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# CARDIAC SURGERY IN VIET NAM

*Past, present and future*

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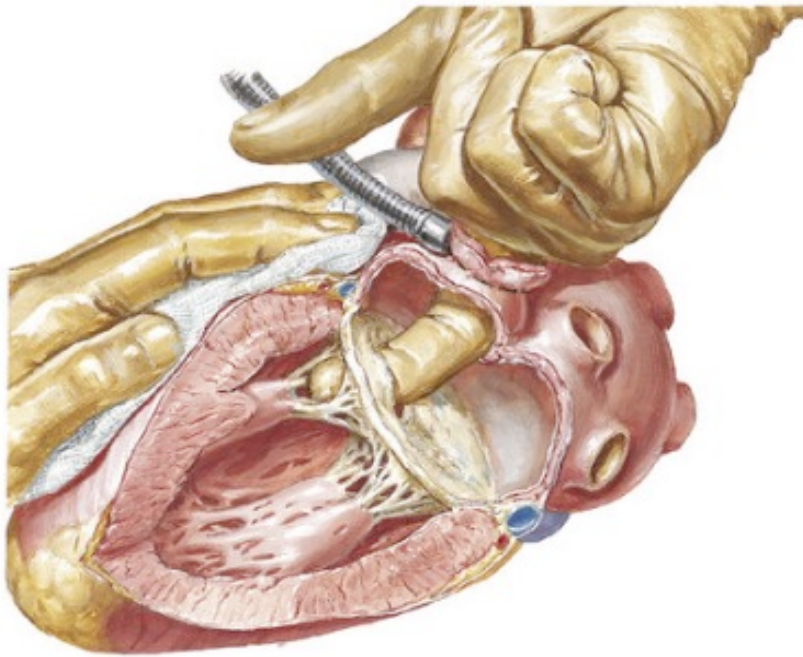
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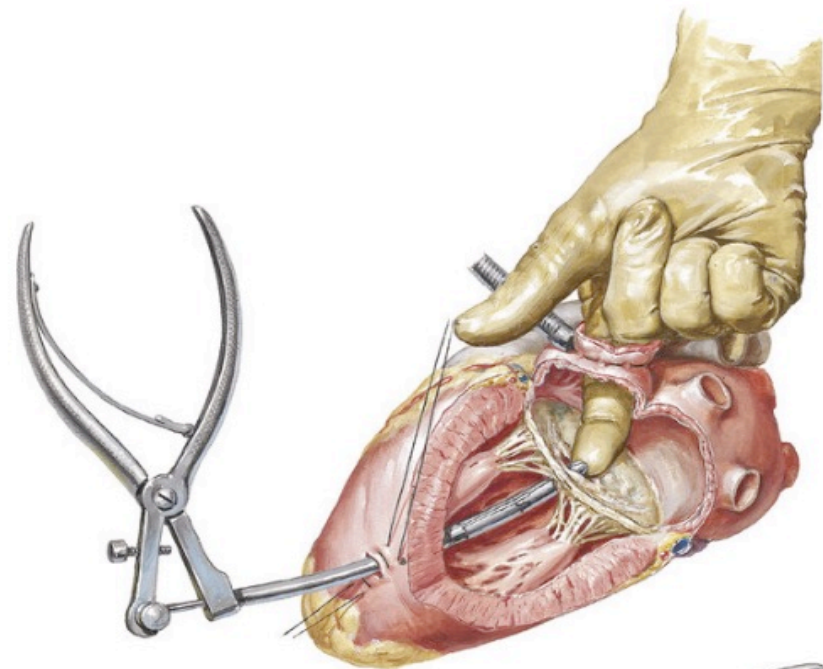
Vietnam

## CARDIAC SURGERY OVER TIME

- 1958: Prof Ton That Tung, performing first *Closed mitral commissurotomy by hand*
- 1960 – 1965: Experimental open-heart surgery and organ transplantation, and in 1965, the first open-heart surgery to repair atrial septal defect using the heart-lung machine aided by China
- 1965-1978: Classic open-heart surgery with support from Russian and Chinese experts
- 1978-1991: Open-heart surgery with support and training from French experts
- 1992-2012: Classic open-heart surgery performed by Vietnamese doctors( 25 facilities)
- 2013: For the first time in Vietnam, Cardiovascular center – E hospital announced the success of minimally invasive cardiac surgery to treat mitral valve disease, ASD
- 2023: 37 facilities can perform heart surgery, 12-13000 cases/year (2022), 16/37 facilities can perform minimally invasive heart surgery



Mitral commissurotomy by hand



Mitral commissurotomy by instruments



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## CARDIAC SURGERY IN VIETNAM 1958-1977

### The first open-heart surgery

- 1960: Experimental open-heart surgery
- 1965: Prof Tung repaired ASD with heart-lung machine aided by China
- 1965-1978: Classic open-heart surgery with support from Russian and Chinese experts





## CARDIAC SURGERY IN VIETNAM 1978 - 1991



### Open-heart surgery

#### North region:

- Viet Duc hospital: Open-heart surgery supported by French experts (training equipments, and donated materials)
- Other provinces: Support training to establish closed-heart surgery facilities

**South region:** Training and performing closed-heart surgery





## CARDIAC SURGERY IN VIETNAM 1992-2012



-Ho Chi Minh city heart institute 1992



-Hanoi heart hospital; 2001 – 2004



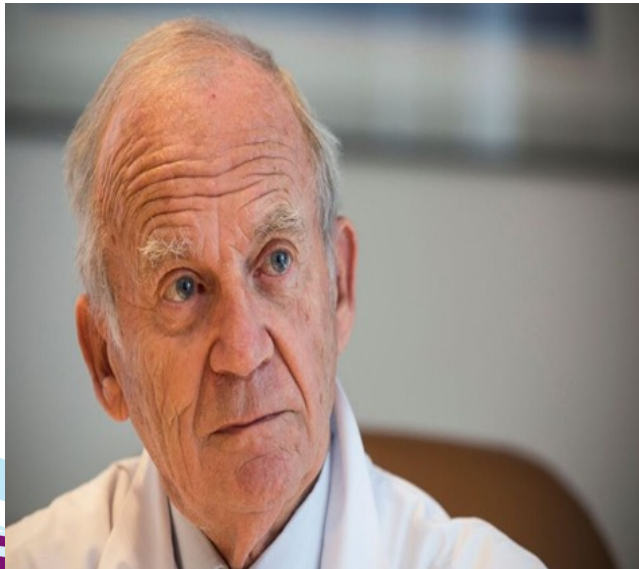
- CV center – Hue Central hospital; 2007



-Cardiovascular center – E hospital; 2009 – 2010



# HCMC heart institute





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# Hanoi heart hospital







# CV center – Hue central hospital





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# CARDIOVASCULAR, E HOSPITAL HANOI





## CARDIAC SURGERY IN VIETNAM 2013-2023

### FACILITIES CAN PERFORM HEART SURGERY

-North region: VD hospital, E hospital, HN heart hospital, BM hospital, HMU hospital, Vietnam national children's hospital, 103, 108, 198 hospital, Viet Tiep hospital, Thai Binh, Thanh Hoa general hospital, Thanh Hoa pediatric hospital, Thai Nguyen, Phu Tho, Nghe An, Vinmec hospital

-Central region: Hue, Danang general hospital, Danang hospital for woman and children

-South region: Cho Ray, HCMC Heart institute, University medical center HCMC, Tam Duc, Thong Nhat, Children's hospital 1-2, Gia Dinh hospital, Pham Ngoc Thach, Tam Anh HCMC, Binh Duong, Can Tho, An Giang, Vinmec



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## NUMBER OF HEART SURGERY PATIENTS IN VIETNAM, 2022



35 heart surgery facilities; 12000-13000 cases/year

- 1000 : 4 facilities
- 8000-1000: 4 facilities
- 300-500: 4 facilities
- 100-200: 7 facilities
- < 100: 18 facilities

**- 16/37 can performe MICS,**

**- Routine : 8/16**



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## THE FIRST MINIMALLY INVASIVE CARDIAC SURGERY (10/2013 )



Endoscopic assisted mitral valve replacement through a small right thoracotomy



## MINIMALLY INVASIVE OPEN-HEART SURGERY

### - Level 1: 2010-2013

- Direct vision : Limited incision (10-12cm)

### - Level 2 : 2013– 2015

- Direct vision/ Video assisted : Mini incision ( 4-6cm)

### - Level 3 : 2015 – 5/2017

- Video Directed without Robotic assisted : Micro incision (1.5 – 4cm)

### - 5/2017-2021 : Totally endoscope without Robotic assisted : Port incision (1.5cm )

*Cardiovascular Center – E hospital Hanoi*



## MINIMALLY INVASIVE HEART SURGERY IN VIETNAM

- Non-sternotomy

- MV surgery: valve replacement/repair
- CHD surgery: ASD, VSD, AVSD, MNNT
- Heart tumor removal surgery
- AV surgery
- PV surgery
- CABG

- Partial sternotomy:

- Ao surgery
- Heart valve surgery

### Equipments

- No robots
- 3D/2D Endoscopy
- Peripheral ECMO
- Minimally invasive equipments

### Level

- Direct vision
- assisted endoscopy
- Complete endoscopy
- Complete endoscopy < 1,2cm (E hospital)



# MINIMALLY INVASIVE CARDIAC SURGERY

*Non-robotic, 3D endoscopy*

*Peripheral CardioPulmonary Bypass, Lift by soft flap, lesion exposed by sutures*





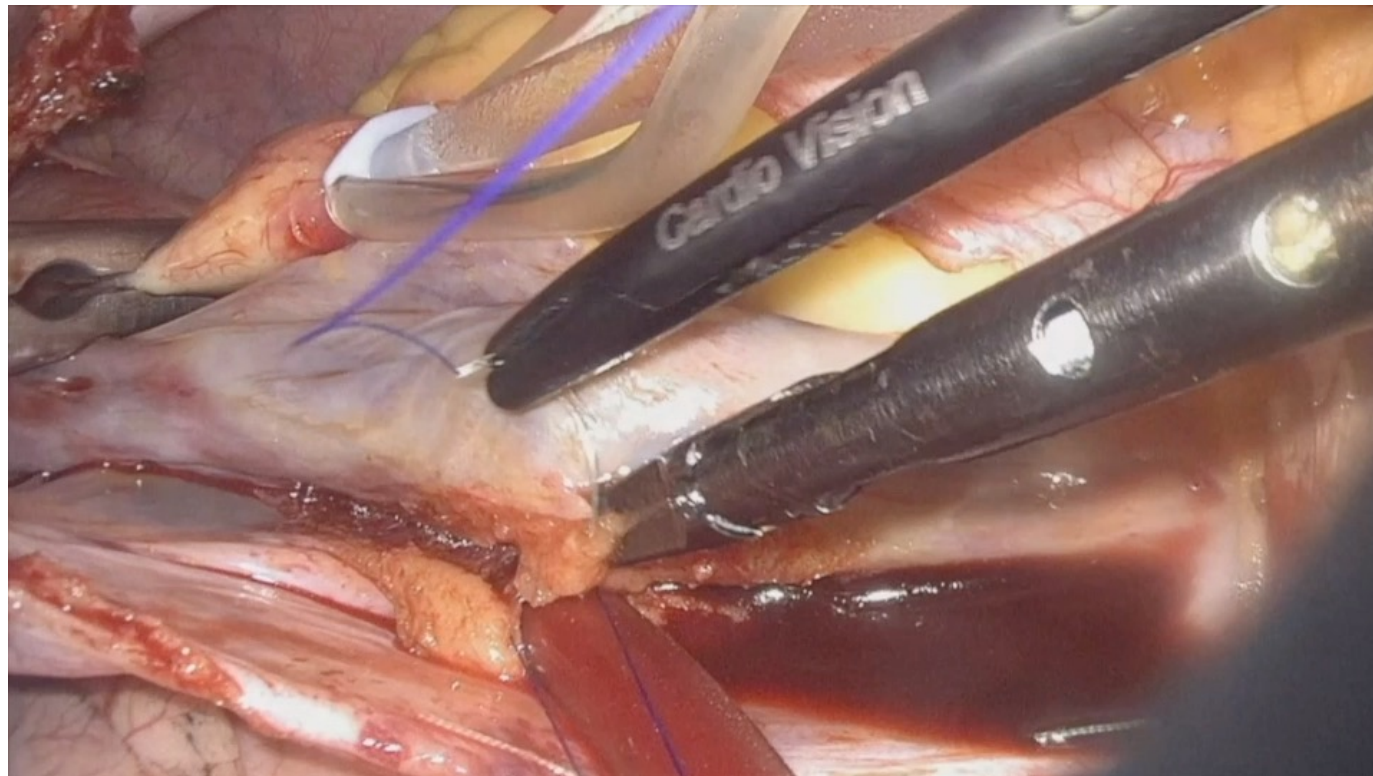


# Technical advances in MIS

## Expose the heart



Exposing MV lesions by hanging sutures, 2017 – 2022





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# Completely endoscopic open-heart surgery

*Non-robotic, 3D endoscopy*



## PHẪU THUẬT NỘI SOI TOÀN BỘ

Closure of ASD

2016 – 2022: >250 Patients



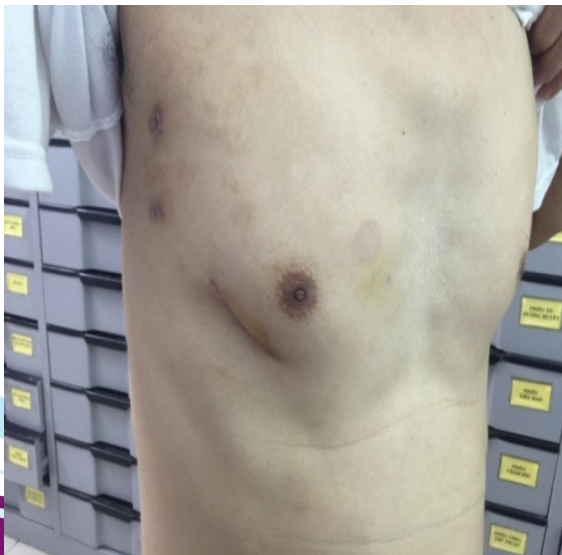
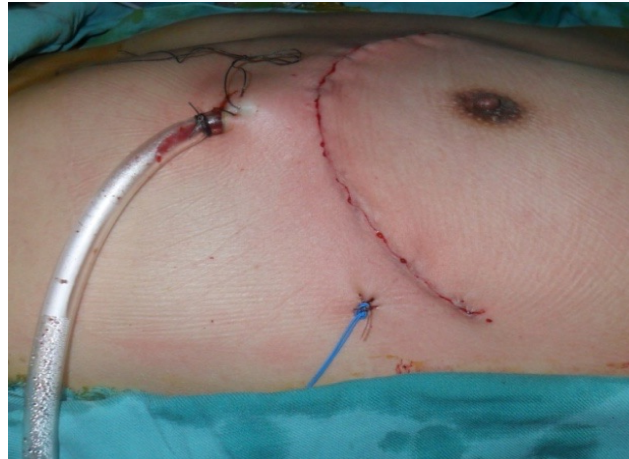
Removal of cardiac tumors

2017 – 2022: >60 Patients



## MINIMALLY INVASIVE OPEN HEART SURGERY

### OPEN SURGERY – ASSISTED ENDOSCOPY – COMPLETE ENDOSCOPY



## Ventricular septal defect surgery



Classic surgery



MIS



Endoscopic surgery



## FUTURE ORIENTATION



- Routine deploy minimally invasive heart surgery
- Strengthen human resource training; Surgery-Intervention
- Recommend appropriate surgical equipment
  - + Endoscopic system
  - + Hybrid operating room
  - + Percutaneous valve replacement

*Should we have an interventional training programme for surgical residents?*

*Should we equip Robot in heart surgery ?*



*Thanks you for your attention*