

Percutaneous Mitral valve repair What devices are available

Olaf Franzen
Copenhagen, London

Annulus - devices

Arteficial cords

Leaflet repair

Ventricular remodeling

Mitral valve replacement

Annulus - devices

Arteficial cords

Leaflet repair

Ventricular remodeling

Mitral valve replacement

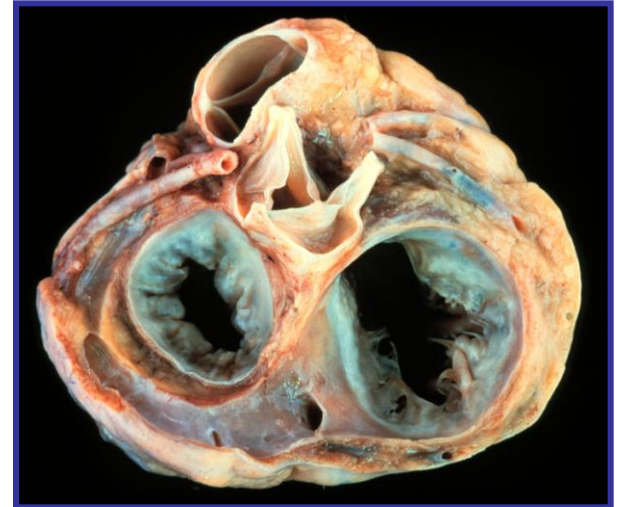
Annulus Devices

- Coronary Sinus devices
- Direct annuloplasty
- Annulus remodeling (RF/ultrasound)

Coronary Sinus Devices

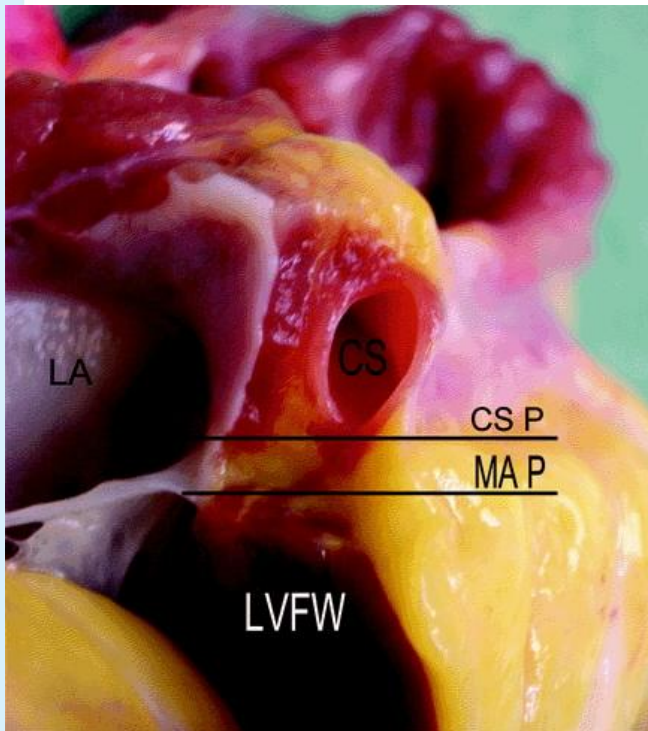
Devices:

- ◆ PTMA Device (Viacor)
- ◆ **Carillon (Cardiac Dimensions)**
- ◆ Monarc (Edwards)
- ◆ NH-Cerclage Technology
- ◆ St-Jude Device

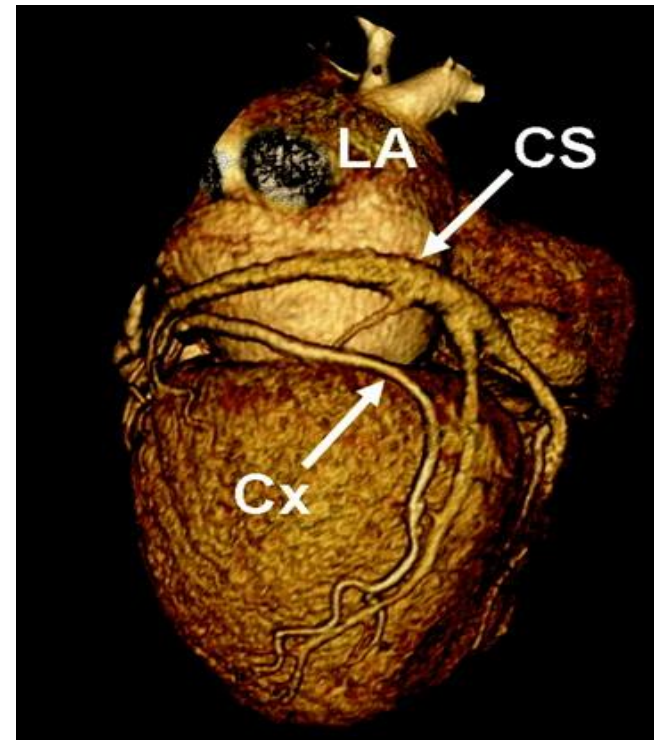


Principle: Create force via the coronary sinus to shorten the anterior – posterior diameter of the mitral valve in order to enlarge the coaptation area of the leaflets

Anatomical limitations Coronary Sinus Devices

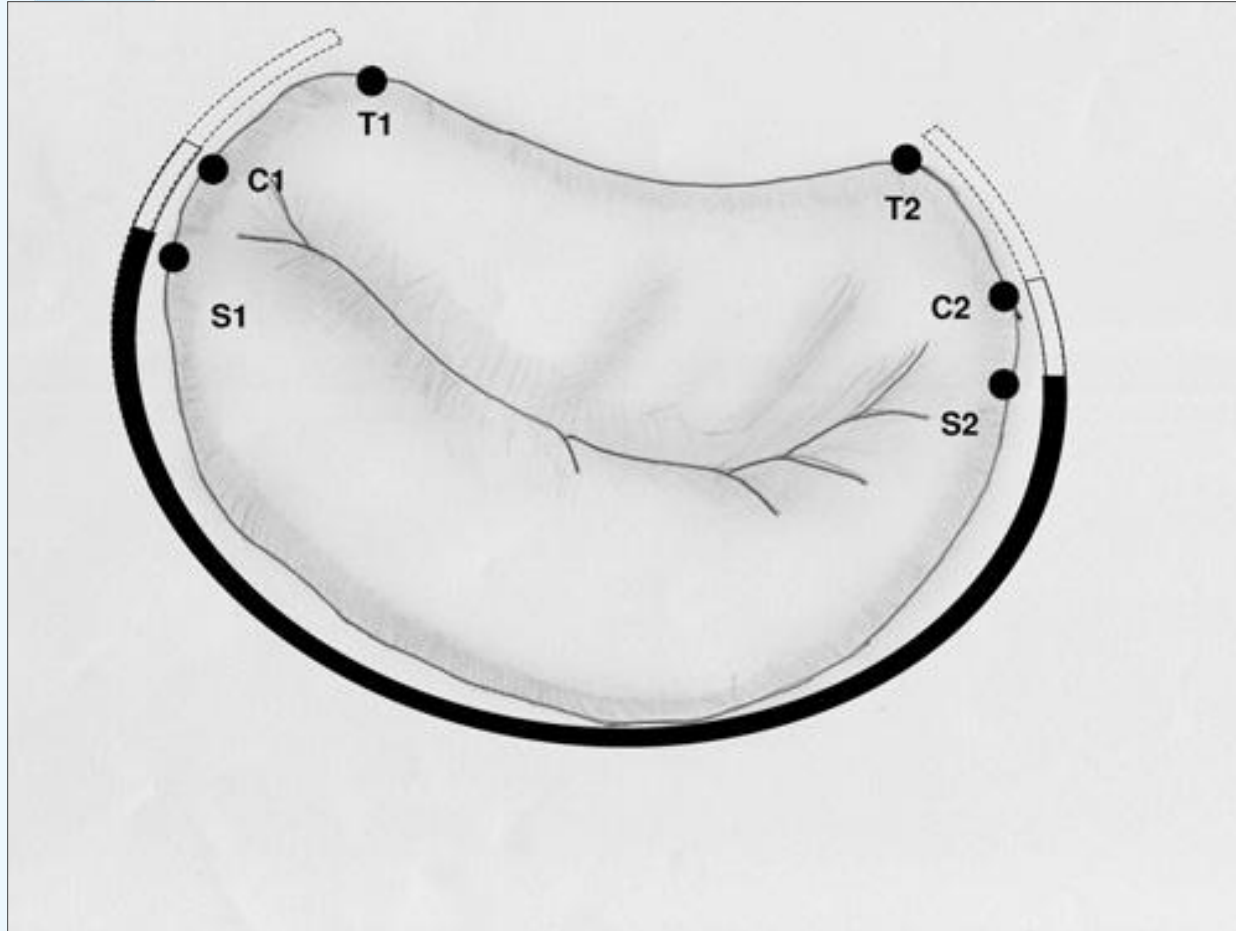


Tops et al, Circulation 2007



Maseli et al, Circulation 2006

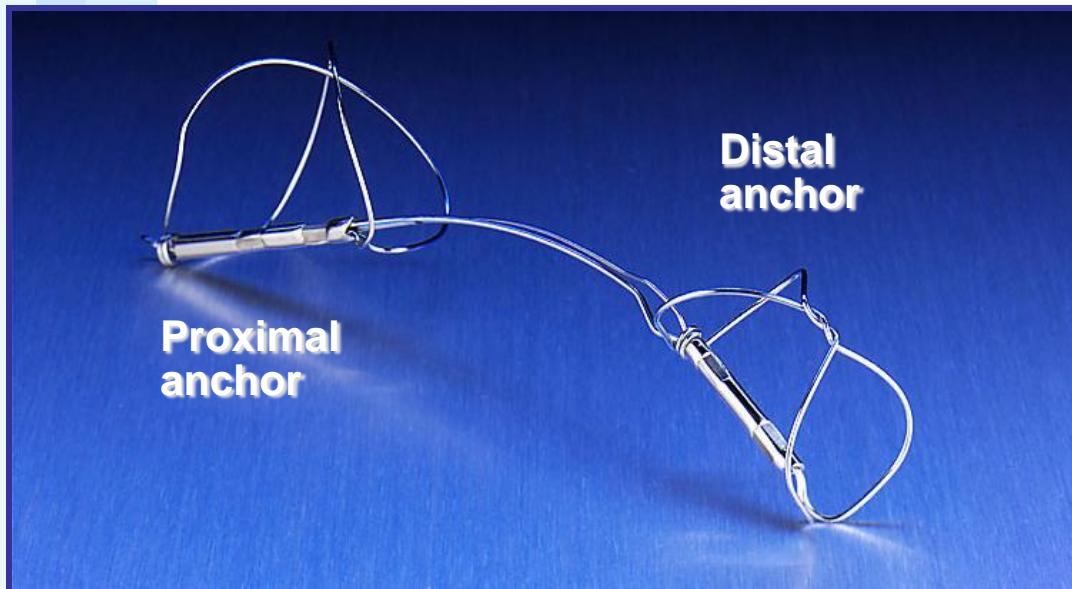
Anatomical limitations Coronary Sinus Devices



- T1 / T2 left and right fibrous trigones
- C1 / C2 ant. / post. commissures
- S1 origin of great cardiac vein
- S2 coronary sinus ostium

Coronary Sinus Device

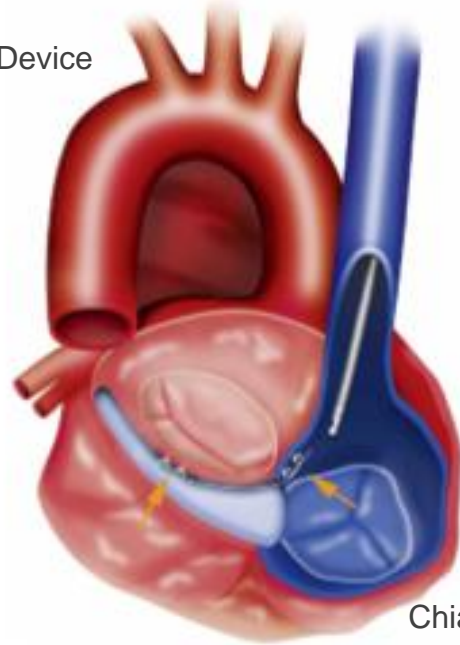
- Carillon Cardiac Dimension



Status CE-mark

“Coronary Sinus Devices”

◆ St-Jude Device



Chiam et al, 2011

- ◆ NH-Cerclage Technology
- ◆ St-Jude Device

Status : animal study

Direct Annuloplasty

- Valtech Cardioband
- Mitralign
- GDS
- Milipede Ring System

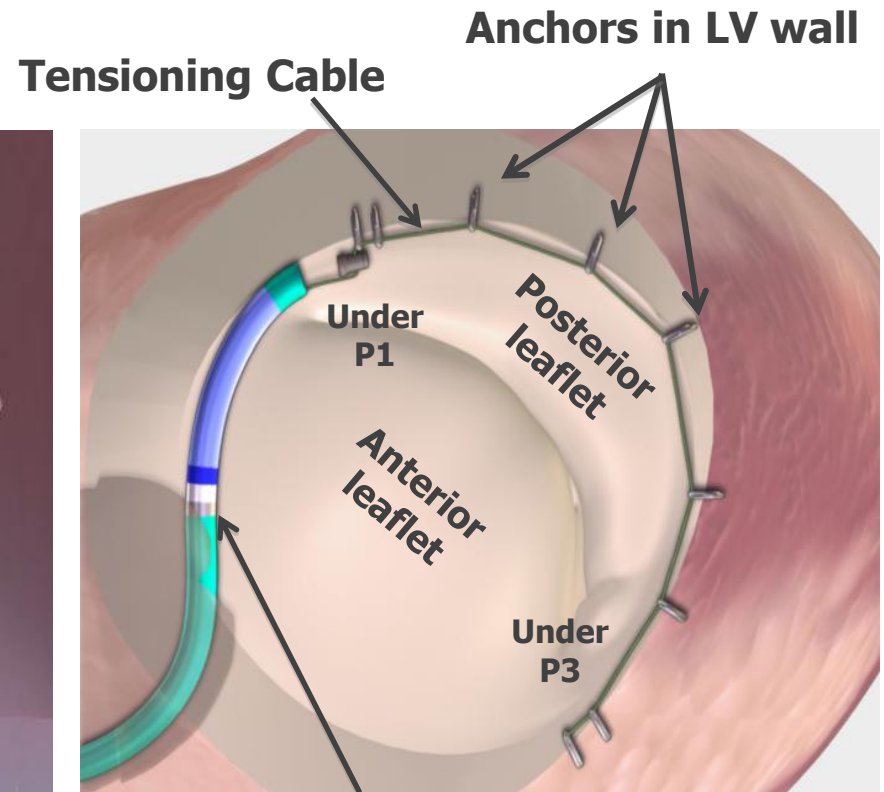
Valtech Cardioband



Status : animal study

CDS Percutaneous Ventriculoplasty:

Mechanism of action



14F Guide catheter

Sub-valvular placement of Anchors and a tensioning cable along the LV free wall via a retrograde trans-femoral approach

Status : feasibility study humans

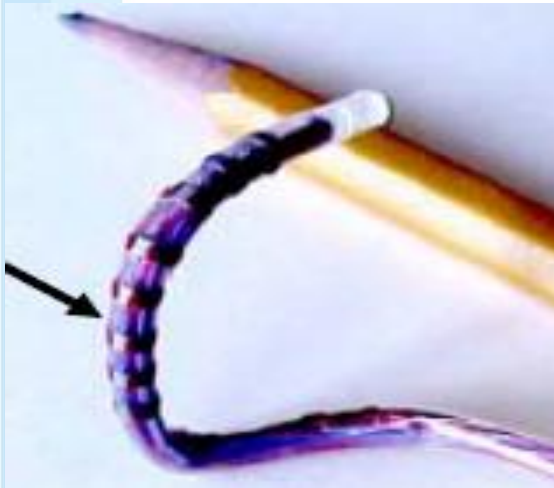
Mitralign



Status : feasibility study humans

Annulus remodeling

- ReCor (ultrasound)
- QuantumCor (RF)



Status : after human use, development holded

Annulus - devices

Arteficial cords

Leaflet repair

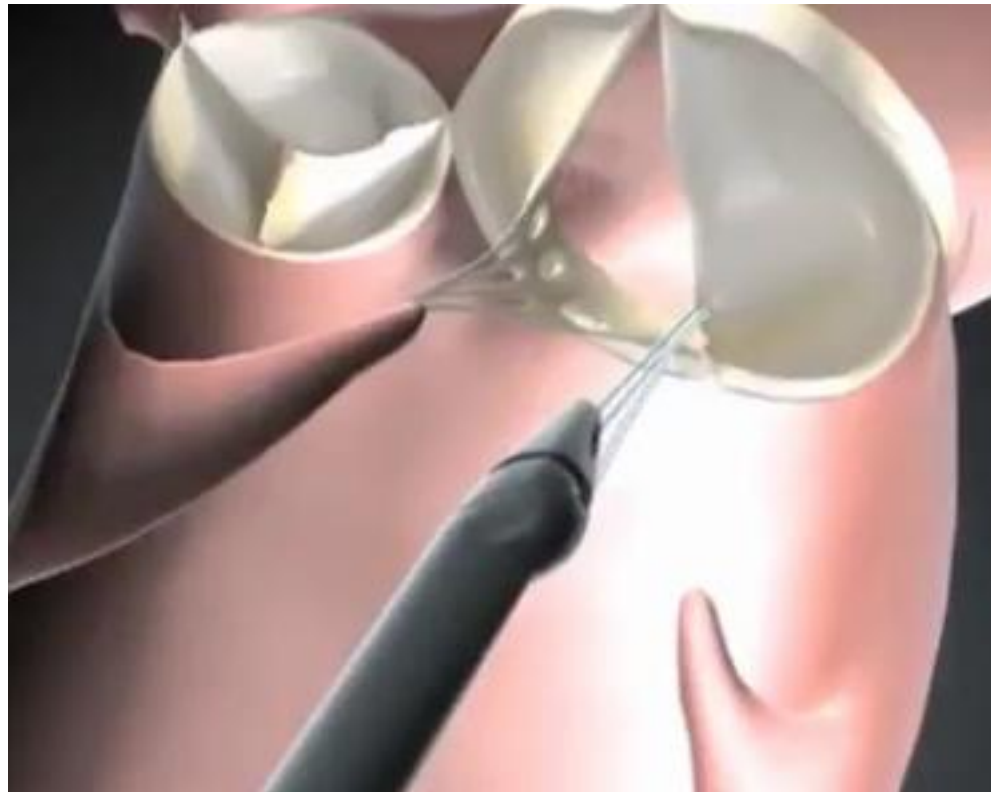
Ventricular remodeling

Mitral valve replacement

Arteficial chords

- Valtech V-chordal adjustable system
- Neochord Mitraflex
- Babic chords

Neochord Mitraflex



Status : feasibility study humans

Annulus - devices

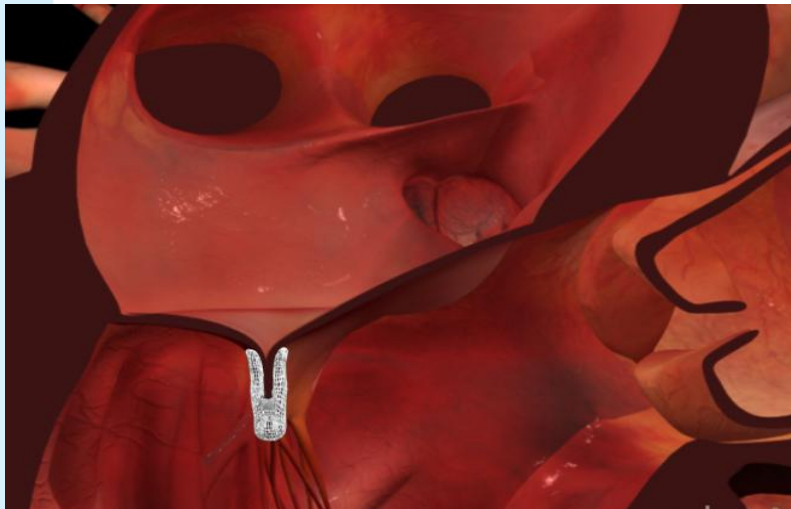
Arteficial cords

Leaflet repair

Ventricular remodeling

Mitral valve replacement

Leaflet Repair



Annulus - devices

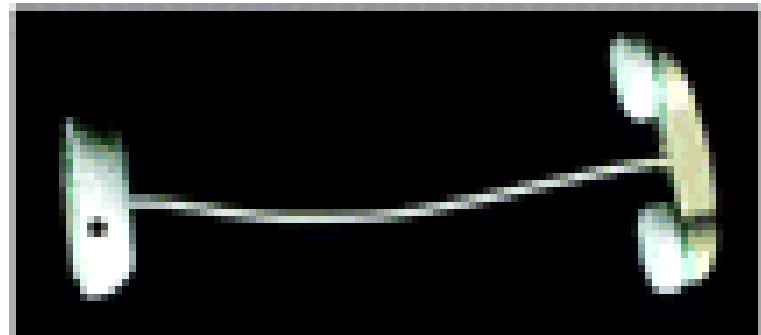
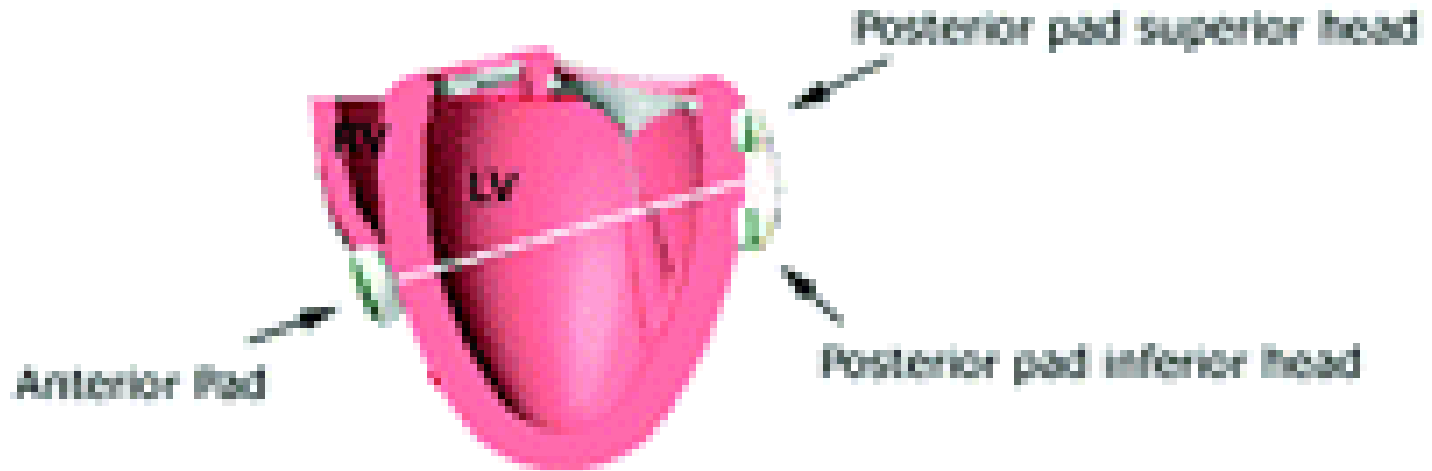
Arteficial cords

Leaflet repair

Chamber remodeling

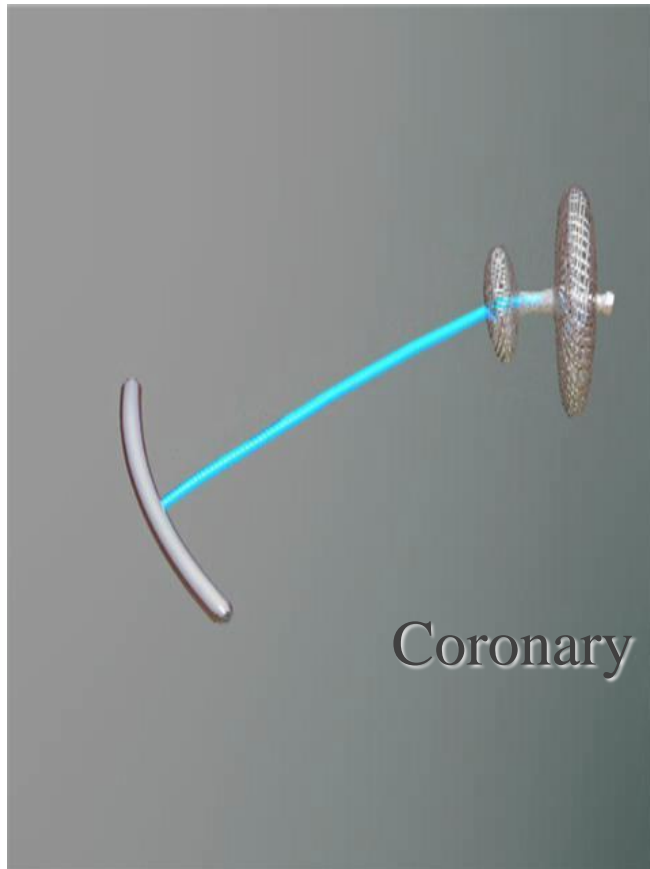
Mitral valve replacement

Coapsys device



Status : after human use, development holded

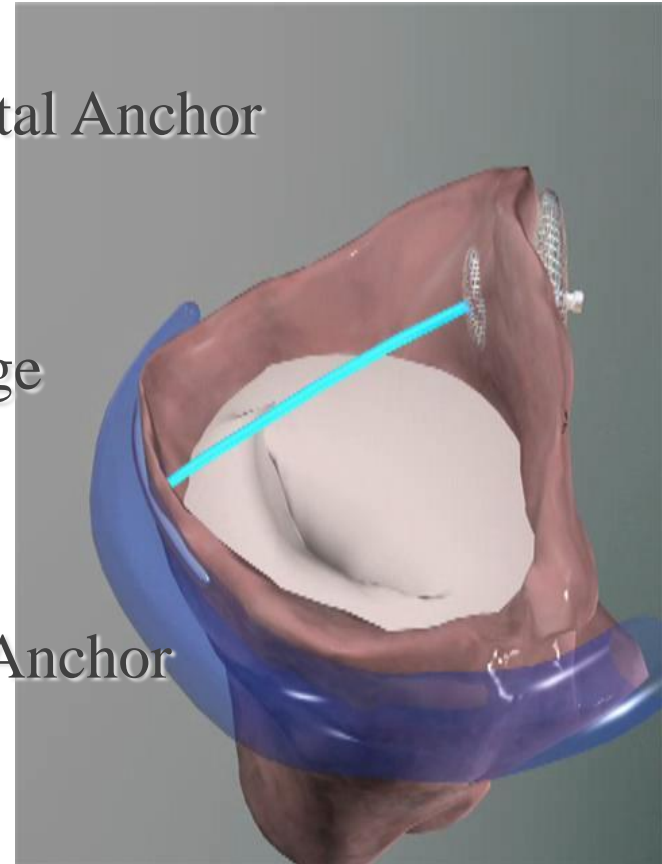
Atrial Approach PS³ System



Septal Anchor

Bridge

Coronary Sinus Anchor



Status : after human use, development holded

Annulus - devices

Arteficial cords

Leaflet repair

Chamber remodeling

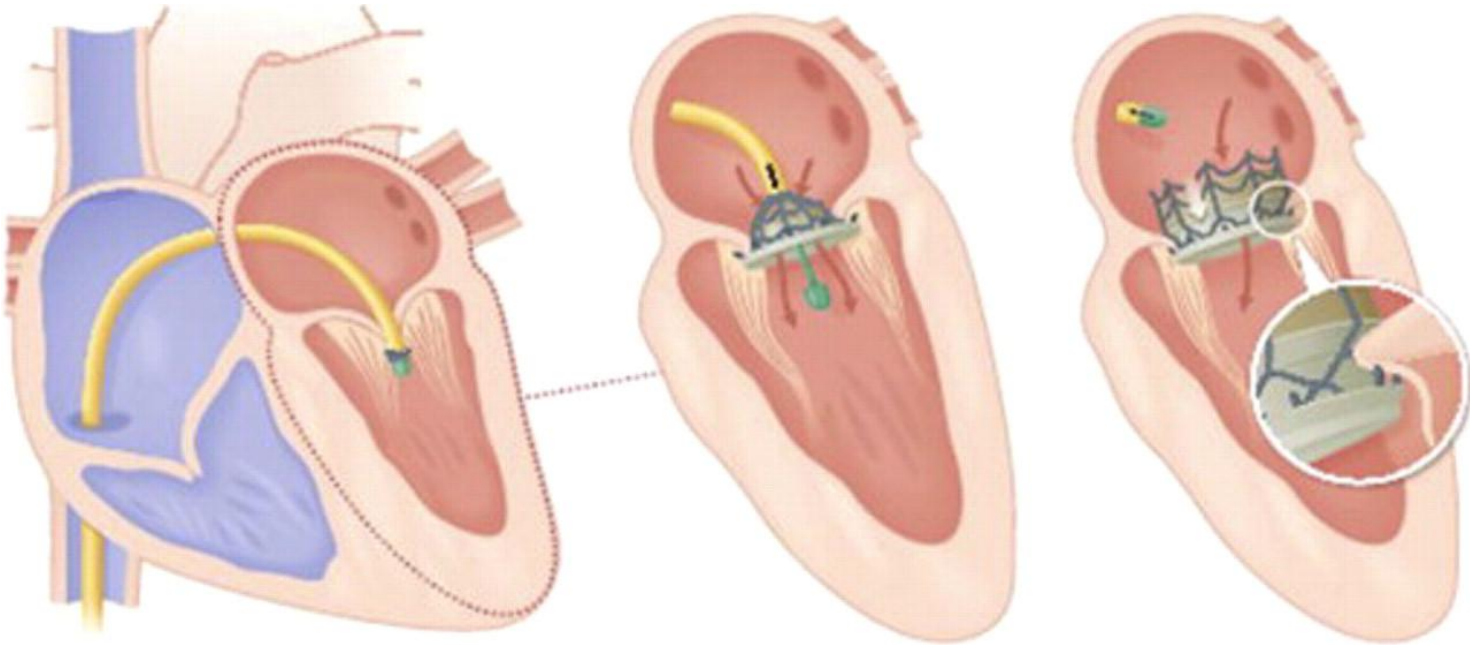
Mitral valve replacement

Perc. Valve replacement

- CardiaQ
- Endovalve
- Lutter valve
-

Status : animal studies

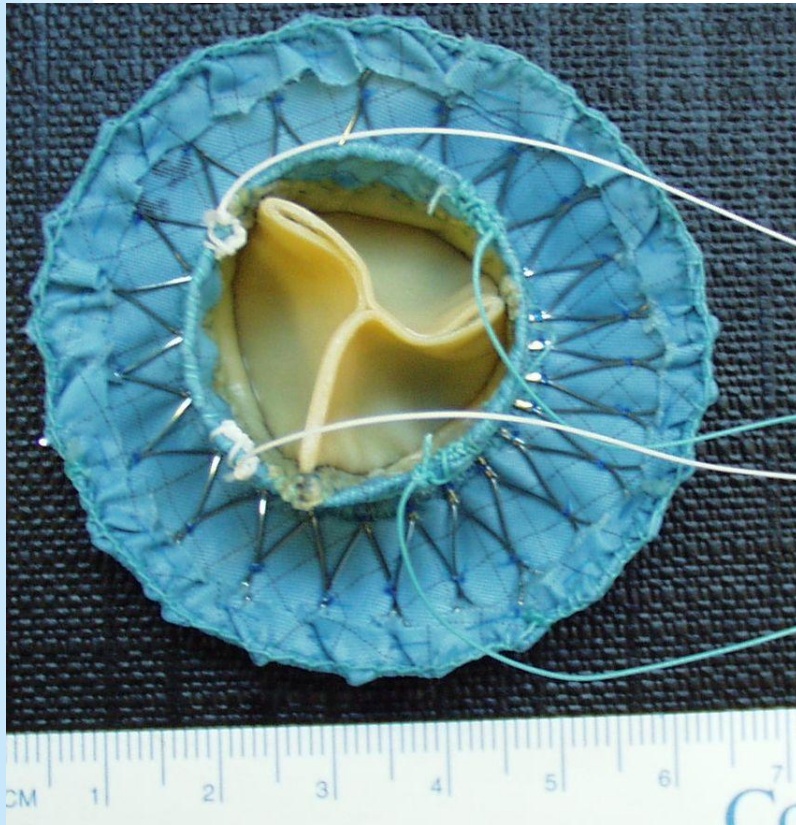
CardiaQ



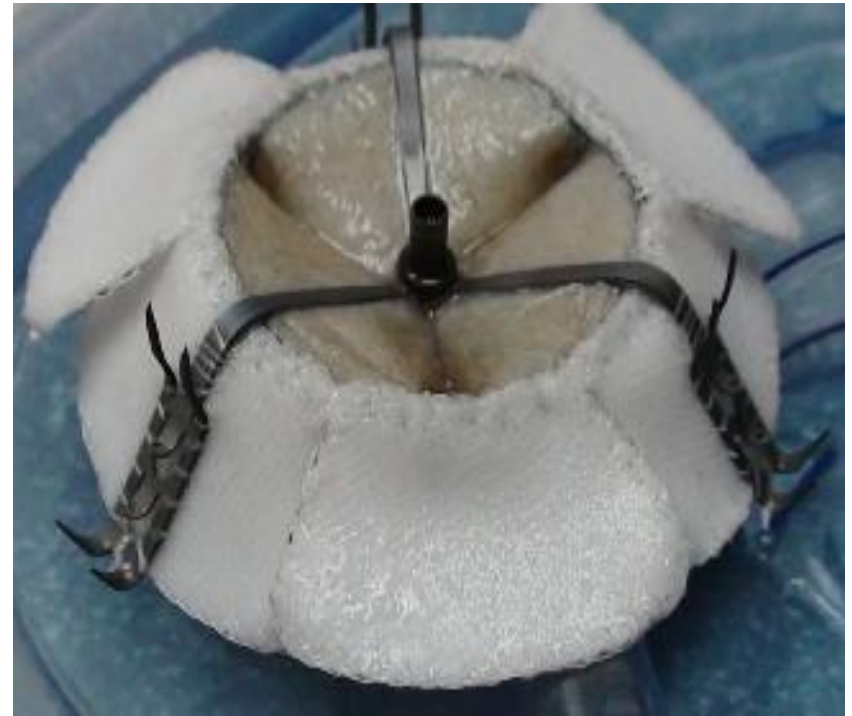
Status animal studies

Other Percutaneous Valves

Lutter Valve



EndoValve



Status: animal studies

Summary/Conclusion

- Almost all of the surgical techniques find a percutaneous pendant, but most are in an early stage of development. Only cutting is not addressed (yet ?)
- MitraClip find widespread use as the clinical need of percutaneous treatment is large