BUILDING ENDOVASCULAR SYNERGIES
MEET 2008
MULTIDISCIPLINARY EUROPEAN ENDOVASCULAR THERAPY
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Difficult access – which is safer – apical introduction or iliac conduits

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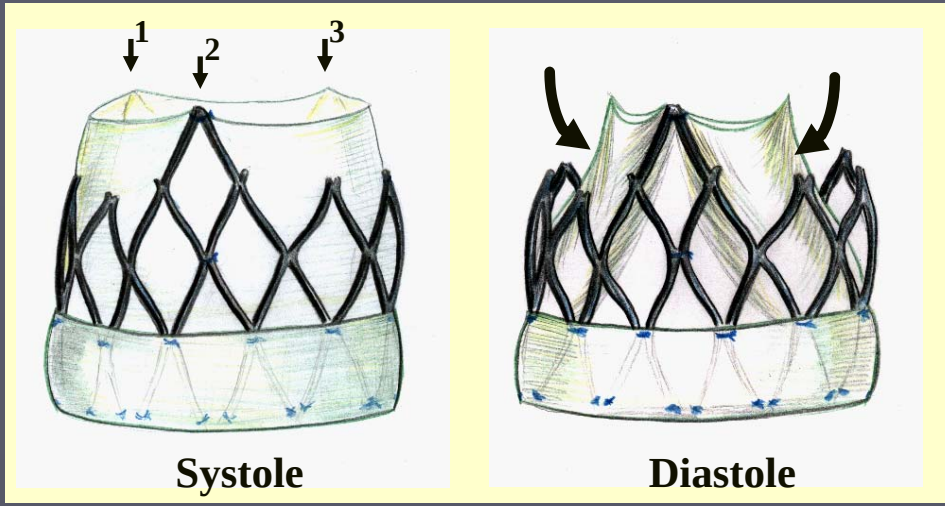
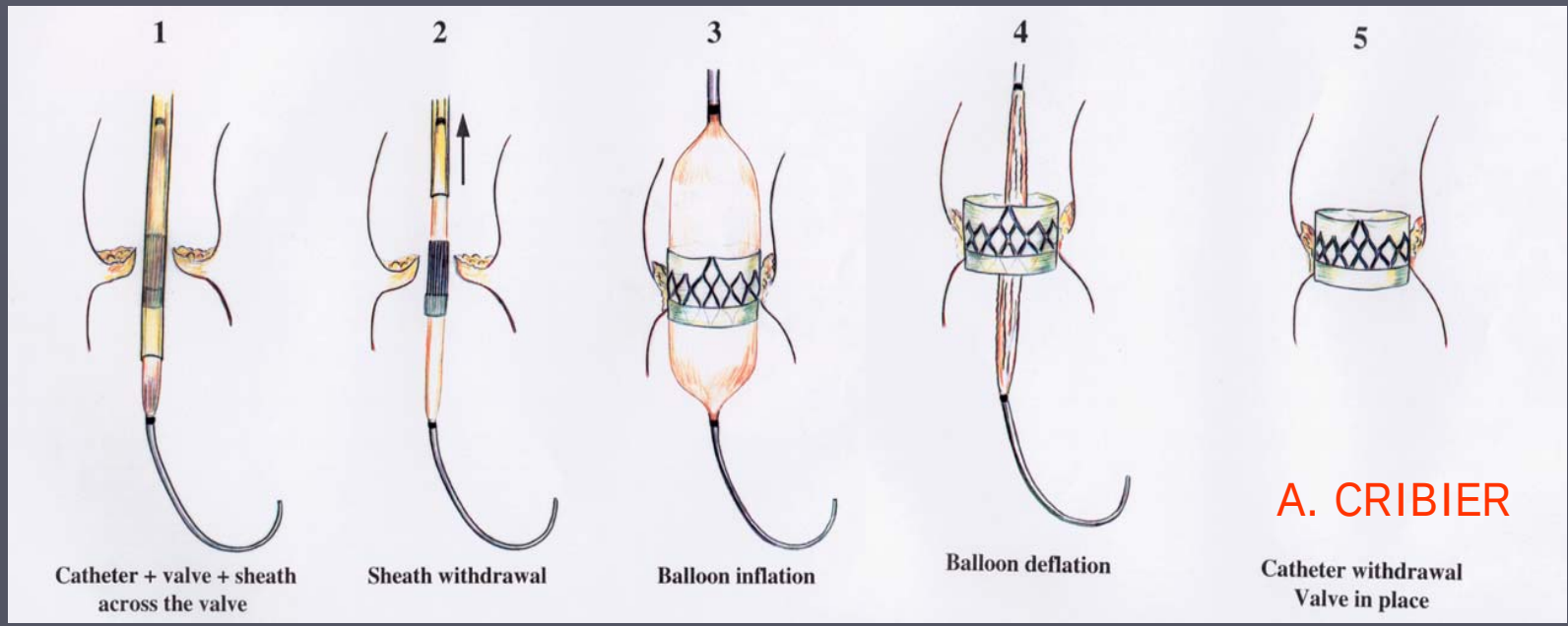
First diagrams (1993)

A. CRIBIER





F.I.M. PHV Implantation

57-y old patient in cardiogenic shock, multiple comorbidities

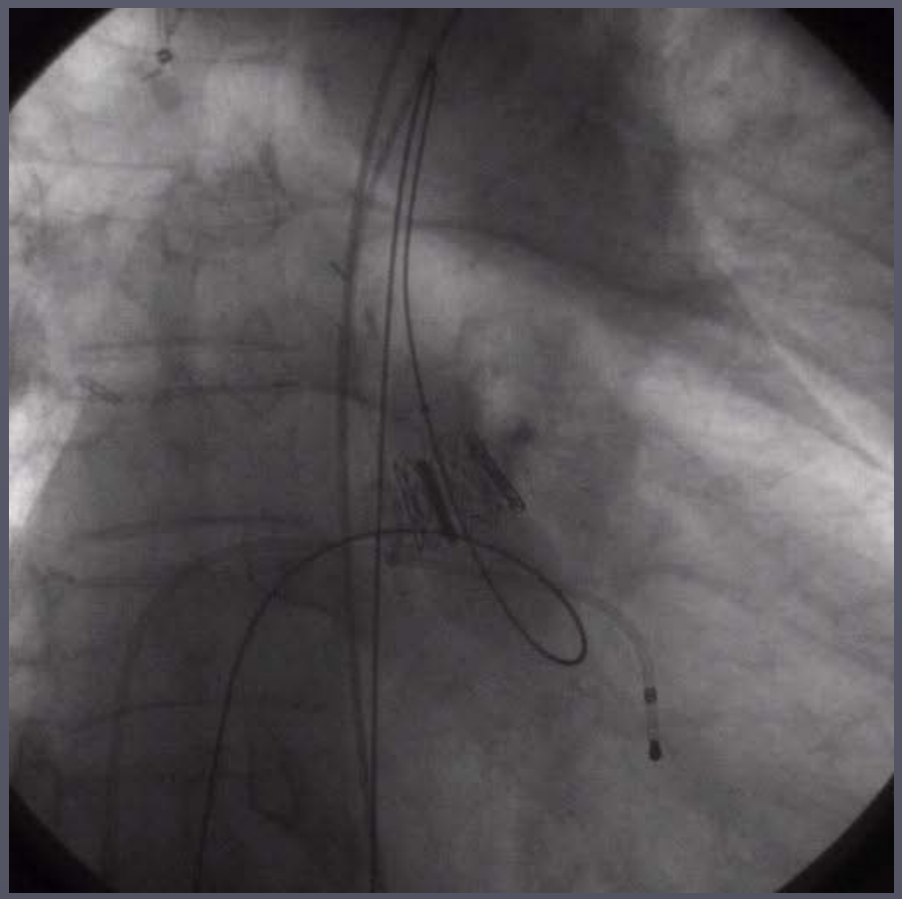
LVEF 12% ; declined by 3 cardiac surgery teams

Bilateral occlusion of aorto-femoral bypasses

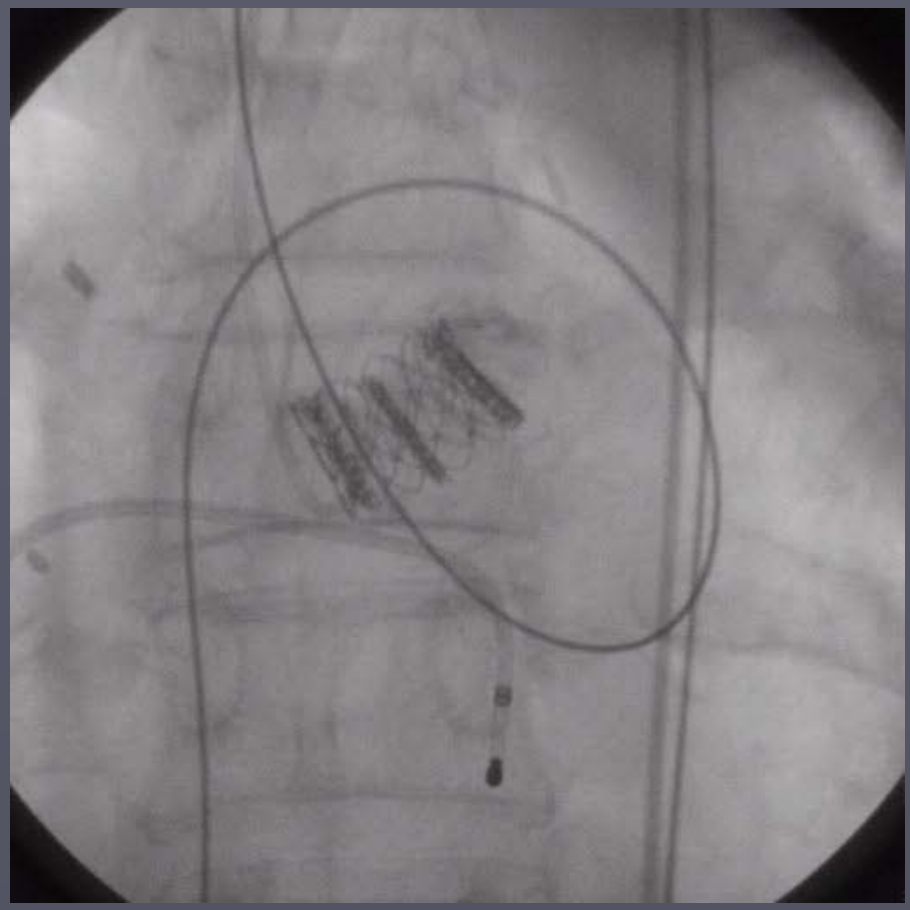
→ Transapical (transeptal) approach

April 16 , 2002 **8 days post-implantation**

F.I.M. PHV Implantation : valve delivery



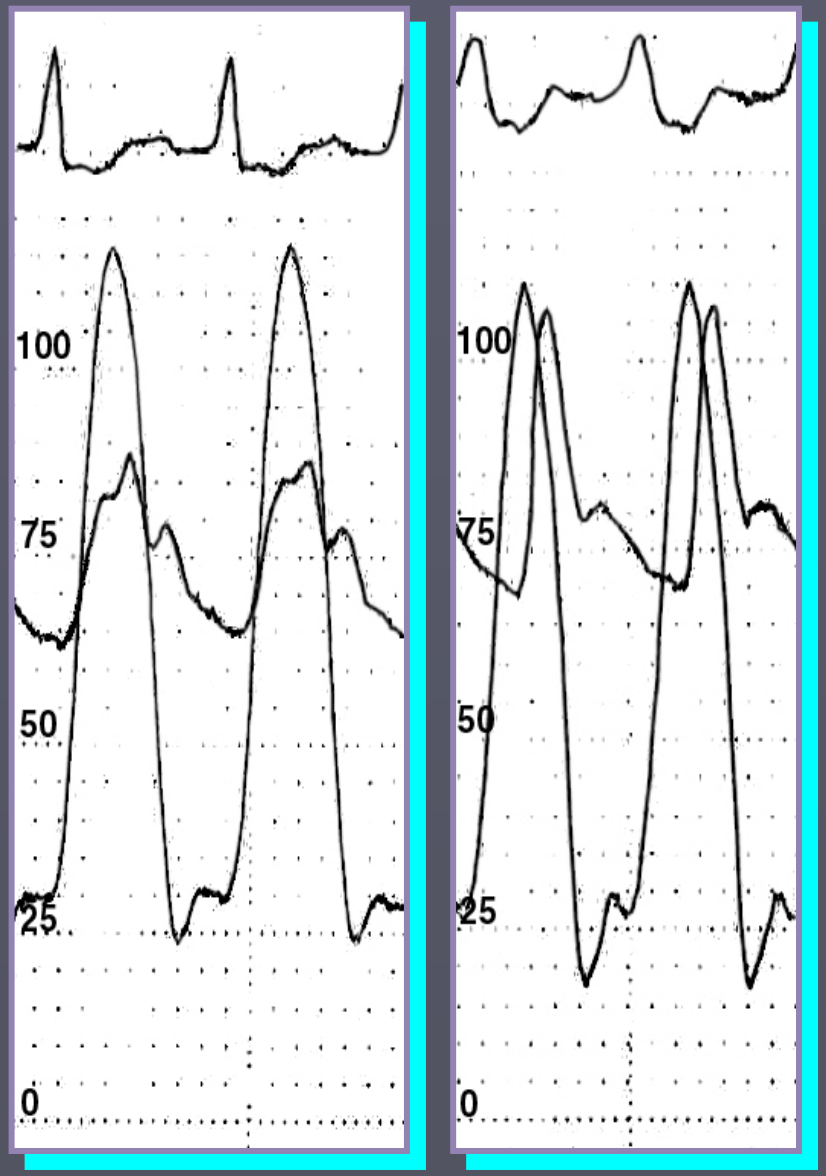
PHV delivery
maximal 23 mm balloon inflation



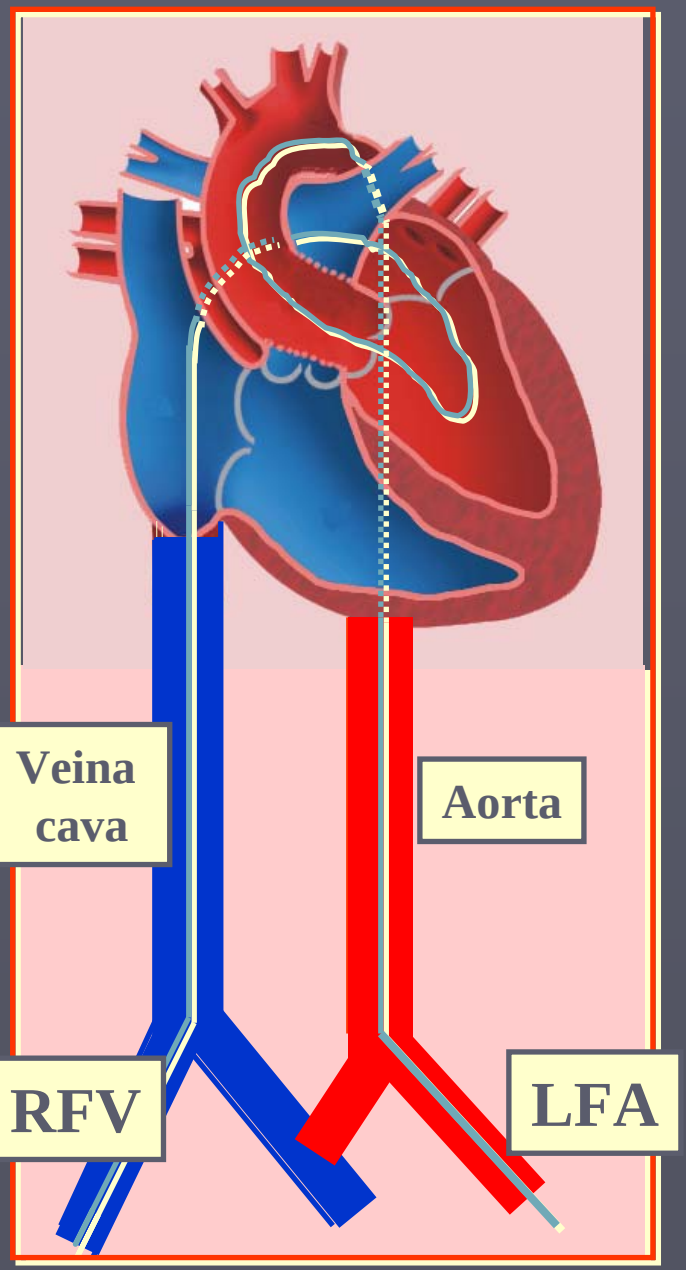
PHV in position within
the native aortic valve

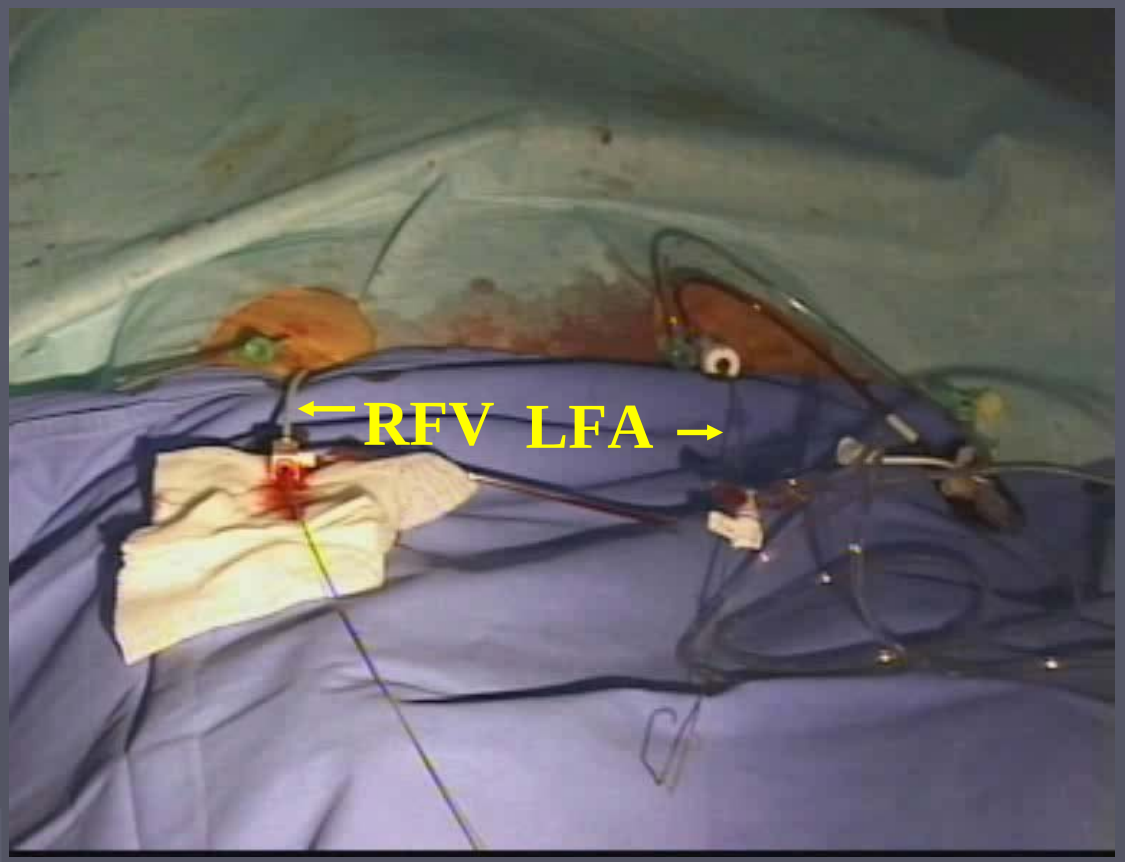
F.I.M. PHV Implantation: results

Supra-aortic angiogram

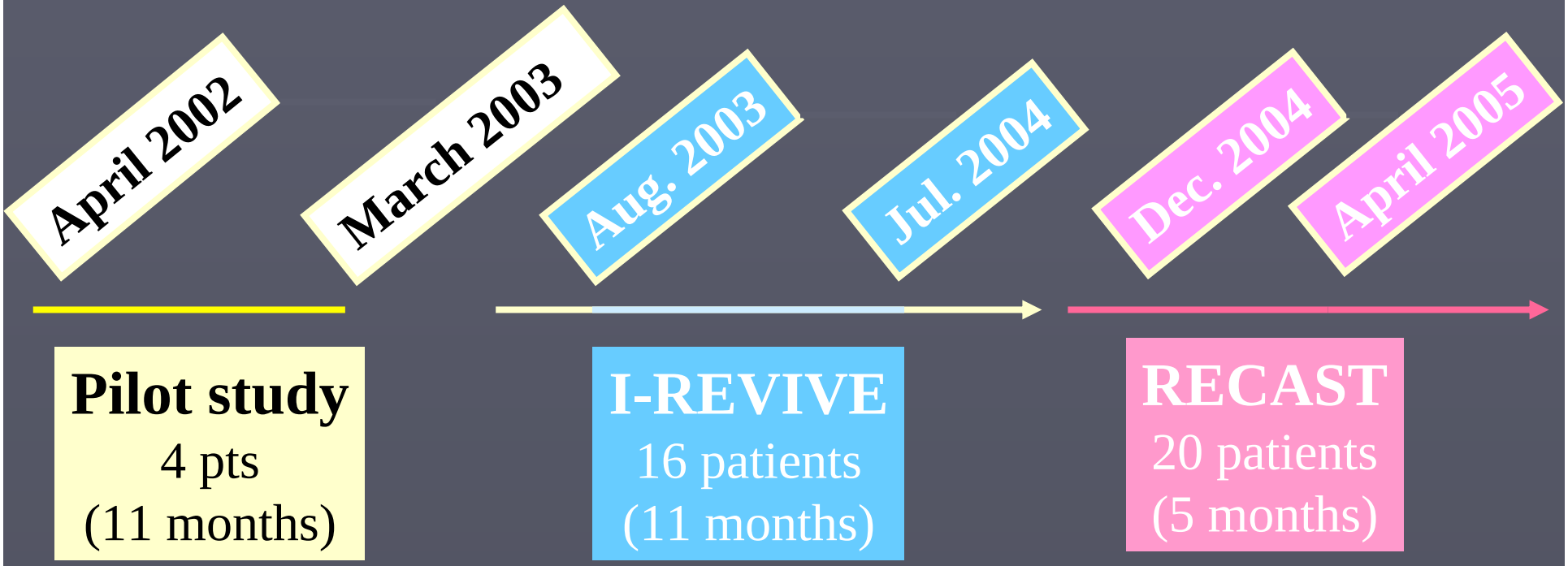


Trans-septal approach





2002-2005 (PVT Inc) FIRST FEASIBILITY STUDIES in ROUEN
Compassionate cases, end stage AS, multiple comorbidities
Parsonnet score 47, all formally declined for AVR (2 surgical teams)

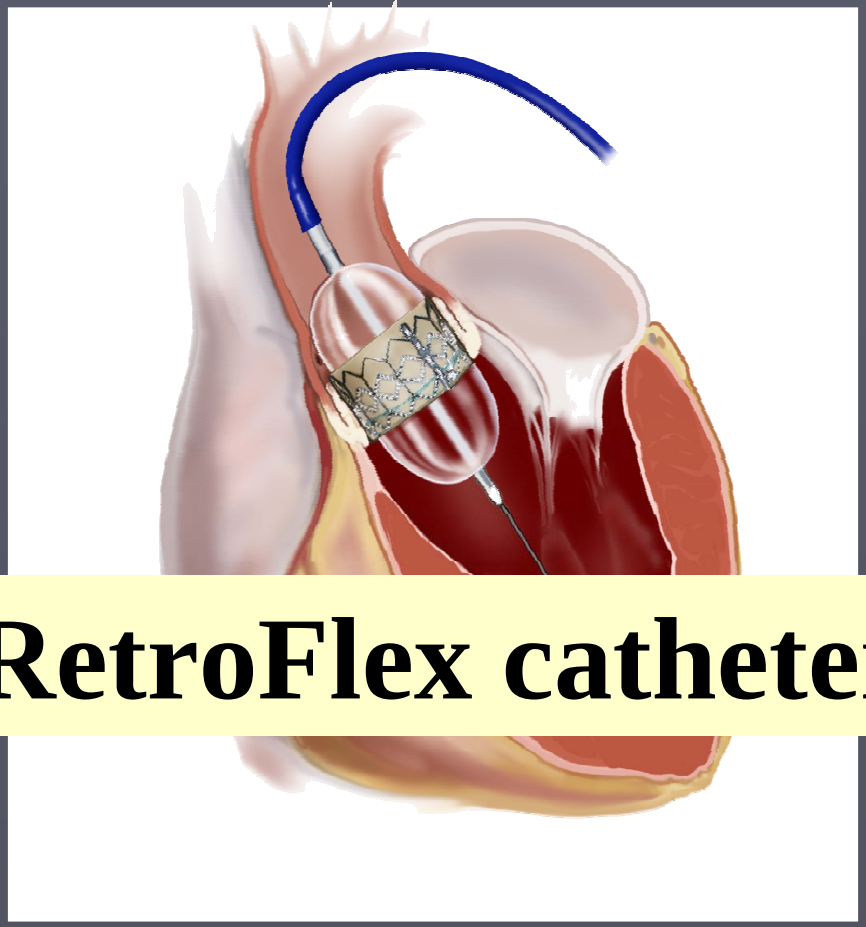


Trans-septal approach: 13 patients
Retrograde: 7 patients (3 failures)

Trans-septal approach

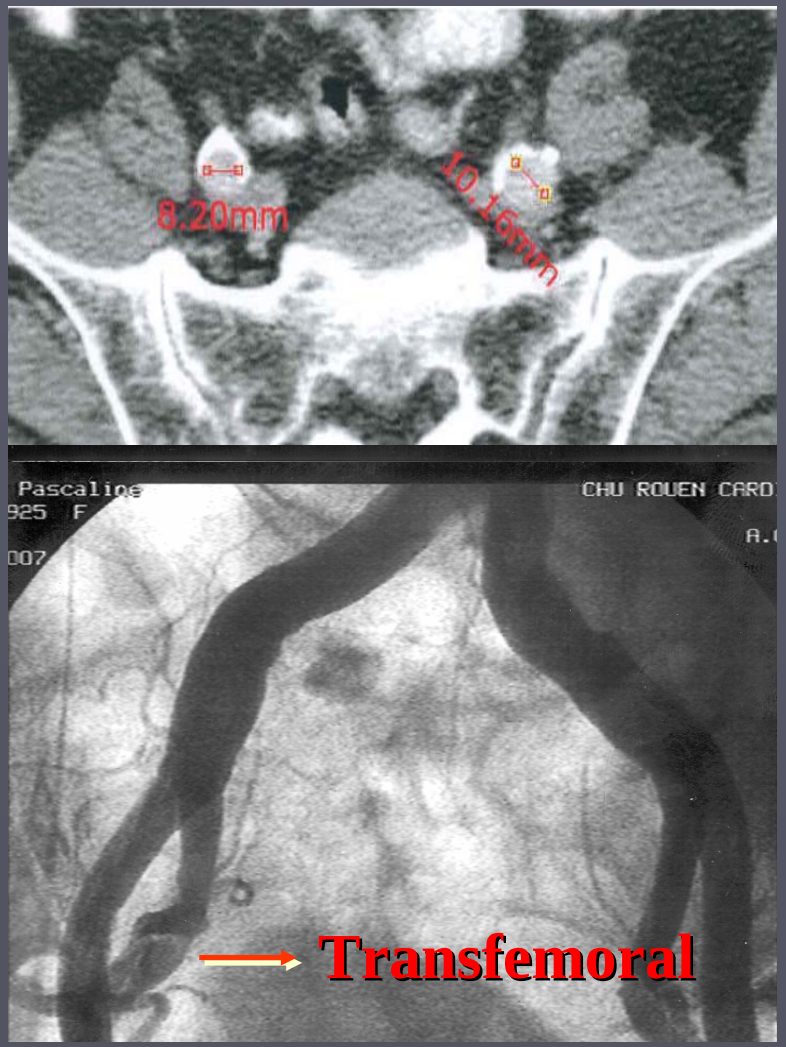
2004: New approach to the aortic valve

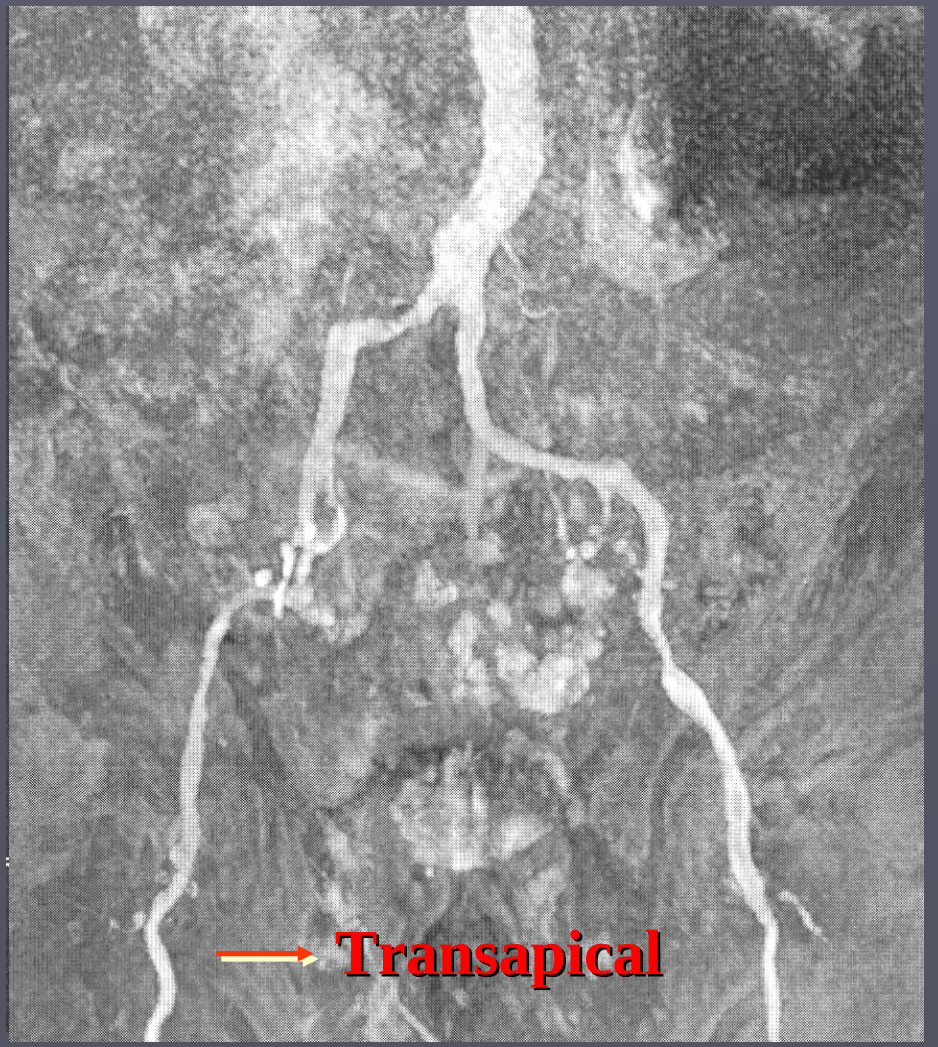
Retrograde transfemoral



RetroFlex catheter

Selection of access: Transfemoral or Transapical?





Transcutaneous aortic valve

If transfemoral approach not feasible
3 possibilities:

~~Transeptal approach~~

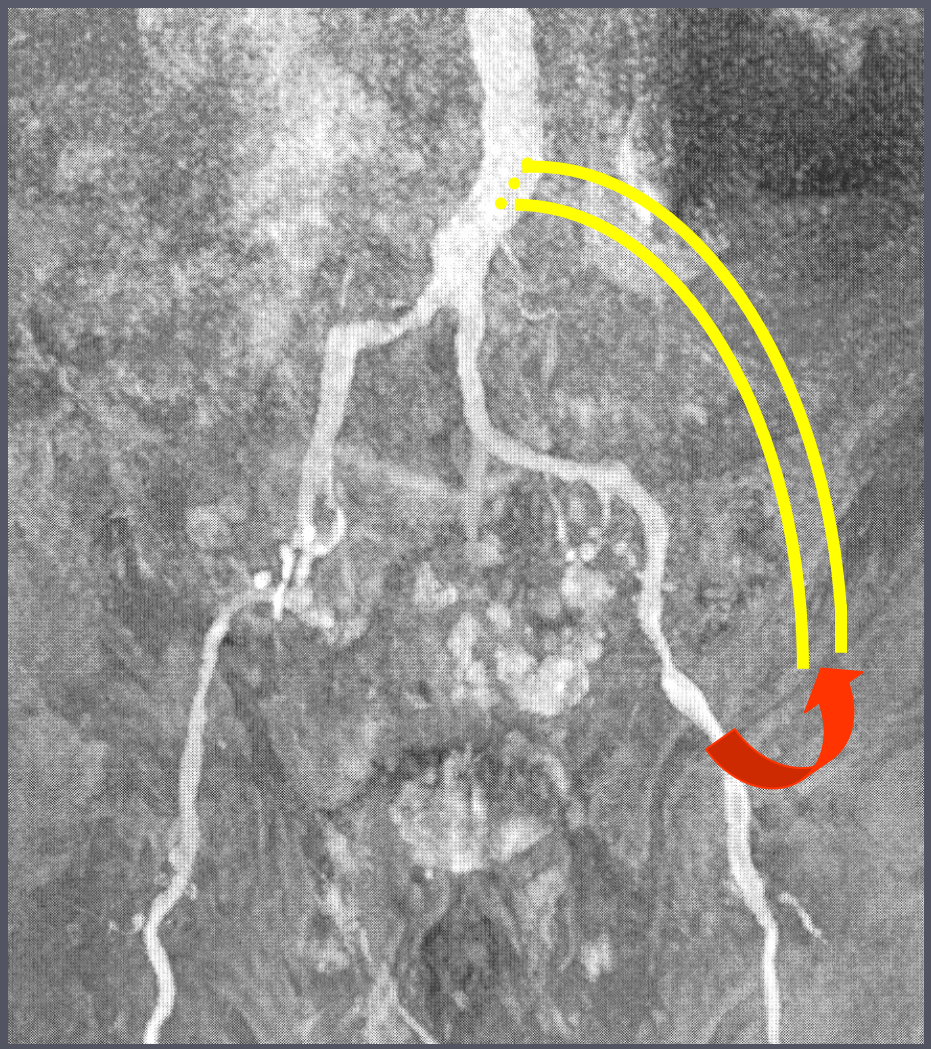
Iliac conduit

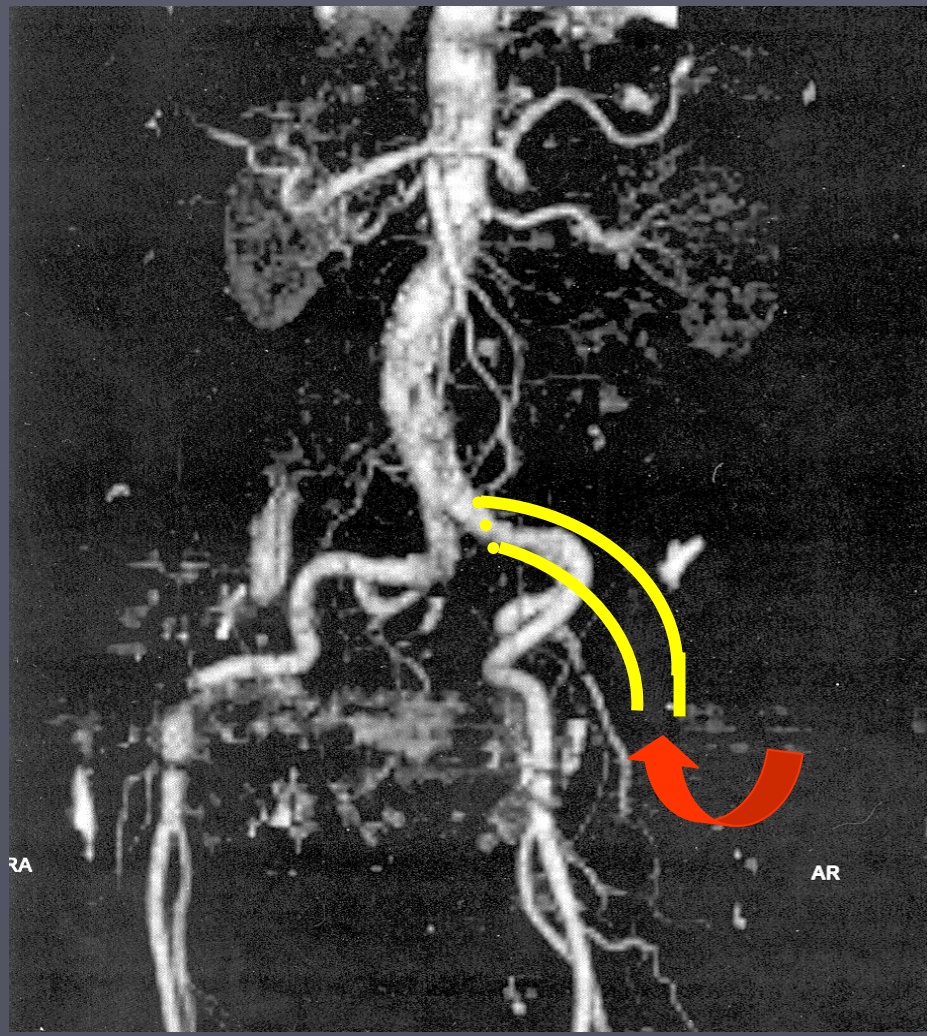
Transitory solution before emergence of the trabsapical approach

Transapical approach

Optimal alternative

2004: Iliac conduits





2004: Iliac conduits

- Developed for AAA technique when no femoral access: (femoro-iliac occlusion, tortuosities/angulation, atheroma, small femoral or common iliac artery sizes)

- Use of 8-10 mm Dacron or PTFE tube graft placed retroperitoneally through a muscle-splitting flank incision And connected to the common iliac artery (or the abdominal aorta)

- At the distal end, a small cuff of the graft can be oversewn or the graft can be anastomosed to the common femoral artery as a ilio-femoral bypass

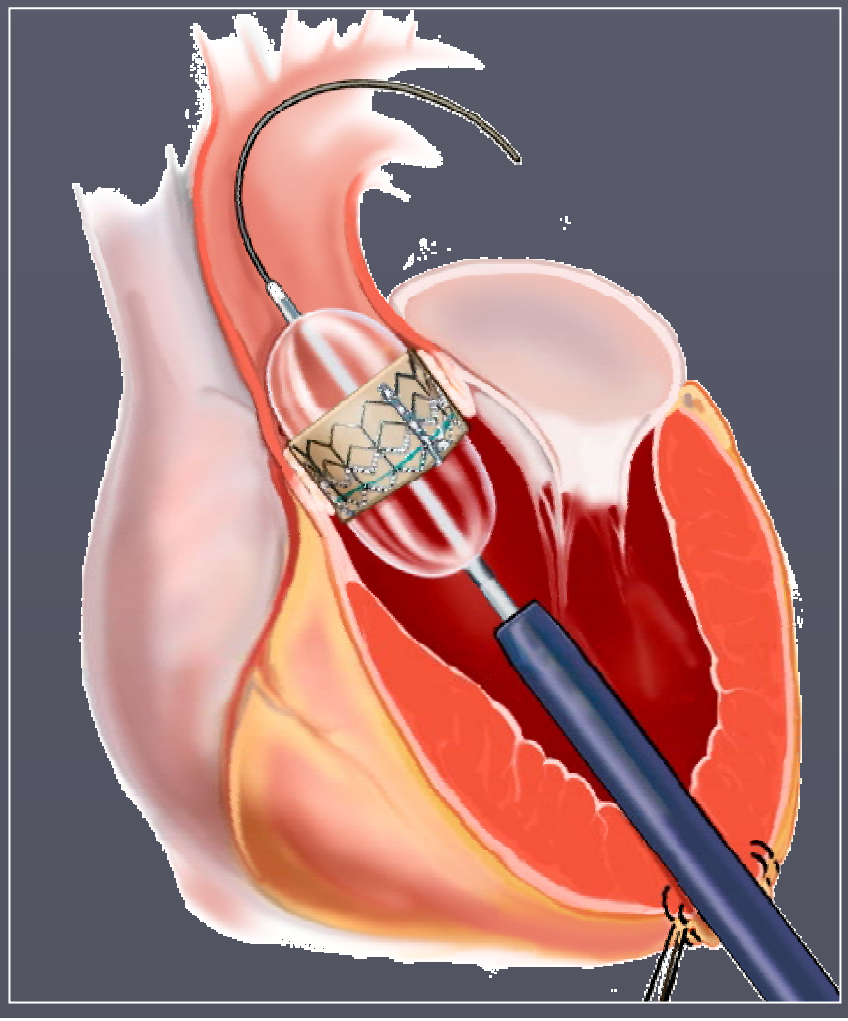
2004: Iliac conduits

Limitations for use in TVR:

- *In the same session*
  - . Long procedure under general anesthesia
  - . In OR, X-Ray limitation
  - . Bleeding at the conduit/iliac connection
  - . Difficulties of crossing the conduit/iliac connection with the Retroflex catheter
  - . Usual risks of retroperitoneal operation
  - . Does not facilitate THV implantation
- *In two sessions at a few days interval*
  - . After ilio-femoral bypass

2005: New Approach for THV implantation when arterial access is an issue:

The Trans-Apical Approach



Current alternative
Trans-apical approach

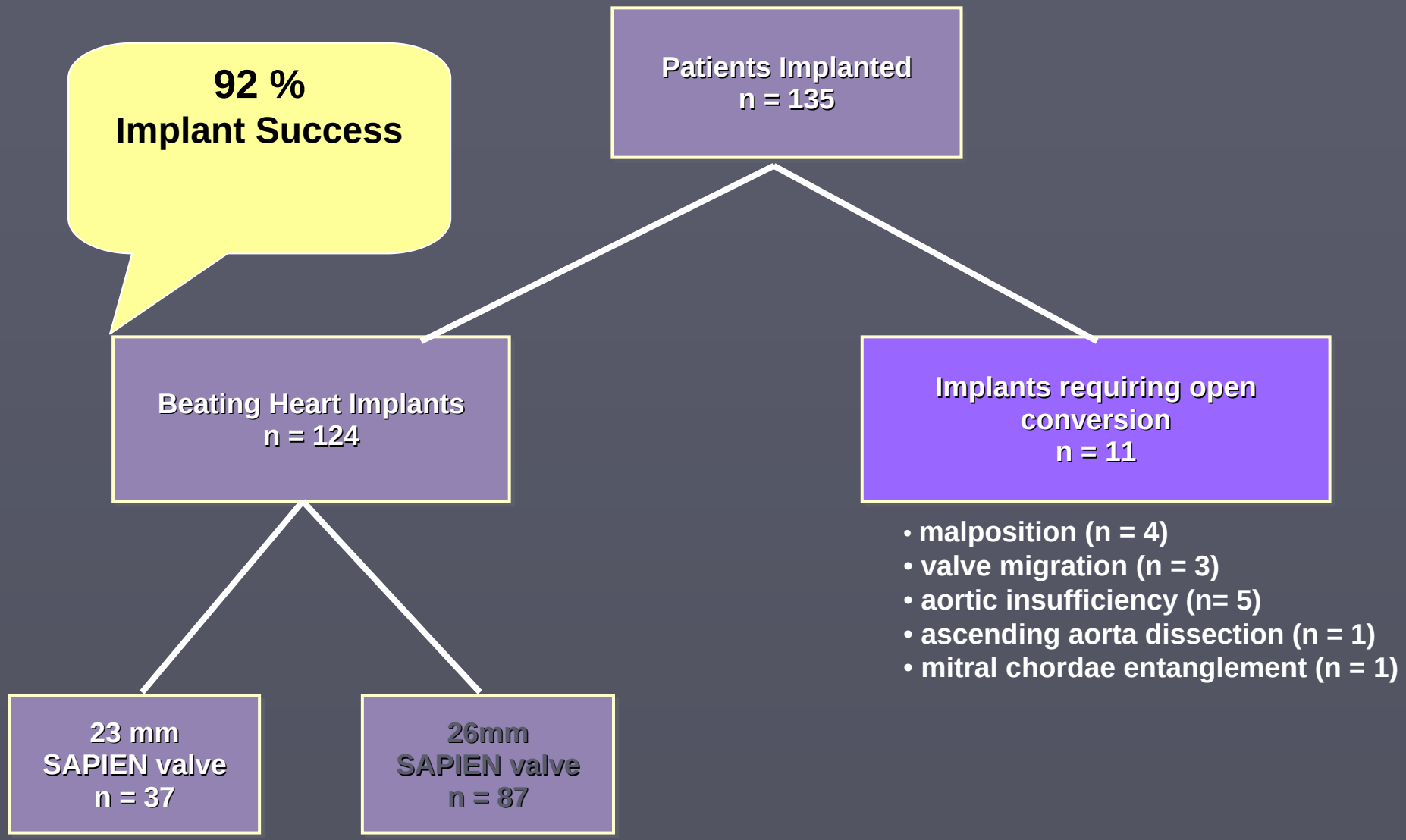
Advantages:

- Easy crossing of the aortic valve
- Easy maneuvres of balloon dilatation
- Easy positioning of the THV
- Decreased risk of aortic rupture (porcelain aorta)
- Decreased risk of stroke (aortic plaques)

Limitations:

- Thoracic surgery
- Risk of bleeding and infection
- Apical aneurism
- Quality of X-Ray in OR

TRAVERCE Feasibility Study



TRAVERCE Feasibility Study Intraprocedural Complications

Complications	n = 25 (18.5%)
Vascular – descending aortic dissection	1
Apical bleeding/ventricular injury	8
Arrhythmias requiring intervention	4
Hemodynamic instability requiring intervention	3
Cardiac failure	4
Partial coronary occlusion	3
Coronary occlusion	2

TRAVERCE Feasibility Study Deaths

Early Deaths	
Early (< 30 days) {No intraprocedural deaths}	**19 (14.1%)**
Cardiac Failure	8
Multiple organ failure, respiratory complications, bleeding event	2 each
Leg Ischemia, GI complication, embolic event, arrhythmia, sudden death, calcium embolism	1 each

Late Deaths	
Late (> 30 days)	**20 (14.8%)**
Respiratory complications	5
Multi-organ failure and cardiac failure	3 each
Neuological complications	1 each
Sepsis, MI, GI complications, autoimmune vasculitis, arrhythmia, sudden death, cerebral bleed	1 each

Transapical approach
Perspectives

- Decreased catheter size (< 26F)
- Generalisation of hybrid rooms
- Percutaneous technique??

Conclusions

- In 2008, the accepted alternative to the transfemoral approach for THV implantation is the transapical route

- A high success rate is observed after a learning curve

- The close collaboration of interventional cardiologists and cardiac surgeons is required for the procedure

-Optimal X-Ray systems in OR is mandatory: (hybrid rooms or last generation of C-arms mobile systems)