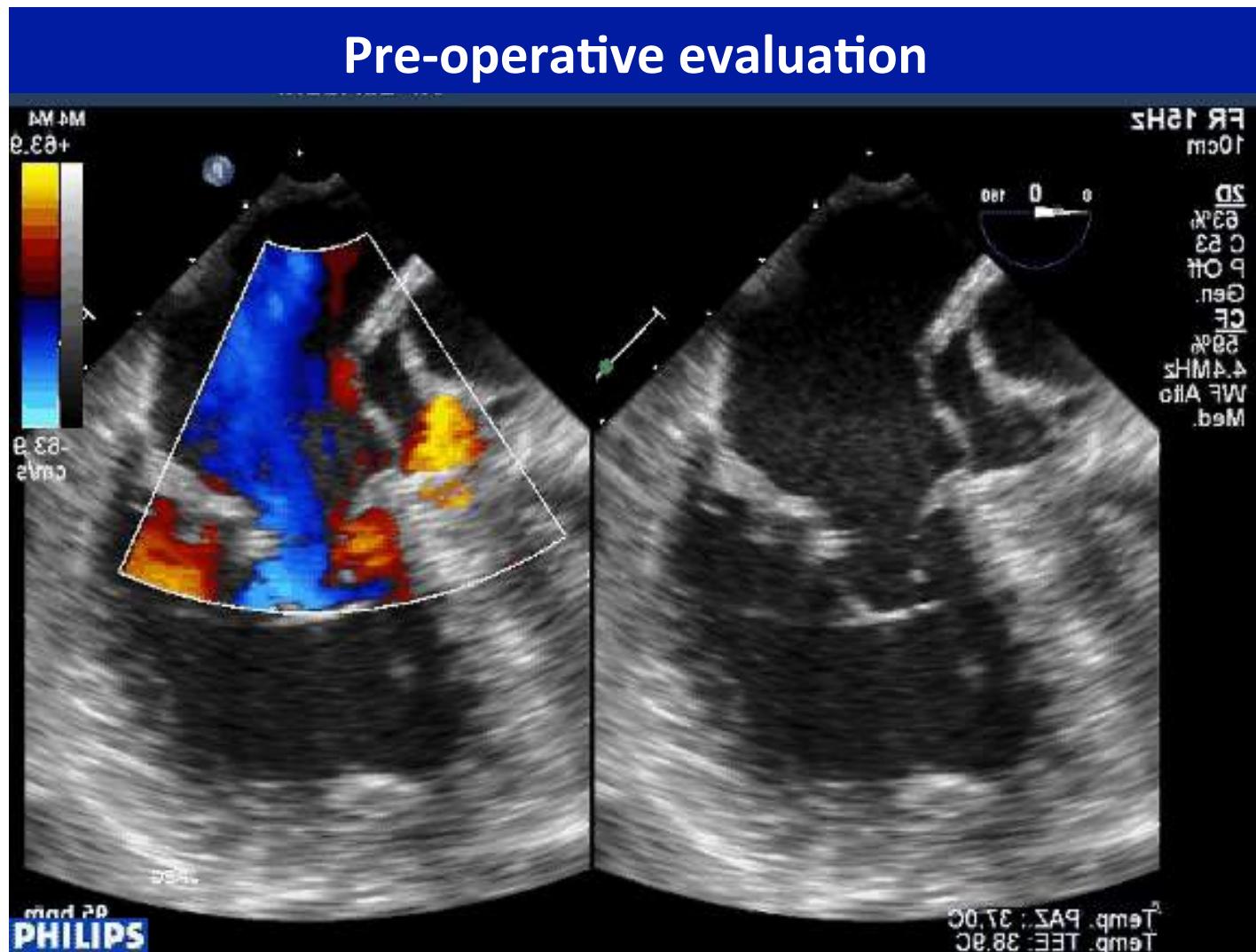
Neochord



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Pre-operative evaluation



INTRO

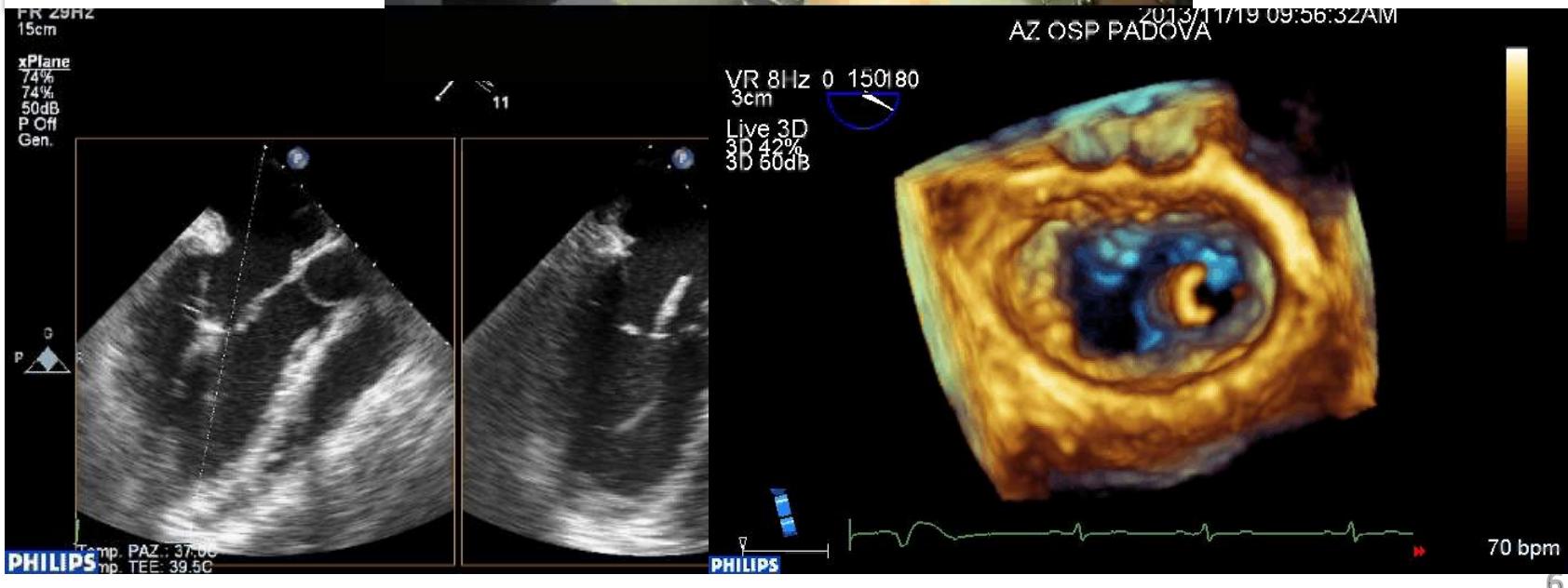
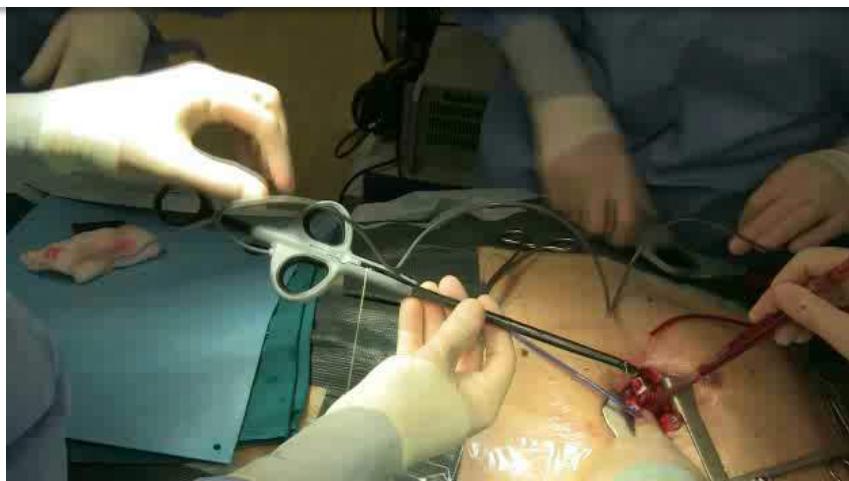
Technique

Results

Perspec-
tives

Conclusion

Implantation Technique



INTRO



Technique

Results

Perspec tives

Conclusion



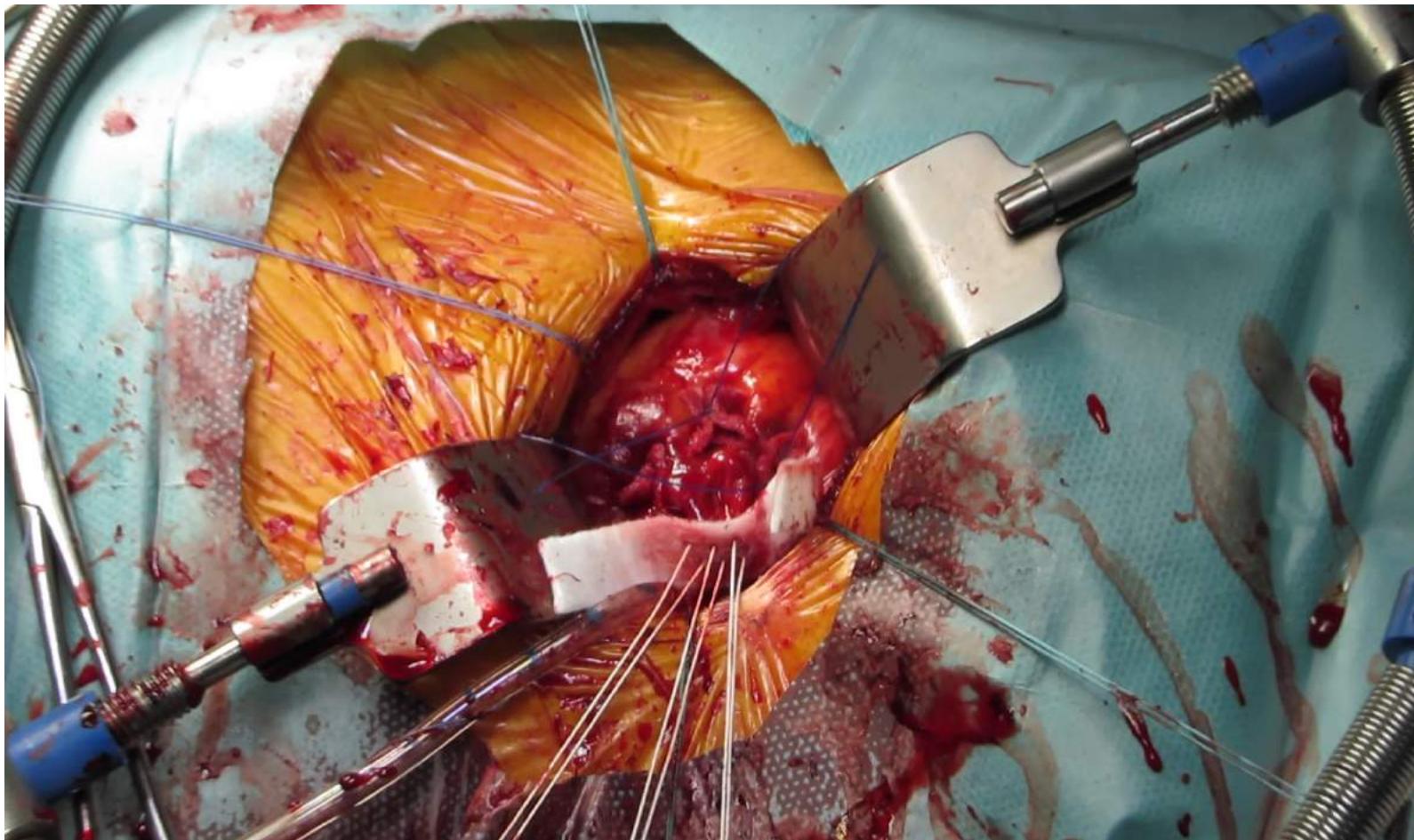
INTRO

Technique

Results

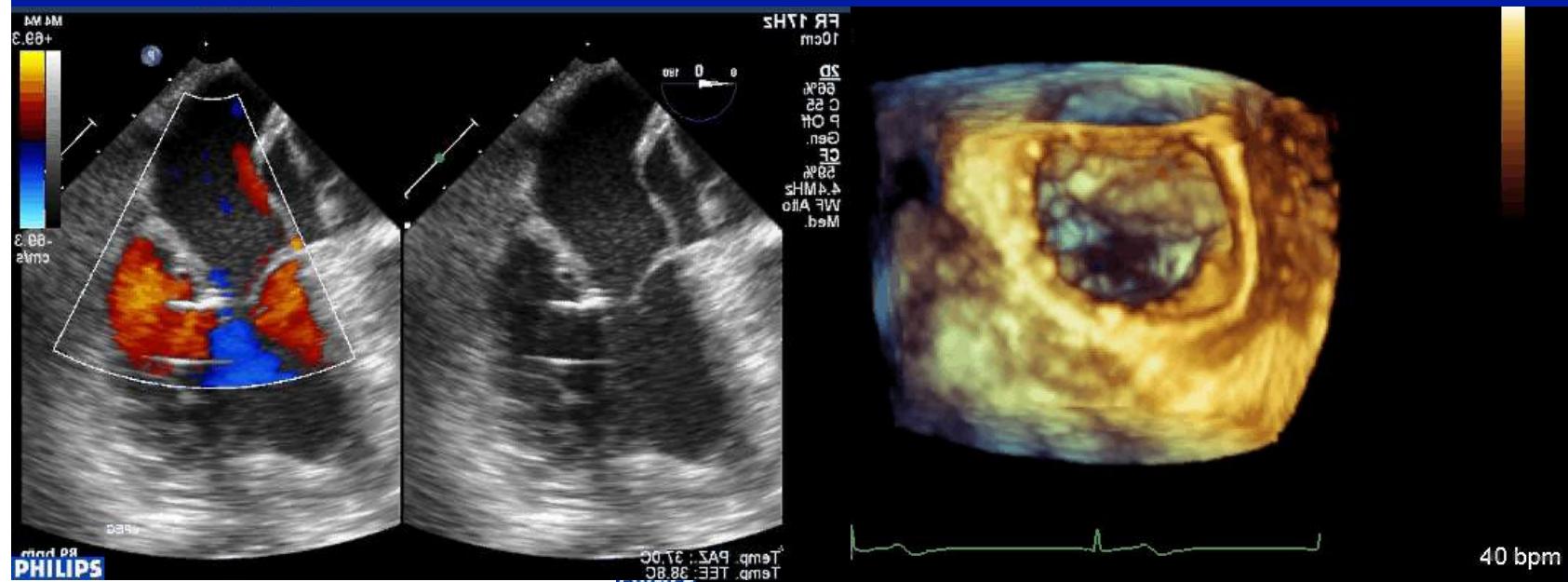
Perspec tives

Conclusion



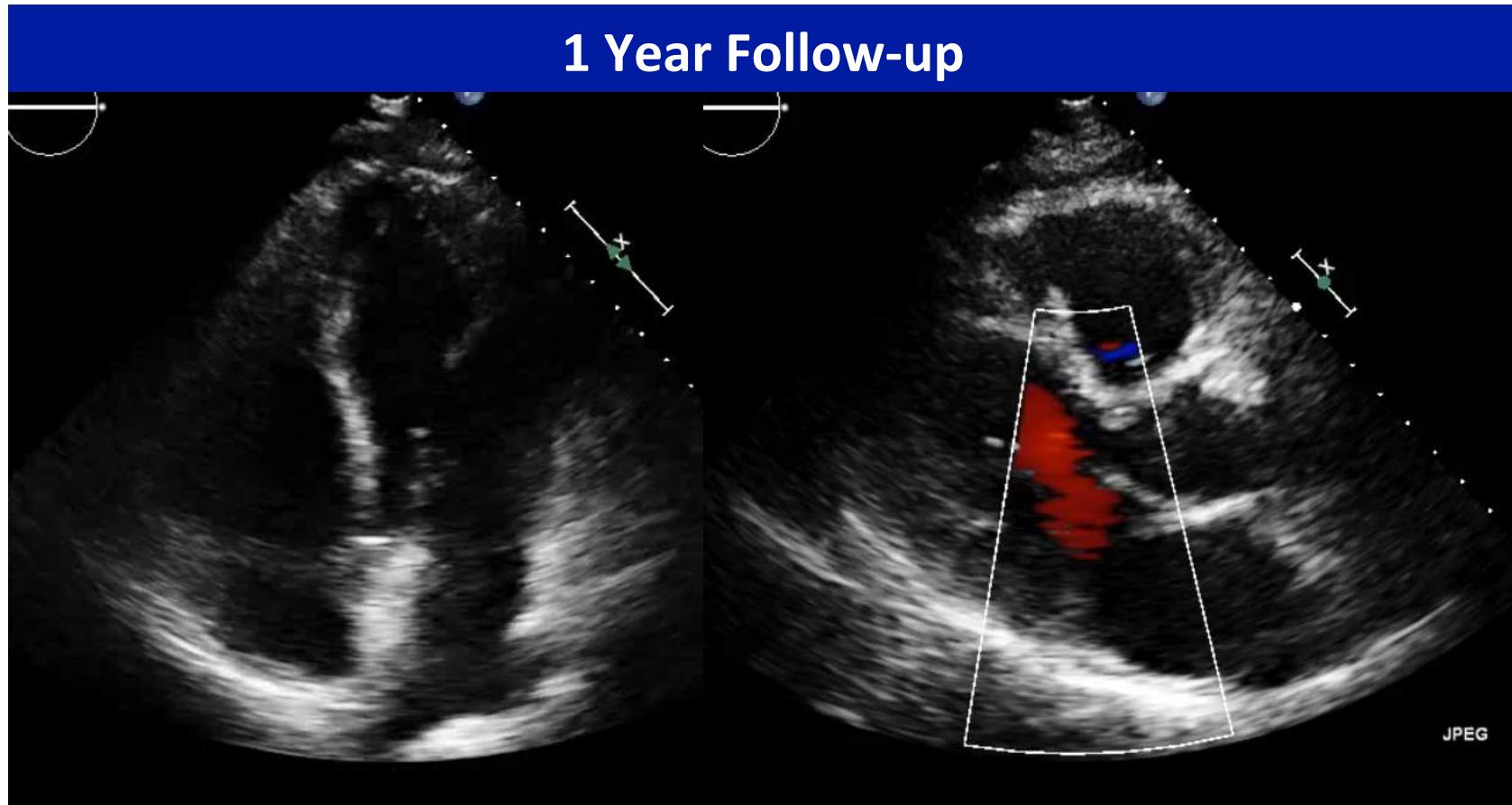


Post-implantation control



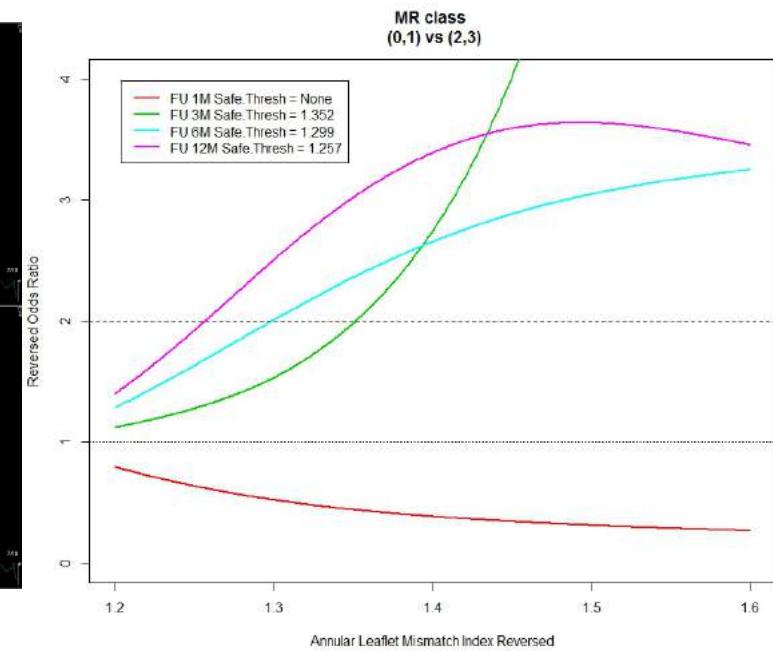
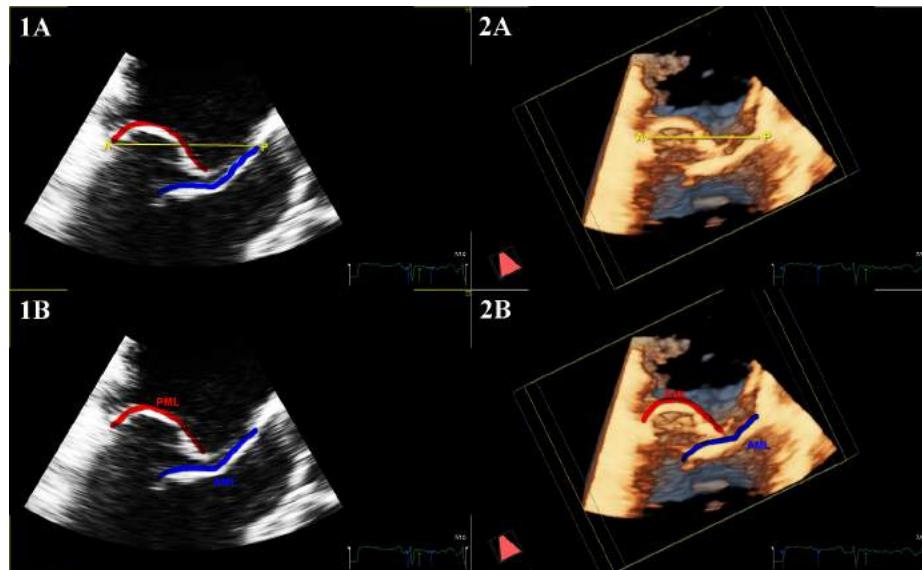


1 Year Follow-up





Leaflet-to-Annulus Index (LAI)



PML + AML
AP
 $\frac{PML + AML}{AP} > 1.25$ predictive of MR≤1+ at 1y FU

INTRO



Type A

- Eccentric regurgitant jet
- Central P2 prolapse, extension up to 50% of entire PML. No pericommissural involvement.
- No anterior leaflet prolapse or tethering
- No severe LV dilatation

Type B

- Eccentric regurgitant jet
- Extension of prolapse to include the portions of P1 or P3 adjacent to P2
- Or may have more than one prolapsing segment (P1+P2, P2+P3)

Type C

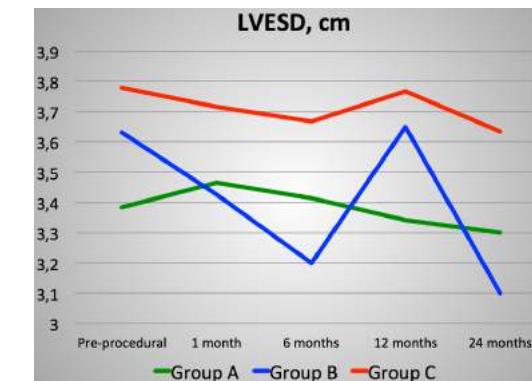
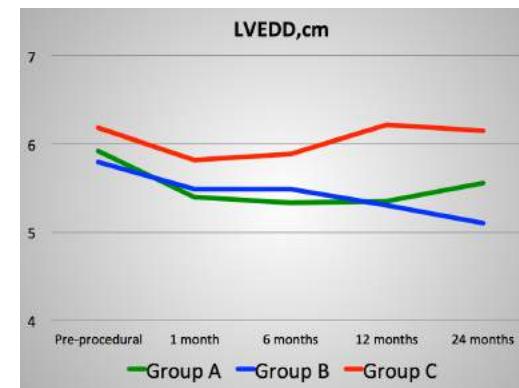
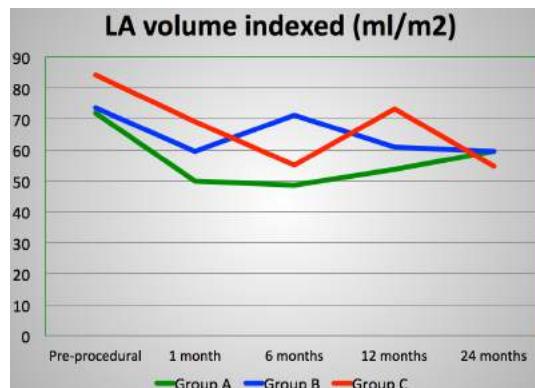
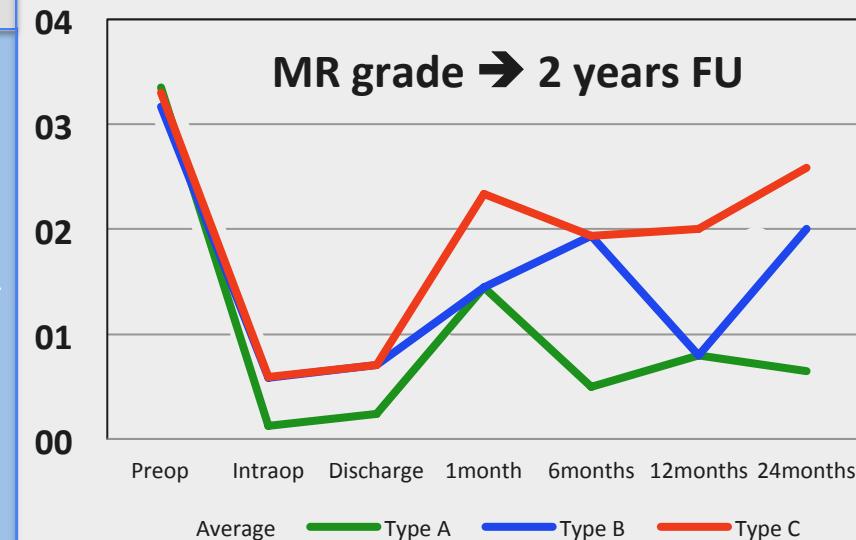
- Prolapse extending towards the commissures, involvement of anterior leaflet
- LV dilatation with initial tethering of AL (gullwing sign)
- Central component to regurgitant jet (lack of central coaptation)
- Calcified leaflet segments

Technique

Results

Perspec tives

Conclusion



Vilnius universiteto ligoninės
SANTARIŠKIŲ KLINIKOS

2 years Vilnius Experience, K. Rucinskas Vilnius, Lithuania



92 patients		<i>Dr Andrea COLLI – Padua</i>
Age (years)		65 (57-75)
Male		68 (73,9%)
Euroscore-II (%)		1,17 (0,7-1,9)
Previous Cardiac Surgery		3 (3,3%)
- NYHA I		10 (10,9%)
- NYHA II		42 (45,7%)
- NYHA III		39 (42,3%)
- NYHA IV		1 (1,1%)
MR grade		
- Absent/trace		0 (0%)
- Mild		0 (0%)
- Moderate		0 (0%)
- Severe		92 (100%)



	Baseline Characteristics	Median (I-III Quartile) or N (%)
Anatomic MV type	<ul style="list-style-type: none"> - A - B 	32 (34,8%) 60 (65,2%)
Left ventricular ejection fraction (%)	<ul style="list-style-type: none"> - ≤ 30 - 31-55 - > 55 	62 (58-67) 0 (0%) 22 (23,9%) 70 (76,1%)
Left ventricular end diastolic volume (ml/m ²)	<ul style="list-style-type: none"> - < 70 - 70-100 - > 100 	81,0 (70,9-91,9) 20 (21,7%) 63 (68,4%) 9 (9,8%)
Pulmonary artery hypertension (mmHg)	<ul style="list-style-type: none"> - ≤ 25 - 26 – 35 - 36 – 45 - > 45 	31.5 (26,8-40) 21 (22,8%) 34 (36.9%) 14 (15,2%) 19 (20.7%)



Operative Characteristics

Median (I-III Quartile) or N (%)

Neochordae in place (n)	4 (3-4) 3 (3,2%) 26 (28,3%) 45 (48,9%) 13 (14,1%) 4 (4,3%) 1 (1,1%)
Conversion to conventional surgery	1 (1,1%)
Procedural ECMO support	2 (2,2%)
Procedural IABP support	1 (1.1%)
Access site complications	0 (0.0%)
Ventricular fibrillation	1 (1,1%)
Operative time (min)	130 (116-155)

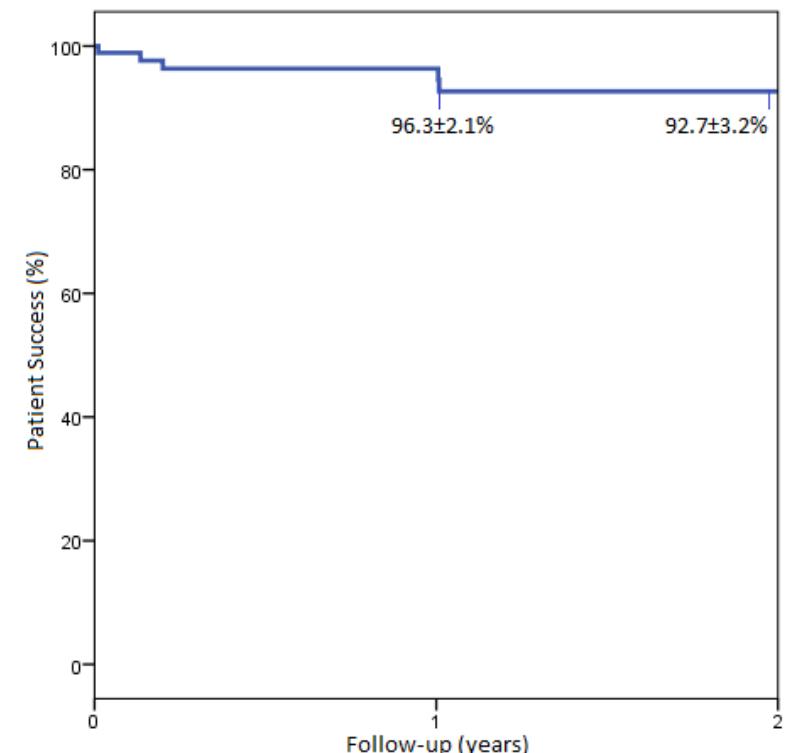


Postoperative Characteristics	(%)
Acute myocardial infarction	1 (1,1%)
Vascular complications	0 (0.0%)
Acute kidney injury <ul style="list-style-type: none"> - Stage I (creatinine increase > 150-199%) - Stage II (creatinine increase > 200-299%) - Stage III (creatinine increase > 300%) - Need of CVVH 	6 (6,6%) 0 (0,0%) 2 (2,2%) 2 (2,2%)
Bleeding <ul style="list-style-type: none"> - Minor - Major - Extensive 	8 (8,7%) 2 (2,2%) 4 (4,4%)
New onset atrial fibrillation <ul style="list-style-type: none"> - Paroxysmal - Persistent 	19 (20,9%) 3 (3,3%)



Composite Success :

- Procedure success
at least 2 neochordae
 $MR \leq \text{mild}$ $VC < 3\text{mm}$ $VR < 30\text{ml}$
- Freedom from MACE
death, stroke, $MR >$ moderate,
unplanned interventions
- decreased in NYHA ≥ 1 class



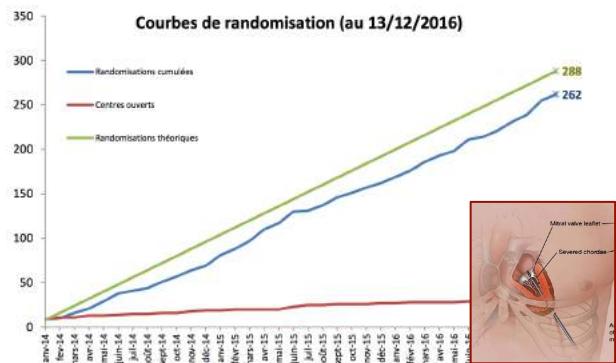
Pts at risk 92



TTE PARAMETERS	PRE-OP (Mean±SD)	2 YEARS FU (Mean±SD)	Δ (Mean±SD)	p value
AP diameter (mm)				
Systolic	34.9 ± 5.9	35.1 ± 3.8	↓ 0.2 ± 5.8	0.862
Diastolic	39.8 ± 5.6	39.4 ± 4.3	↓ 0.4 ± 6.1	0.741
LL diameter (mm)				
Systolic	36.3 ± 5.1	34.9 ± 4.9	↑ 1.5 ± 5.3	0.191
Diastolic	39.7 ± 4.4	39.6 ± 5.8	↑ 0.2 ± 6.7	0.904
LVEDVi (mL/m²)	80 ± 19.6	63.8 ± 19.8	↑ 16.2 ± 21.1	0.001
LVESVi (mL/m²)	35.8 ± 14.2	26 ± 8.9	↑ 9.7 ± 16.1	0.008
LAVi (mL/m²)	52.9 ± 21	45.5 ± 20	↑ 7.3 ± 16.7	0.057
LAD (mm)	58.5 ± 10.1	48.7 ± 9.7	↑ 9.8 ± 12.1	0.001
sPAP (mmHg)	39.5 ± 14.3	23.1 ± 8.5	↑ 16.4 ± 13.3	<0.001
LVEF (%)	60.4 ± 10	60 ± 5.1	↑ 0.4 ± 10.3	0.844



Prospective French Studies



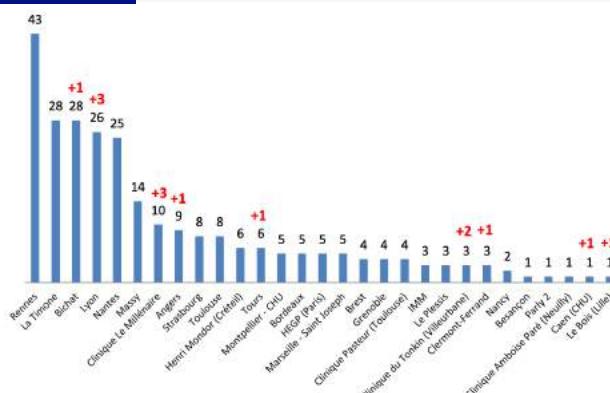
PHRC 2015 Mitrachord Primary MR / surg

2017 2018 2019 2020



PHRC 2014 Mitra.fr (Secondary MR)

2015 2016 2017 2018

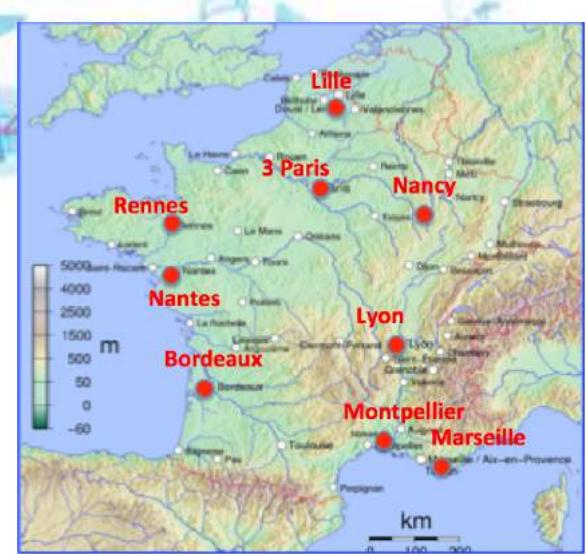


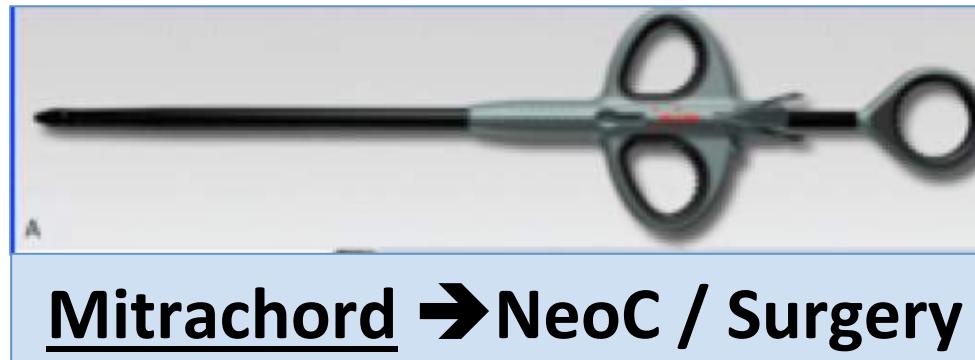
PHRC 2016 Primary MR High risk

2018 2019 2020 2021....



Reimbursement
Contraindication to Surgery





Inclusion Criteria:

- Symptomatic
- Severe MR \geq grade 3+
- **P2 or A2 Prolapse**
- Indicated for surgical MV repair
- LVEF $>30\%$

