

Minimaal invasieve mitralisklep chirurgie

Kinsing Ko

ANIOS cardiothoracale chirurgie

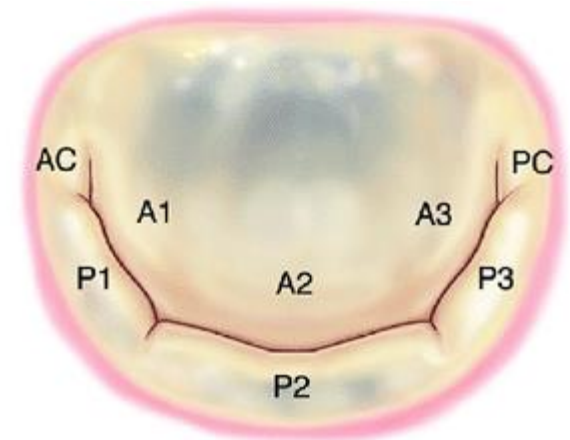
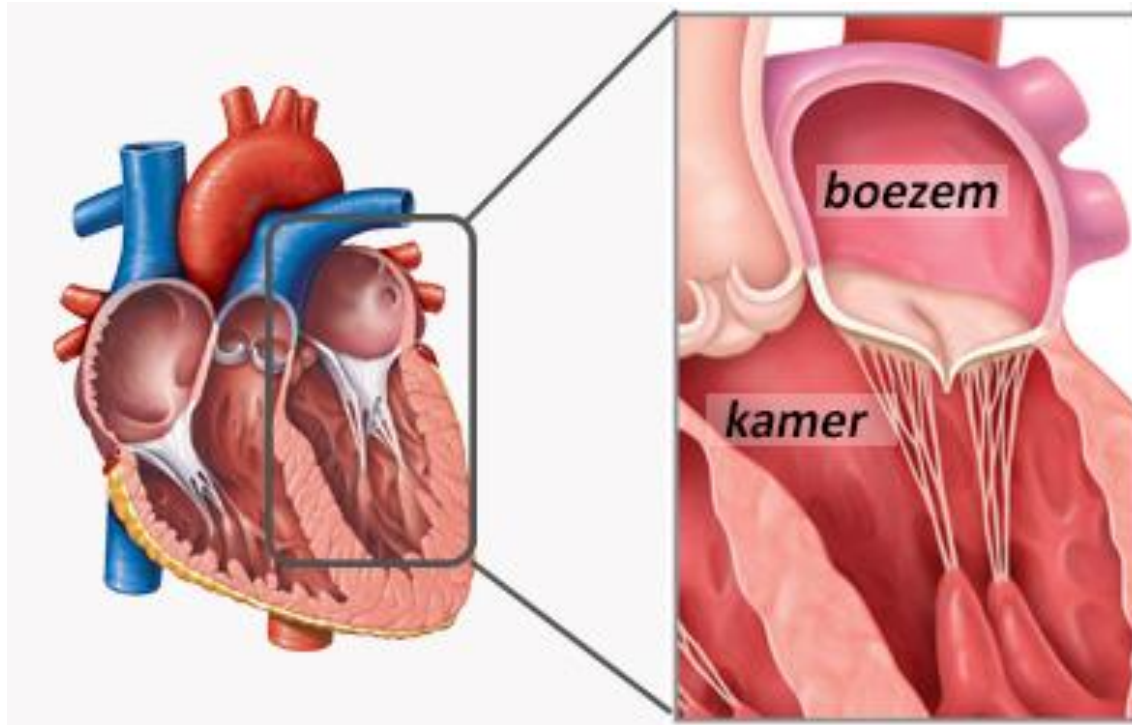
NVHVV – CNE 9 april 2019

Agenda

- Anatomie
- Pathofysiologie mitralisklep insufficiëntie/stenose
- Voorbereidingen voor de operatie
- De operatie
- Herstel op de IC
- Herstel op de afdeling

- Vragen en discussie

Anatomie



Pathofysiologie

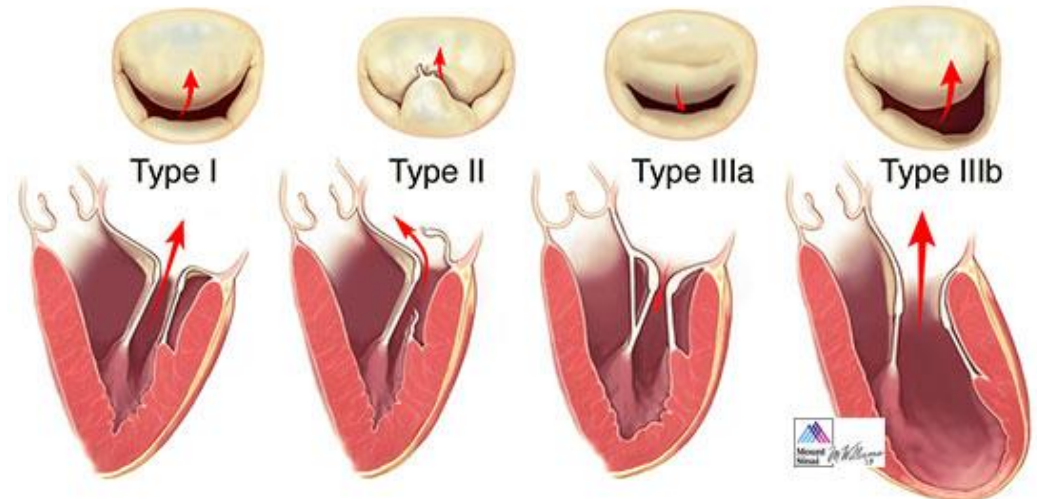
Carpentier classificatie

Remodellering van het hart

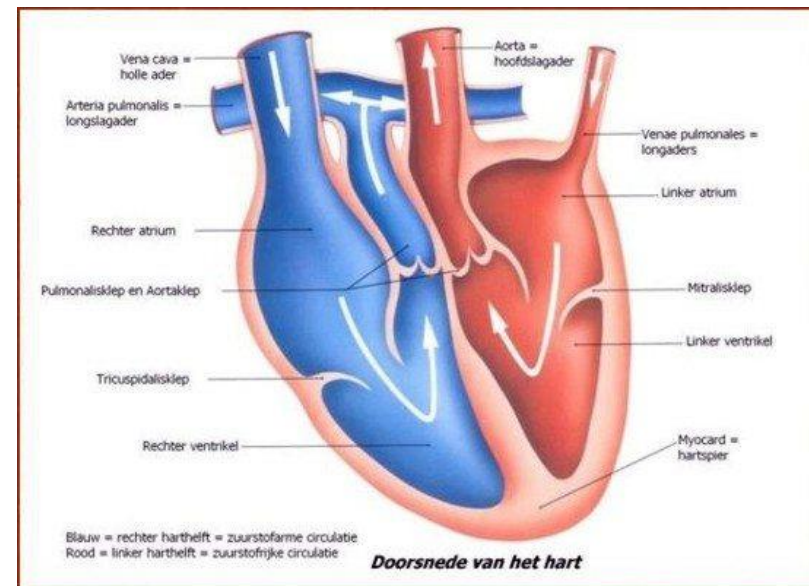
1. Volume overbelasting links
2. Linker ventrikel dilatatie
3. Linker atrium dilatatie
4. Pulmonale hypertensie
5. Drukoverbelasting rechts

Symptomen

1. Forward- en backward failure links
 - Dyspnoe d' effort
 - Vermoeidheid
2. Palpitaties
3. Oedemen

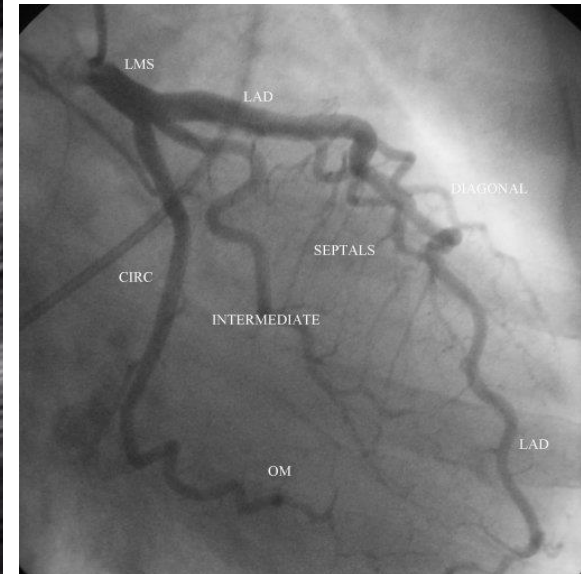
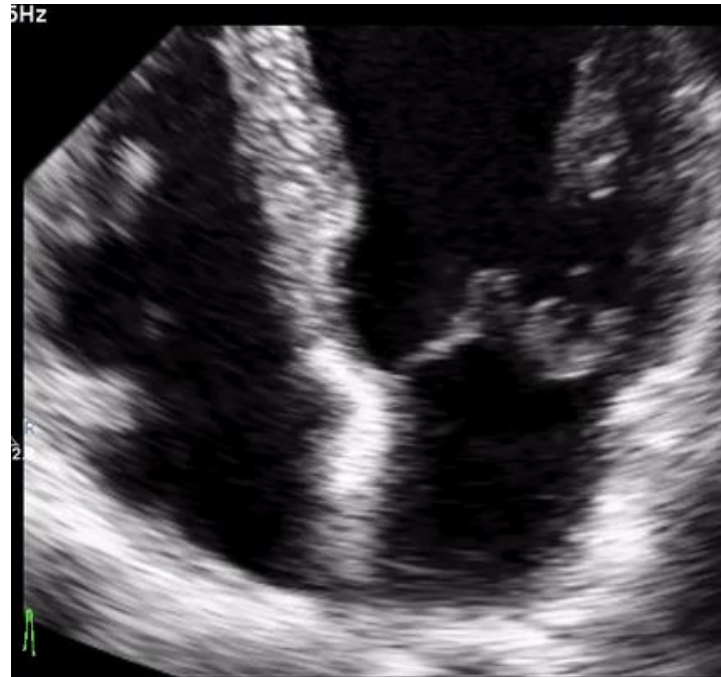
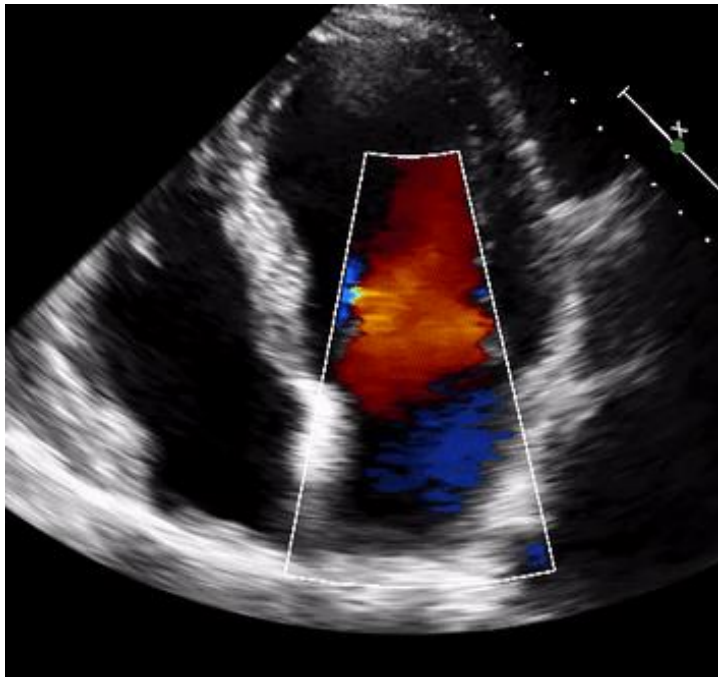


Bron: Carpentier A, Adams DH, Filsoofi F. *Carpentier's Reconstructive Valve Surgery. From Valve Analysis to Valve Reconstruction.* 2010 Saunders Elsevier.

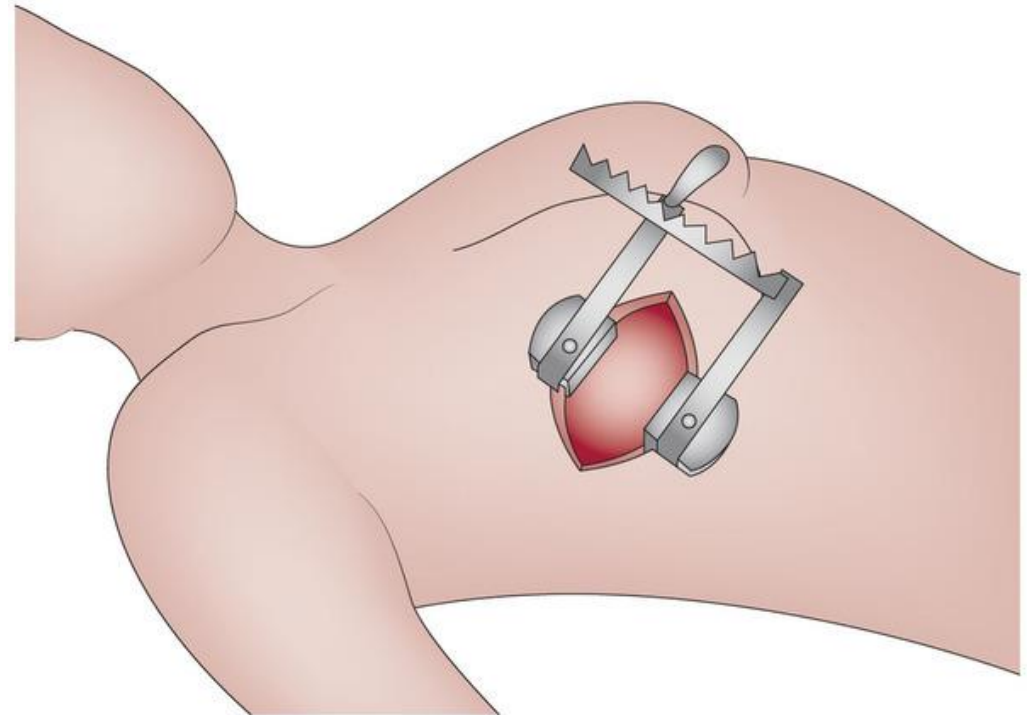
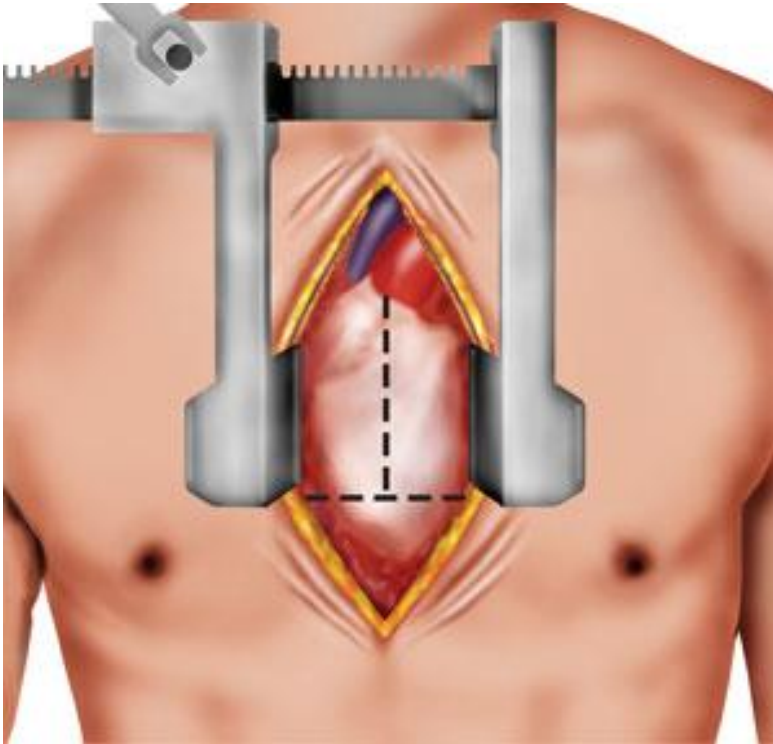


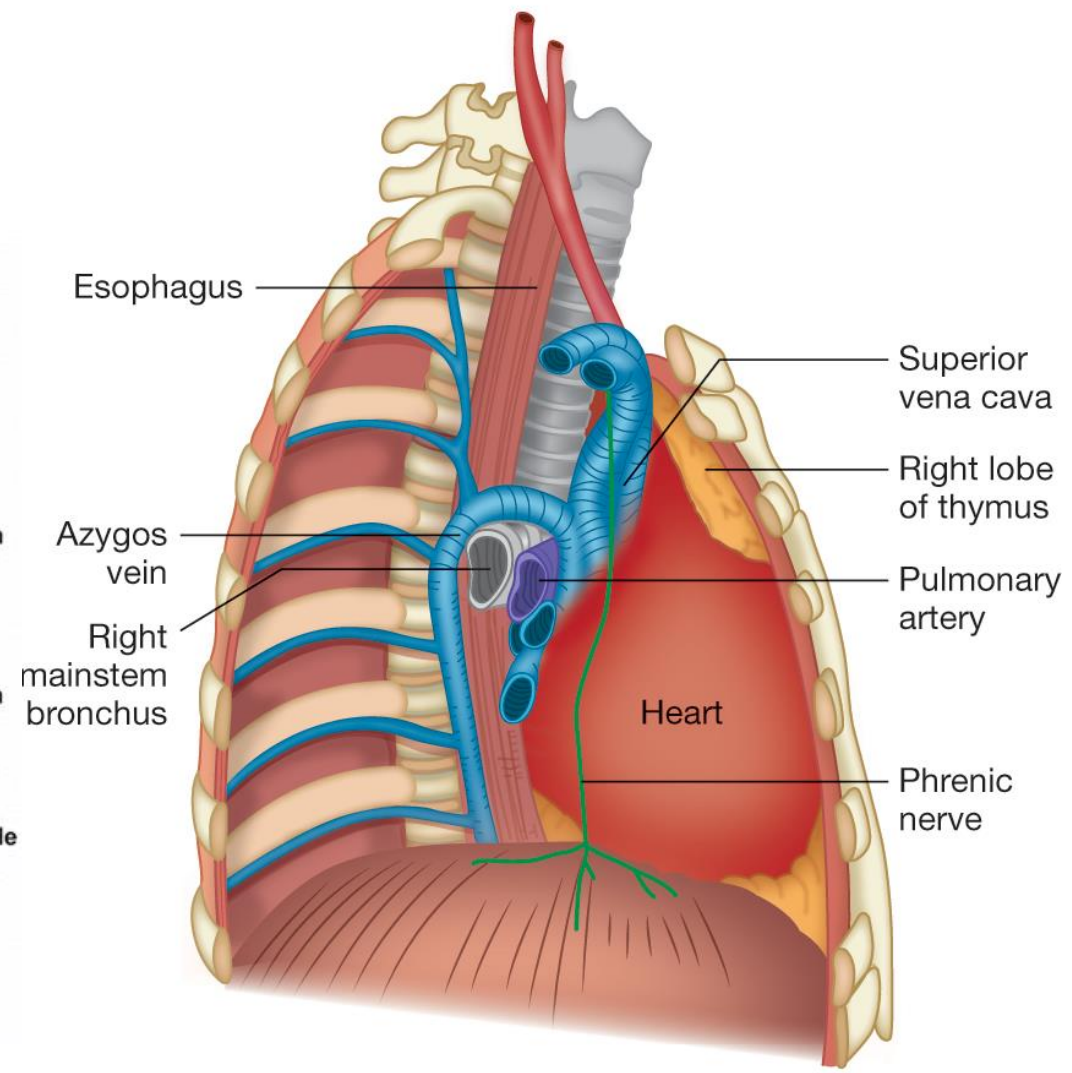
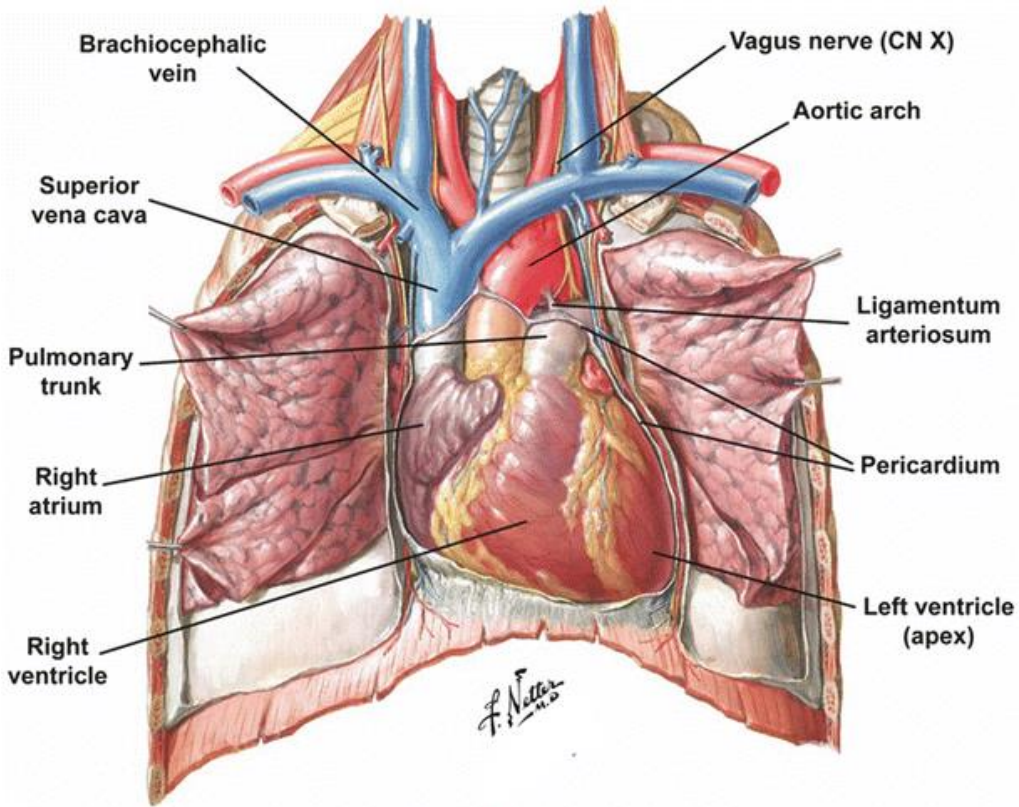
Vorbereidingen voor de operatie

- Voorbereidende onderzoeken
 - Labonderzoek, TTE, TEE, CAG, X-thorax



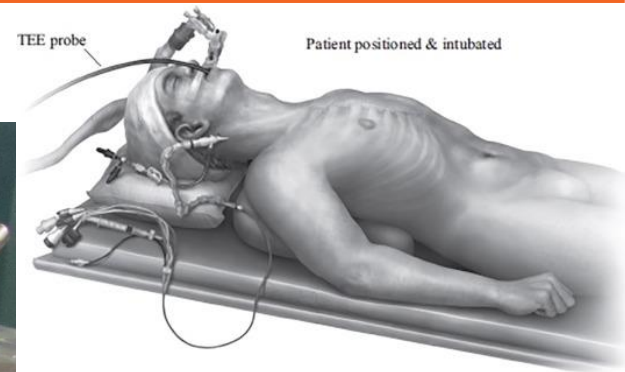
Thoracotomie of sternotomie?



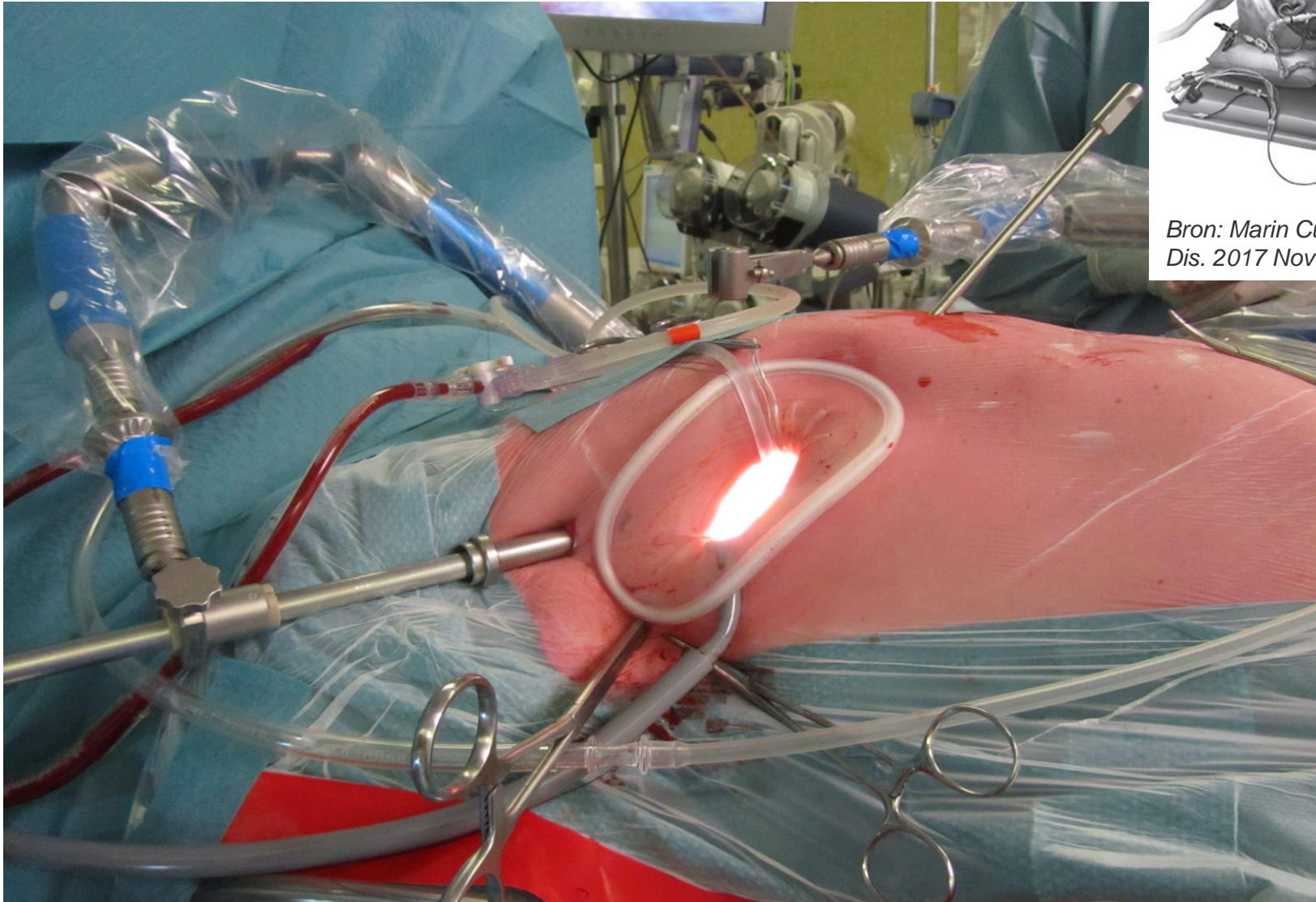


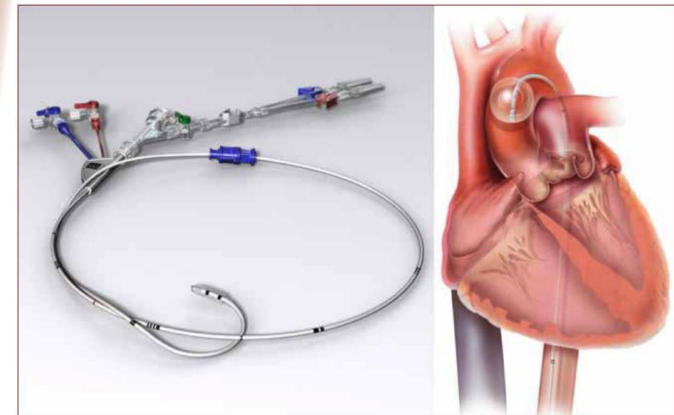
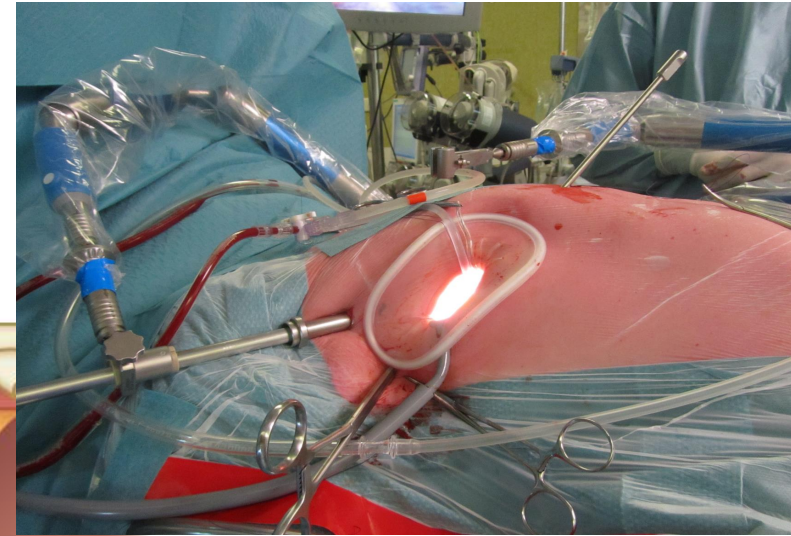
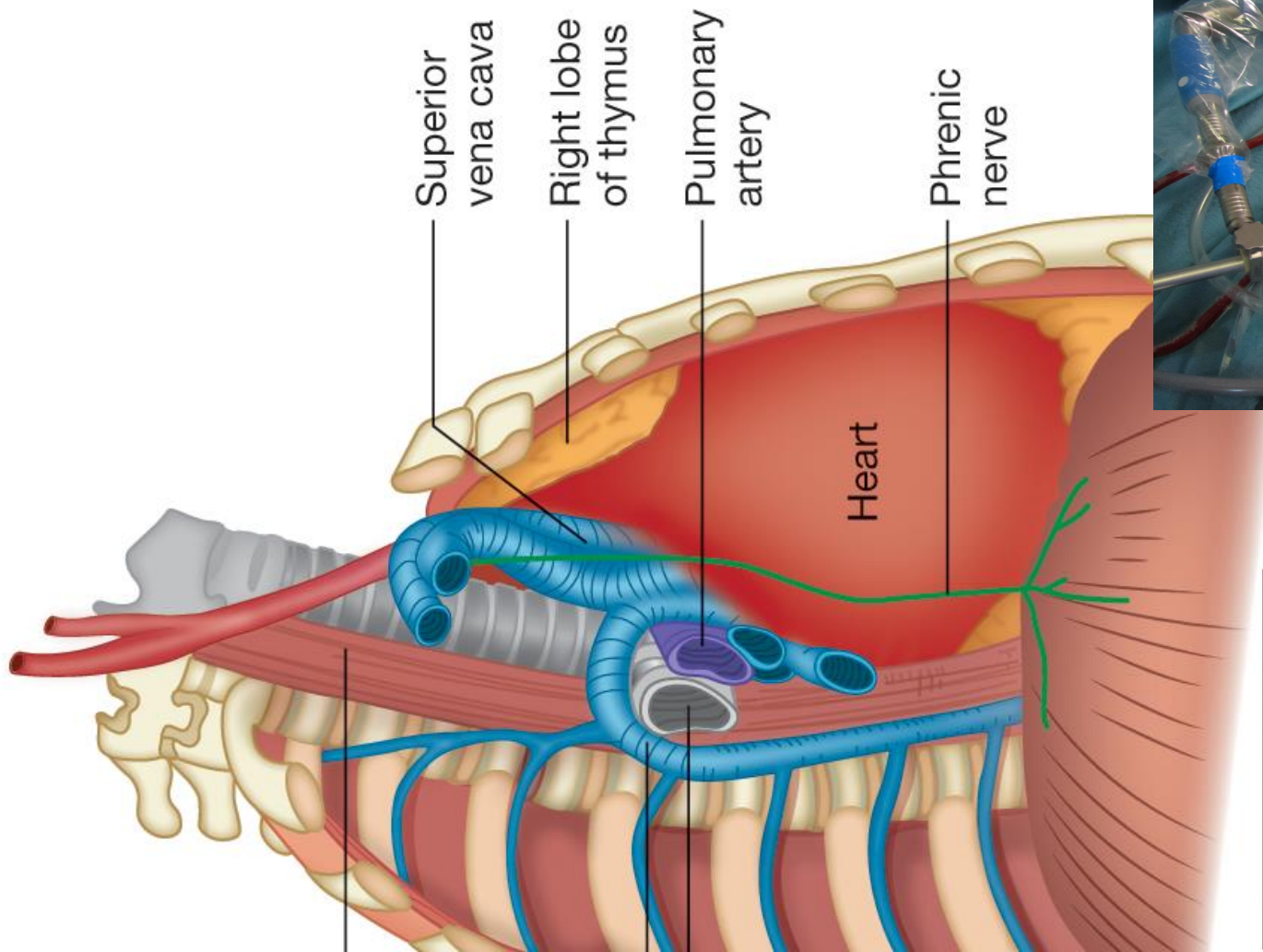
A

Source: Michael A. Grippi, Jack A. Elias, Jay A. Fishman, Robert M. Kotloff, Allan I. Pack, Robert M. Senior, Mark D. Siegel: *Fishman's Pulmonary Diseases and Disorders*: www.accessmedicine.com
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Bron: Marin Cuartas et al. *Prog Cardiovasc Dis.* 2017 Nov - Dec;60(3):394-404





Source: Michael A. Grippi, Jack A. Elias, Jay A. Fishman, Robert M. Kotloff, Allan I. Pack, Robert M. Senior, Mark D. Siegel: *Fishman's Pulmonary Diseases and Disorders*:
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Minimally Invasive Versus Open Mitral Valve Surgery

A Consensus Statement of the International Society of Minimally Invasive Coronary Surgery (ISMICS) 2010

Volkmar Falk, MD, Davy C. H. Cheng, MD,† Janet Martin, PharmD, MSc (HTA&M), †‡
Anno Diegeler, MD,§ Thierry A. Folliguet, MD,|| L. Wiley Nifong, MD,¶ Patrick Perier, MD,§
Ehud Raanani, MD,# J. Michael Smith, MD,** and Joerg Seeburger, MD††*

Innovations (Phila). 2011 Mar;6(2):66-76

“In patients with mitral valve disease, minimally invasive surgery may be an alternative to conventional mitral valve surgery (Class IIb), given.....”

Results of consensus statement

Better in MIMVS	Equal results	Increased risk in MIMVS
Blood transfusion	Mortality	Stroke
Post operative new atrial fibrillation	In hospital morbidity	Aortic dissections
Duration of ventilation		Phrenic nerve palsy
ICU stay		Groin complications
Hospital stay		Prolonged cross-clamp and bypass time
Return to daily activities		
Sternal complications		
Patients satisfaction		

Level of evidence: B

* Falk et al. *Innovations (Phila)*. 2011 Mar;6(2):66-76

St. Antonius compared to literature*

Better in MIMVS	St. Antonius	MIMVS	Sternotomy
Blood transfusion	29,8%	39,0%	42,0%
Transfusion volume	3,0 PC	1,5 PC	3,5 PC
Post operative new atrial fibrillation	22,2%	18,0%	22,0%
Duration of ventilation	10,3 h	12,6 h	19,9 h
ICU stay	2,0 days	1,6 days	2,4 days
Hospital stay	7,0 days	6,9 days	8,9 days
Return to daily activities	-	6,3 weeks	12,3 weeks
Sternal complications	0,0%	0,0%	0,3%
Mortality	1,2%	1,2%	1,5%

* Cheng et al. *Innovations (Phila)*. 2011 Mar;6(2):84-103

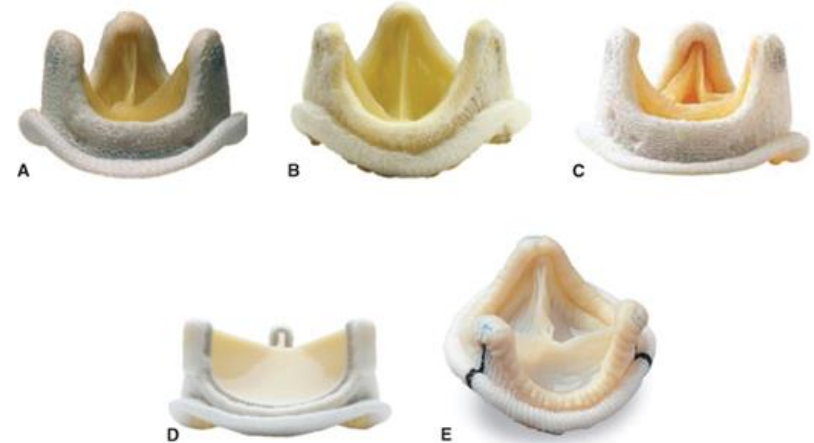
St. Antonius compared to literature*

Increased risk in MIMVS	St. Antonius	MIMVS	Sternotomy
Stroke	0,3%	2,1%	1,2%
Aortic dissections	0,3%	0,2%	0,0%
Phrenic nerve palsy	1,2%	3,0%	0,0%
Groin complications	1,1%	2,0%	0,0%
Prolonged cross-clamp time	82 min	95 min	74 min
Prolonged bypass time	122 min	144 min	111 min

* Cheng et al. *Innovations (Phila)*. 2011 Mar;6(2):84-103

MVP of MVR

- MVP heeft de voorkeur
- MVR indien MVP niet mogelijk
- Bioprothese vs mechanoprothese
 - Cutoff leeftijd \pm 70 jaar
 - Dagelijkse activiteiten

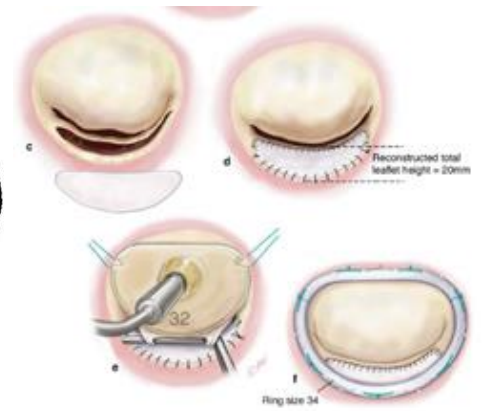
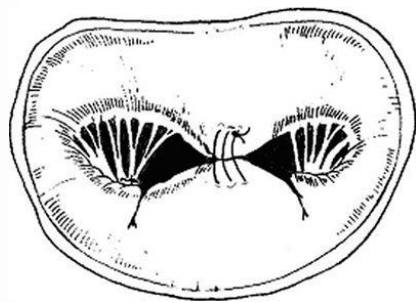
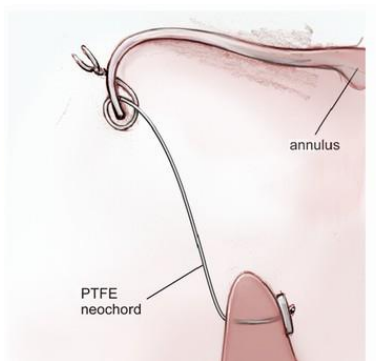
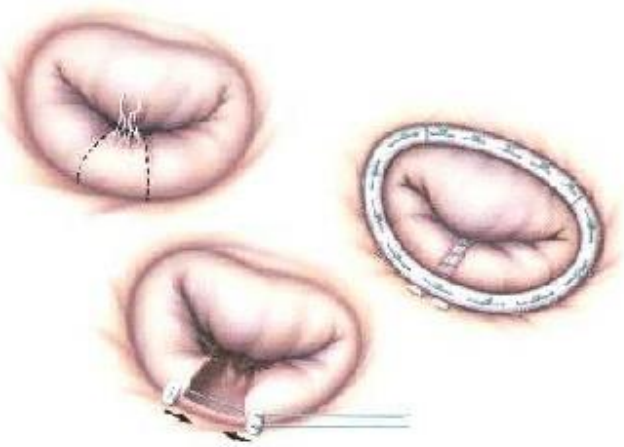
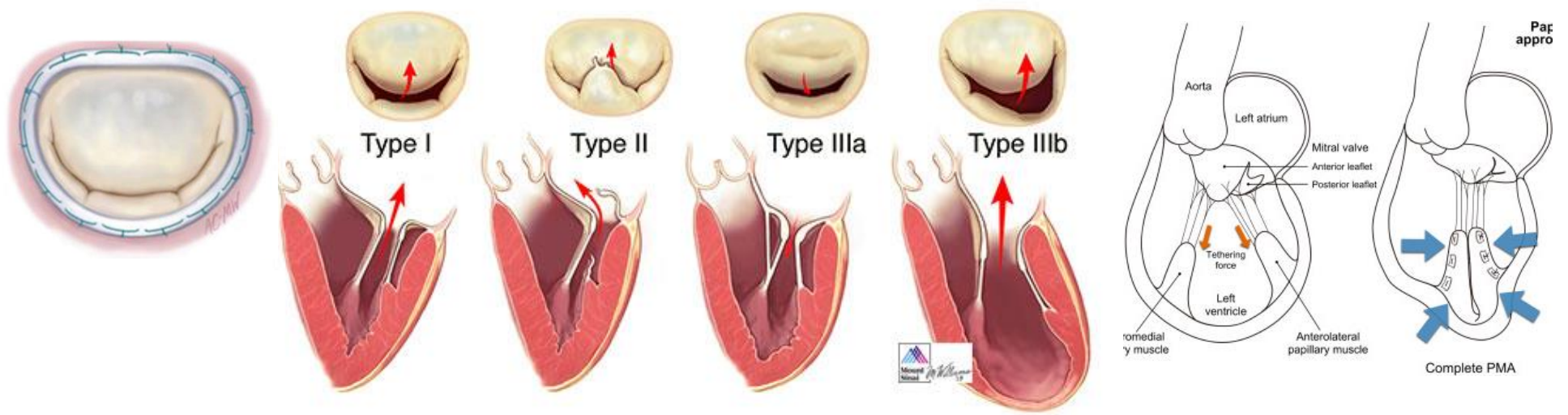


Source: Lawrence H. Cohn, David H. Adams:
Cardiac Surgery in the Adult, Fifth Edition
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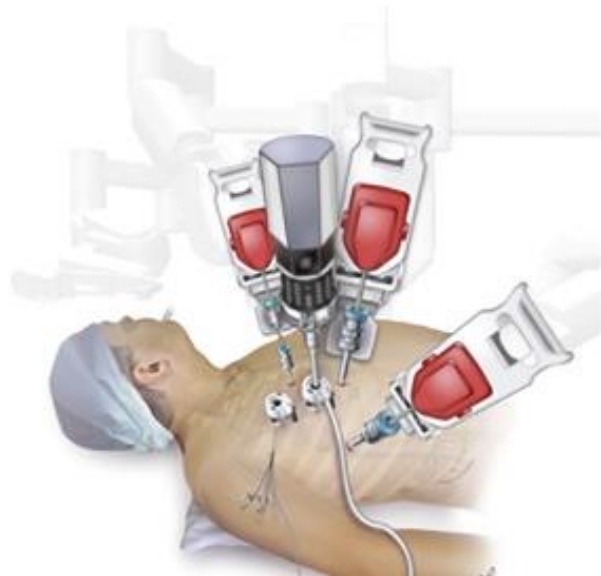
(A) Hancock II porcine heterograft. (B) Carpentier-Edwards standard porcine heterograft. (C) Mosaic porcine heterograft. (D) Carpentier-Edwards pericardial bovine heterograft. (E) St. Jude Biocor porcine heterograft.



MVP



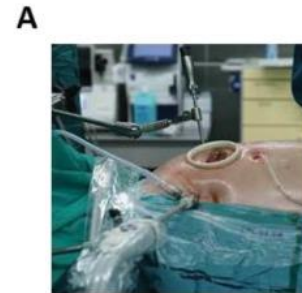
Robot chirurgie



Bron: Marin Cuartas et al. Prog Cardiovasc Dis. 2017 Nov - Dec;60(3):394-404



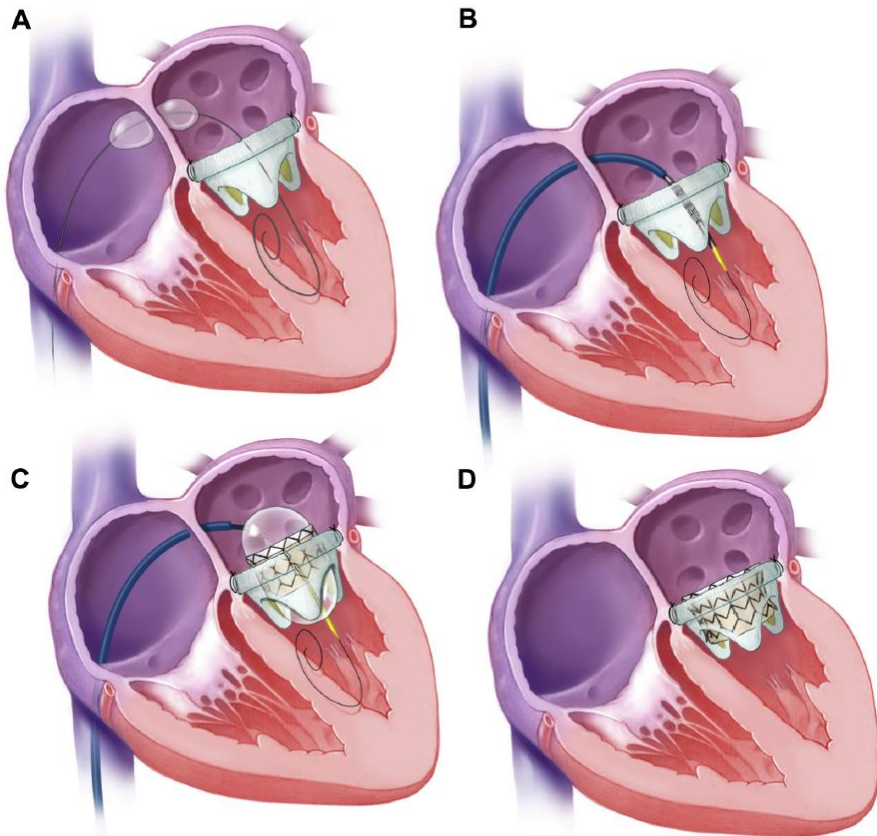
Periaureolaire benadering



Bron: Van Praet KM. *Interv Cardiol.* 2018 Jan;13(1):14-19

Transcatheter technieken

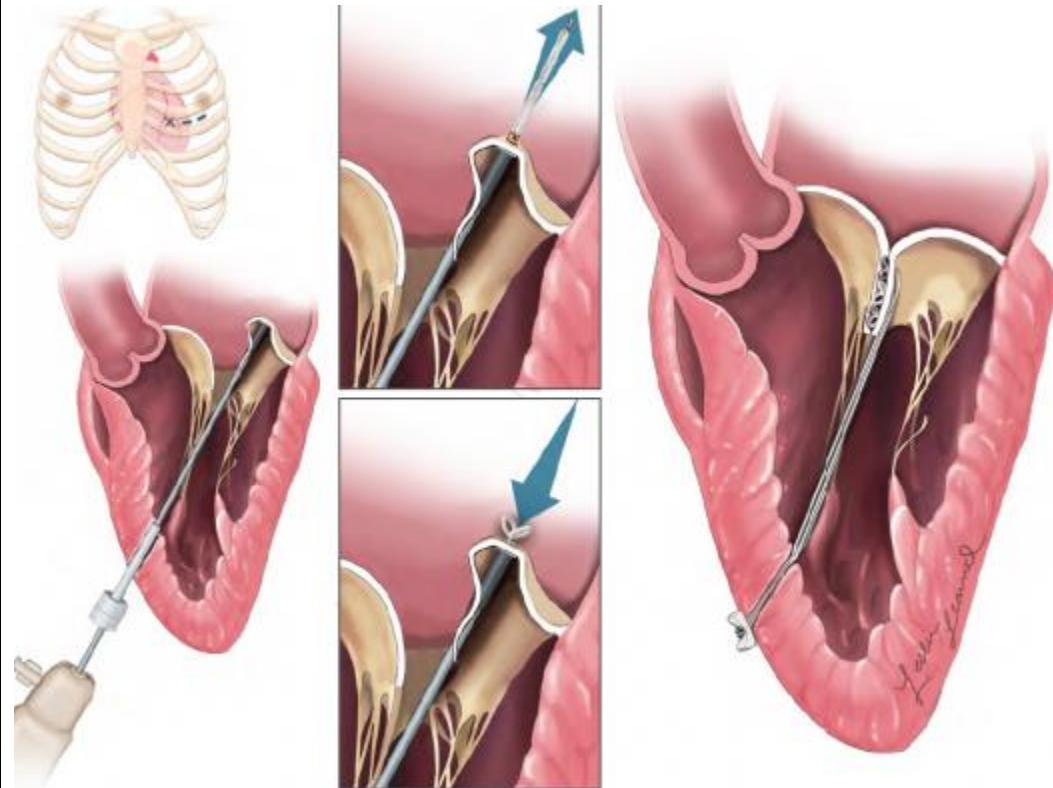
FIGURE 1 Transvenous Transseptal Mitral Valve-in-Valve Procedure



(A) Balloon atrial septostomy is performed to allow SAPIEN valve (Edwards Lifesciences, Irvine, California) delivery. (B) SAPIEN valve is carefully positioned within prosthesis over a left ventricular anchor wire. (C) Balloon expandable SAPIEN valve is deployed within the surgical valve, and (D) equipment is removed.

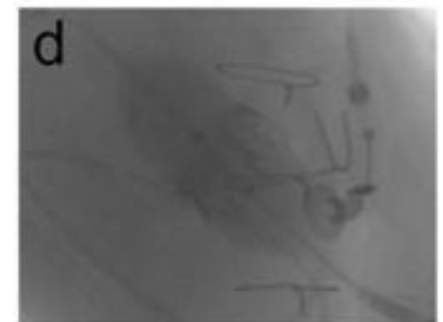
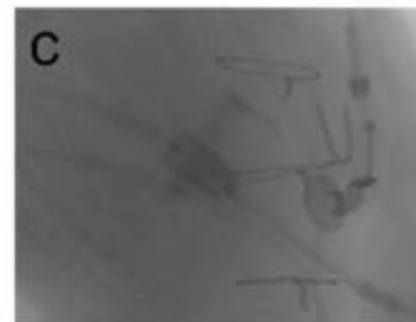
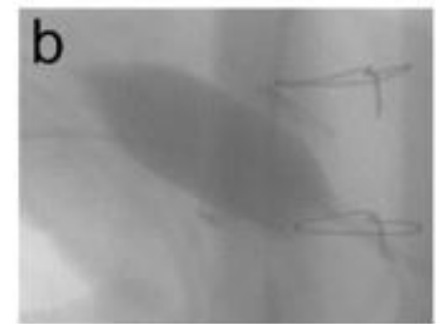
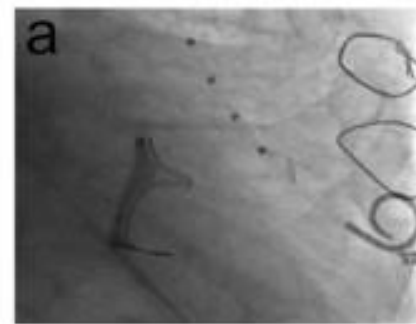
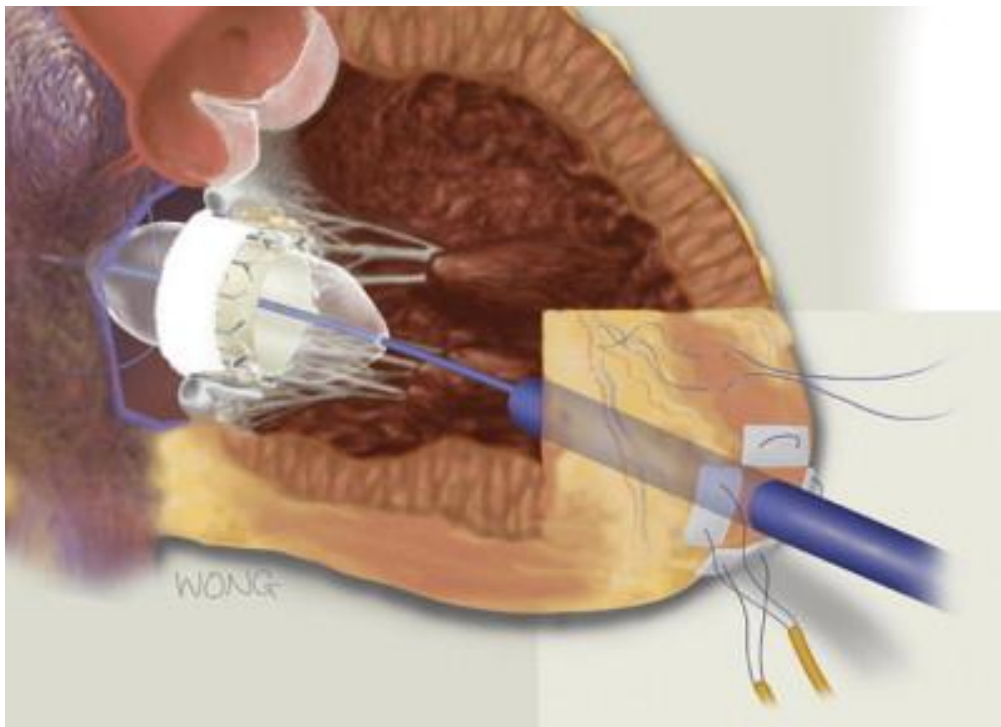
Source: Eleid MF et al. JACC Cardiovasc Interv. 2016 Apr 11

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Source: Gammie et al. JACC 2017

Transapicale valve in valve procedure



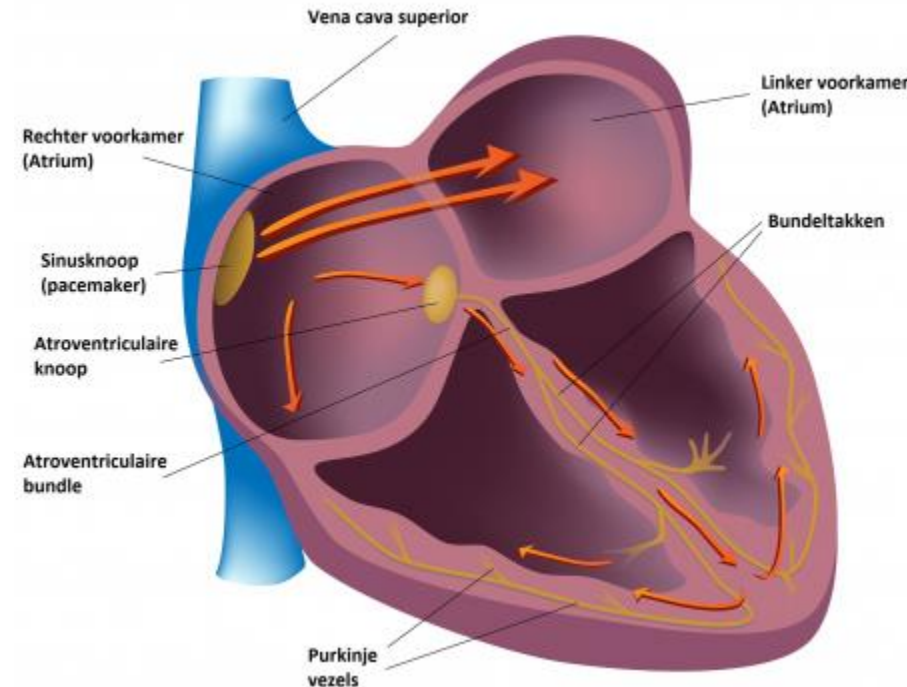
Bron: Cheung et al. *Ann Thorac Surg* 2009;87:e18–20

Herstel op de IC

- Gemiddeld 1 tot 2 dagen
- Respiratoire ondersteuning: Endotracheale tube
- Ritme ondersteuning: Transveneuze pacemaker
- Hemodynamische ondersteuning: vulling, vasopressoren en inotropica
- Thoraxdrains

Herstel op de afdeling

- Gemiddeld 5 tot 6 dagen
- Ritmebewaking
 - Atriale vs ventriculaire tijdelijke pacemaker
- Mobiliseren
- Wondverzorging
- Controle TTE
- Acenocoumarol 3 maanden
 - Levenslang indien mechanoprothese



Bron: <https://www.hartcentrumhasselt.be>

Samengevat

- **Grootste verschil conventioneel vs minimaal invasief: sternum intact!**
 - Sneller herstel naar dagelijkse activiteiten!
 - Mini thoracotomie met/zonder robot
 - Transcatheter technieken
- **Bij minimaal invasief: lieswond**
- **Bij minimaal invasief: geen ventriculaire pacemaker draad**

ZIJN ER NOG VRAGEN?

