

# Cardiothoracic Services in UK

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# Summary

- Overview of Cardiothoracic Service in UK
- London Cardiothoracic Service
- Cardiothoracics at St George's Hospital
- Anaesthetic practice
- Novel procedures
- Future

# United Kingdom

- Population 61 million
- 42 Cardiac centres in UK
- 35,000 operation PA
- 7 transplant centres
- 200 Cardiac surgeons in UK (1/300,000)
- 400 Cardiothoracic anaesthetists
- 526 Cardiothoracic ITU beds (data from 2006)

## 42 Centres in UK

12	London
24	England
5	Scotland
1	Northern Ireland



# London

- Population 7 million
- 12 Centres in London
- Specialist Centres

Great Ormond Street - Paediatrics

Brompton Hospital - Paeds and Adult

The Heart Hospital - Grown Up

Congenital

Heart Disease (GUCH)



Atkinson Morley Wing

Huntleigh  
Nesbitt Evans  
Healthcare  
Solutions

# St George's Hospital

- 3 Cardiac surgeons, 2 cardiothoracic surgeons 1 thoracic surgeon and 1 interventional respiratory physician
- 4 Cardiothoracic theatres, 8 catheter laboratories
- 10 Consultant cardiothoracic anaesthetists

# Procedures

- Adult cardiothoracics
- Off Pump CABG
- Minimally invasive surgery
- Intrabronchial procedures
- Interventional cardiology including device closure of ASD and percutaneous AVR



## Unadjusted Mortality at St Georges NHS Trust

Operation	2002/3	2003/4	2004/5
<b>All Operations</b>			
St George's	3.3%	2.5%	2.5%
UK average	3.6%	3.6%	3.4%
Total number of cases	1140	1117	1068
<b>Coronary artery bypass*</b>			
St George's	1.7%	1.3%	1.0%
UK average	2.0%	1.7%	1.7%
Total number of cases	815	776	684
<b>Aortic valve replacement*</b>			
St George's	4.5%	0%	1.3%
UK average	3.0%	2.6%	2.5%
Total number of cases	66	78	79
<b>Mitral valve replacement*</b>			
St George's	7.5%	2.9%	2.6%
UK average	5.5% **	5.0% **	5.2% **
Total number of cases	40	34	39

# Outcomes 3 years to 3/07 on line

2007 nationally no. cases performed	National mortality	No cases 3 years to 3/07 St George's	St George's mortality
19,957 CABG	1.7%	1768 CABG	1.4%
3,436 AVR	2%	978 AVR	1.1%
		3046 All cases including MVR etc	2.6 %

Individual surgeons mortality rates published on line

[www.heartsurgery.healthcarecommission.org.uk](http://www.heartsurgery.healthcarecommission.org.uk)

# Anaesthesia for Cardiac Cases

- Varies slightly with anaesthetist but nearly standard technique
- Morphine/hyoscine premed
- Big drip/A-line/CVP +/- PAC
- Thiopentone/Fentanyl/Rocuronium
- TOE when indicated
- Fast track appropriate patients - use remifentanyl/rocuronium

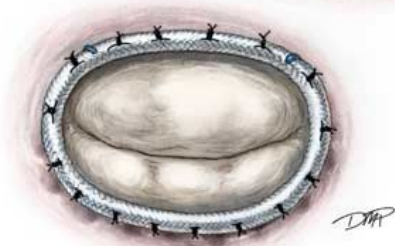
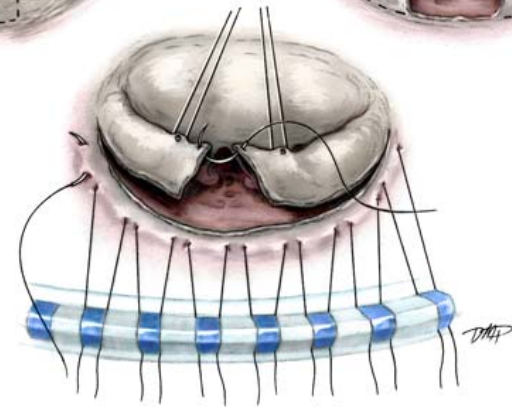
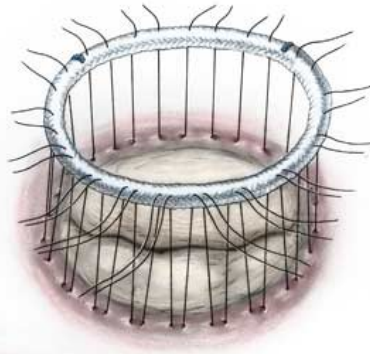
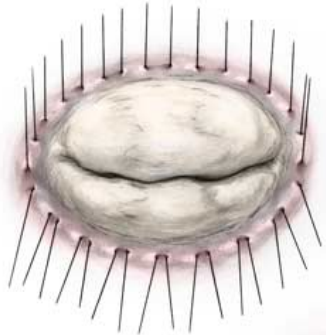
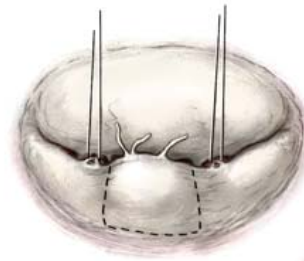
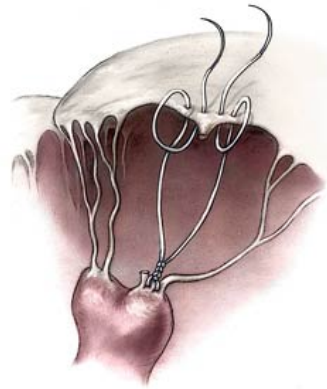
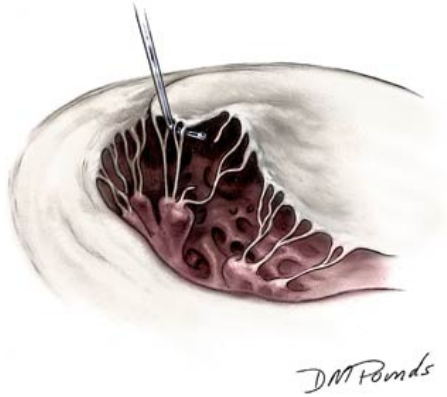
# Anaesthesia for thoracic cases

- Benzodiazepine pre-med
- Big drip, A-line +/- CVP
- Propofol, Fentanyl, Vecuronium
- Double lumen tube
- Post operative analgesia PCA + Paravertebral catheter
- Bronchoscopy Prop/Remi TIVA

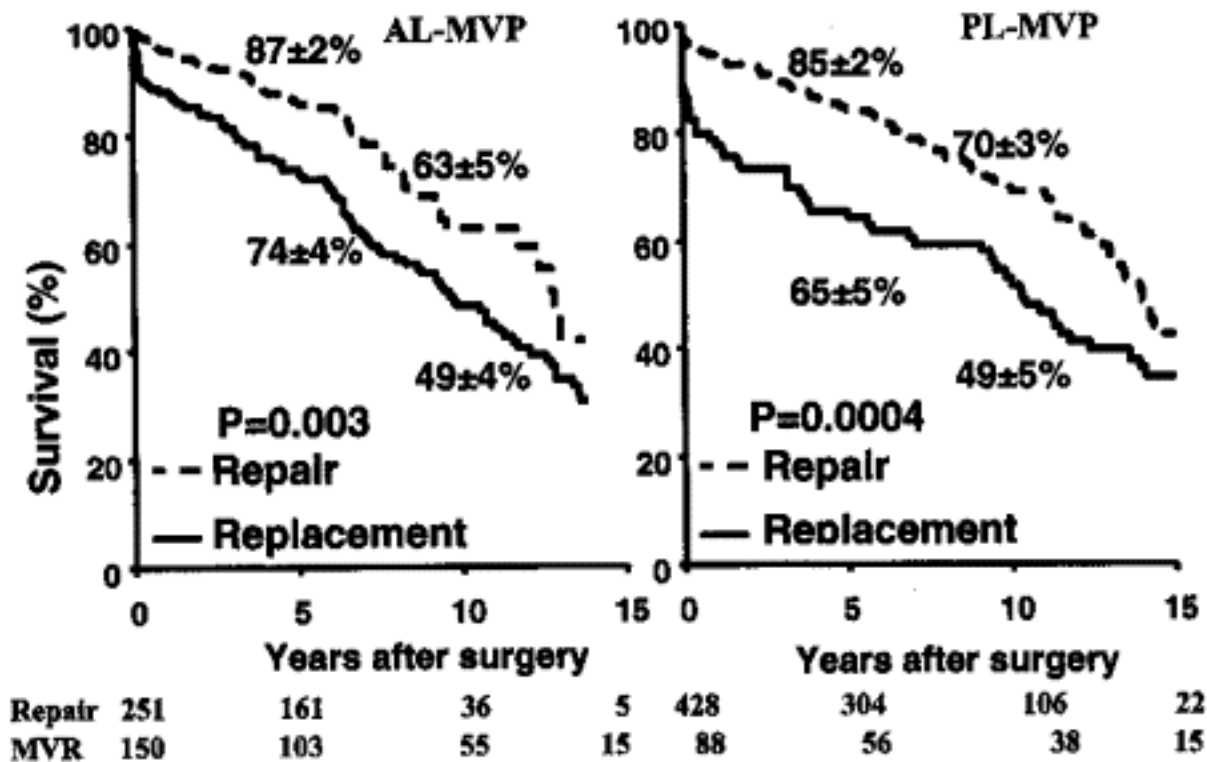
# Novel surgical procedures

- Mitral valve repair
- Minimally invasive surgery
- Percutaneous aortic valve replacement
- Off- pump CABG
- Bronchial stenting
- Robotic surgery

# Mitral Valve Repair



# Repair Vs Replacement



# Minimally Invasive Cardiac Surgery

## **What is MICS**

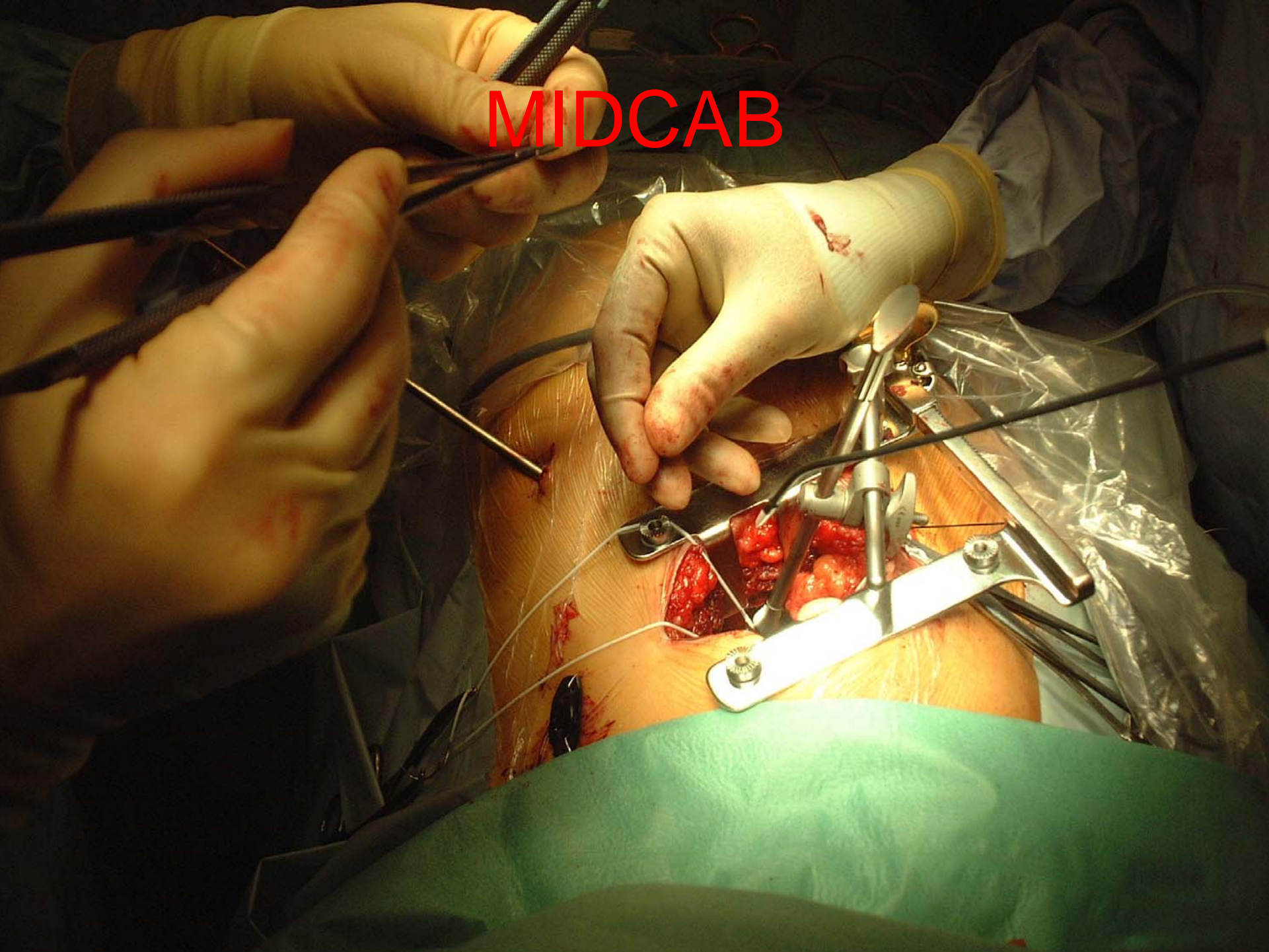
- Definition
- Cardiopulmonary Bypass
- Small incision
- Key Hole
- Video Assisted
- Robotic Computerised

## **What drives MICS**

- Competition with endovascular tech
- Co Morbidities
- Better out come
- Shorter length of stay
- Patient preference

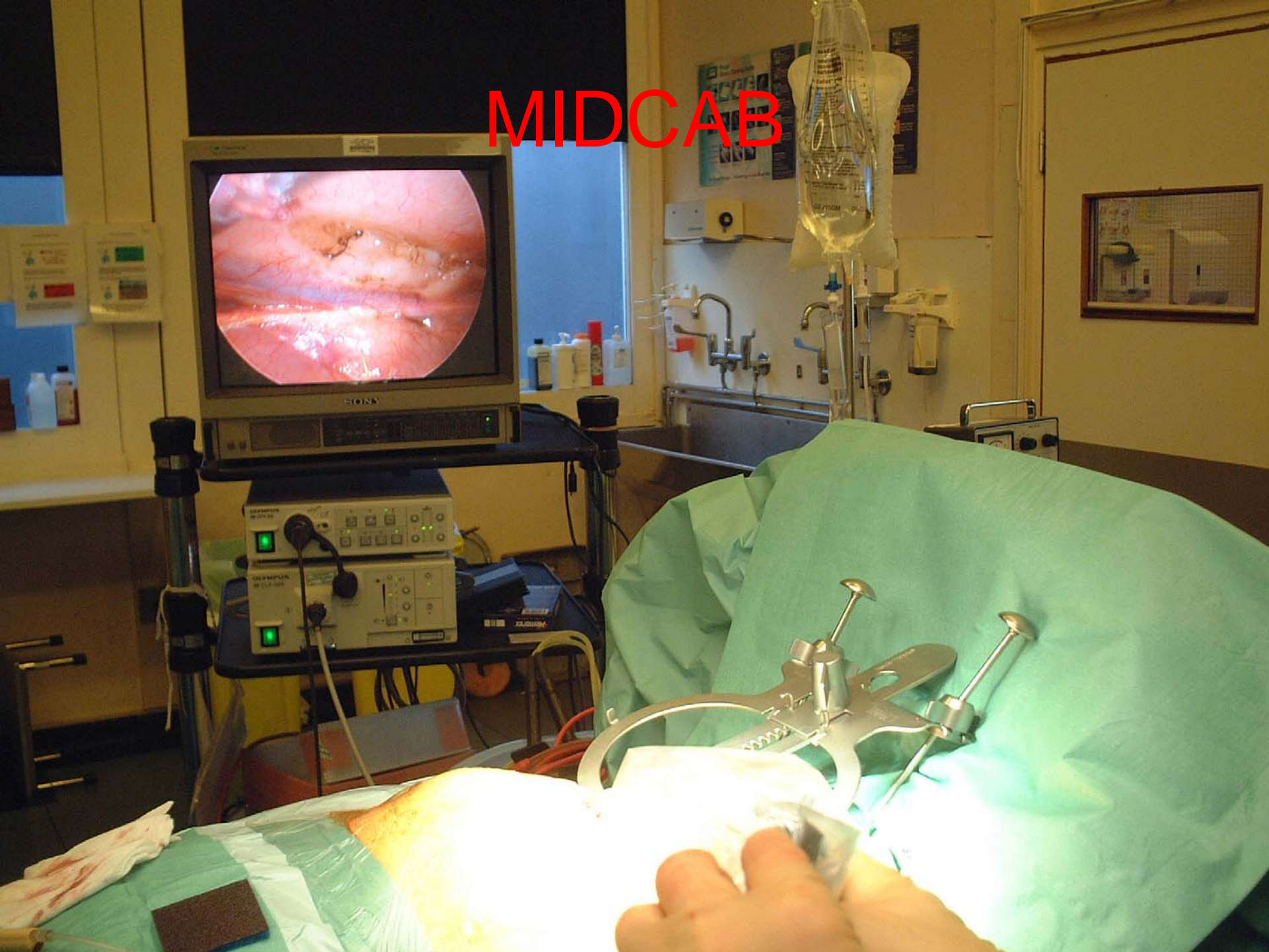


MIDCAB



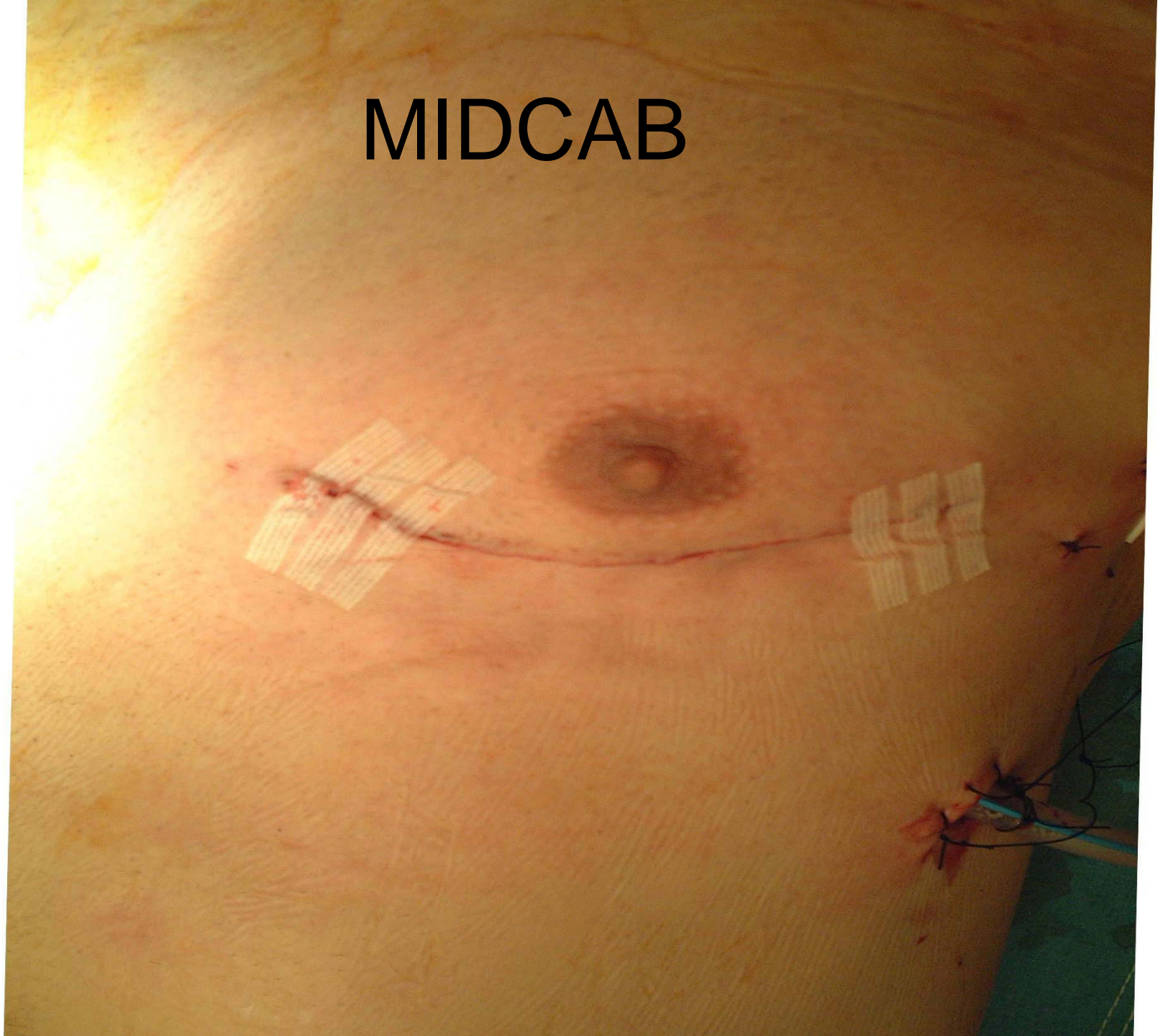


MIDCAB



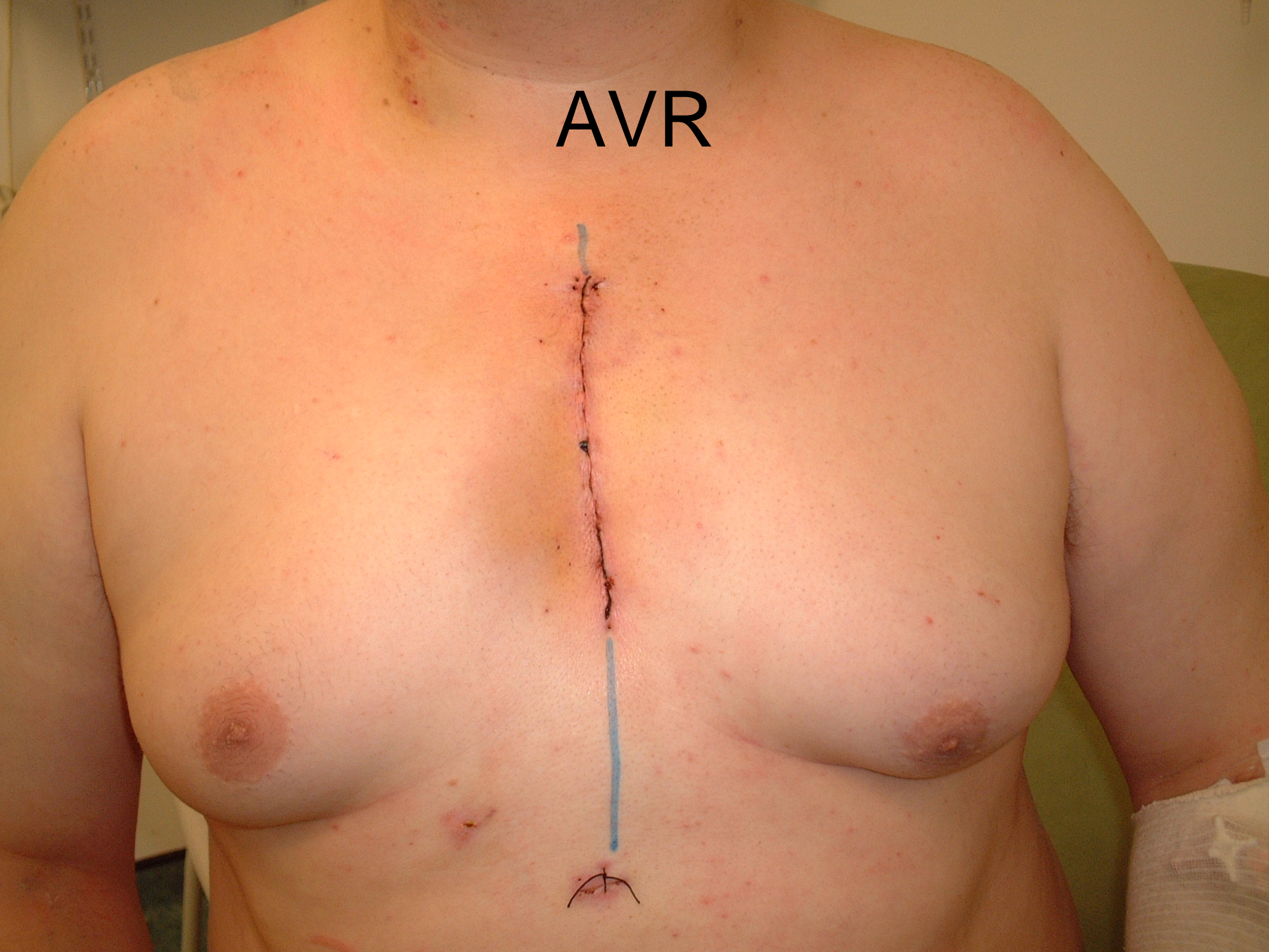


MIDCAB



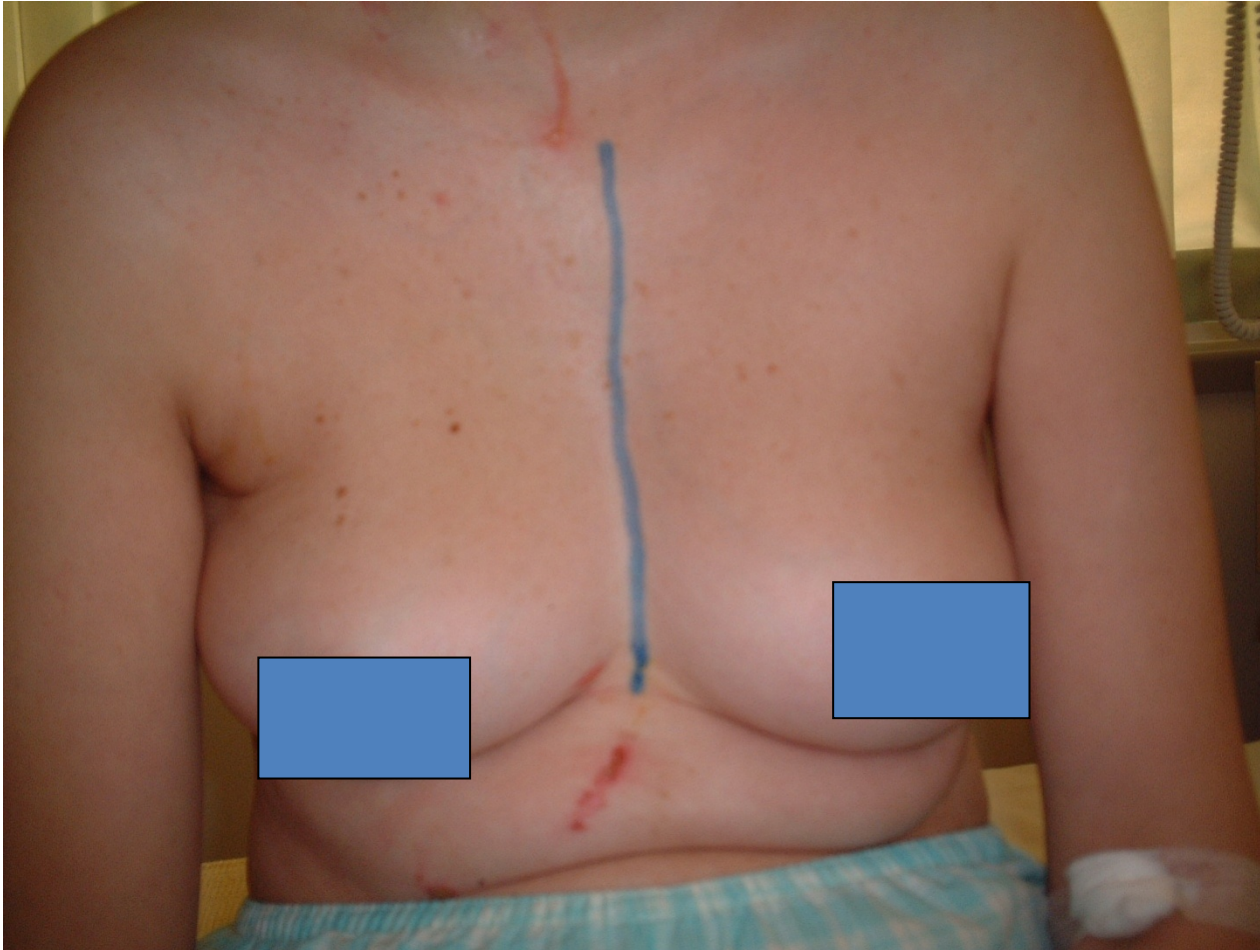


AVR





# Minimally Invasive Surgery



# Minimally Invasive Surgery



# Minimally Invasive Surgery





# PAVR

## REVALVING™ PROCEDURE

The procedure is performed in a catheterization room, with the patient sedated but conscious. Procedure takes less than an hour and recovery takes one to two days.

### Catheter insertion

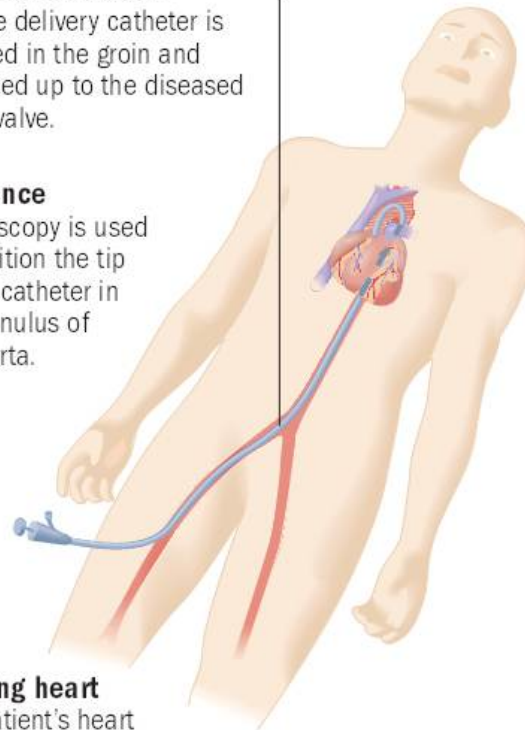
A valve delivery catheter is inserted in the groin and threaded up to the diseased heart valve.

### Guidance

Fluoroscopy is used to position the tip of the catheter in the annulus of the aorta.

### Beating heart

The patient's heart continues beating.

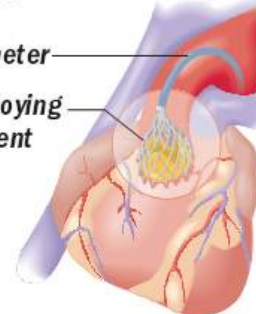


### Valve deployment

A new artificial valve mounted in a self-expanding stent is deployed in the aortic annulus.

### Catheter

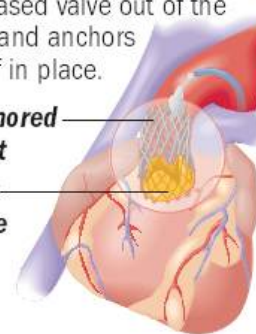
### Deploying stent



The new valve pushes the diseased valve out of the way and anchors itself in place.

### Anchored stent

### New valve

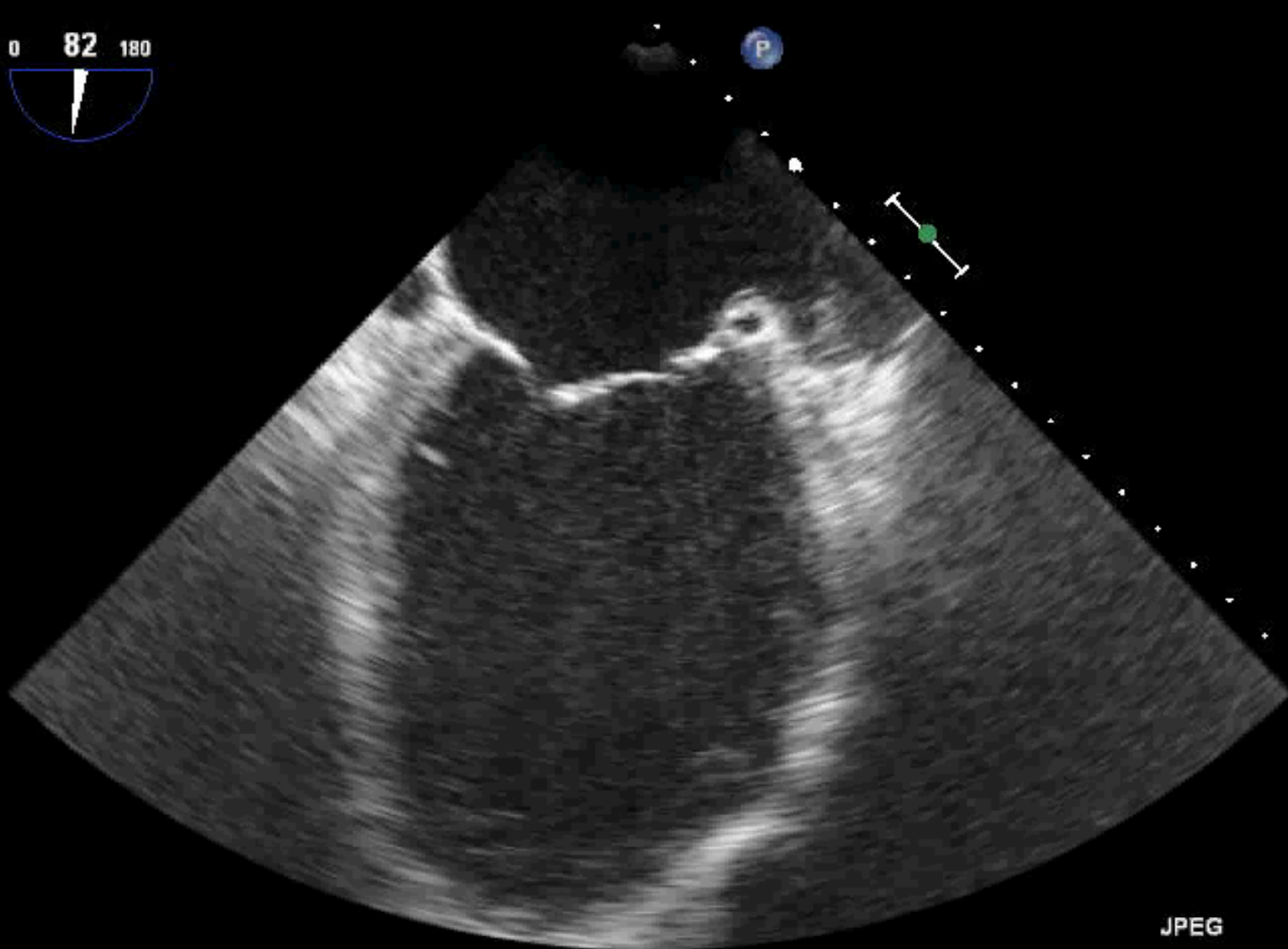






FR 35Hz  
18cm

M4

2D  
76%  
C 50  
P Off  
Gen

JPEG

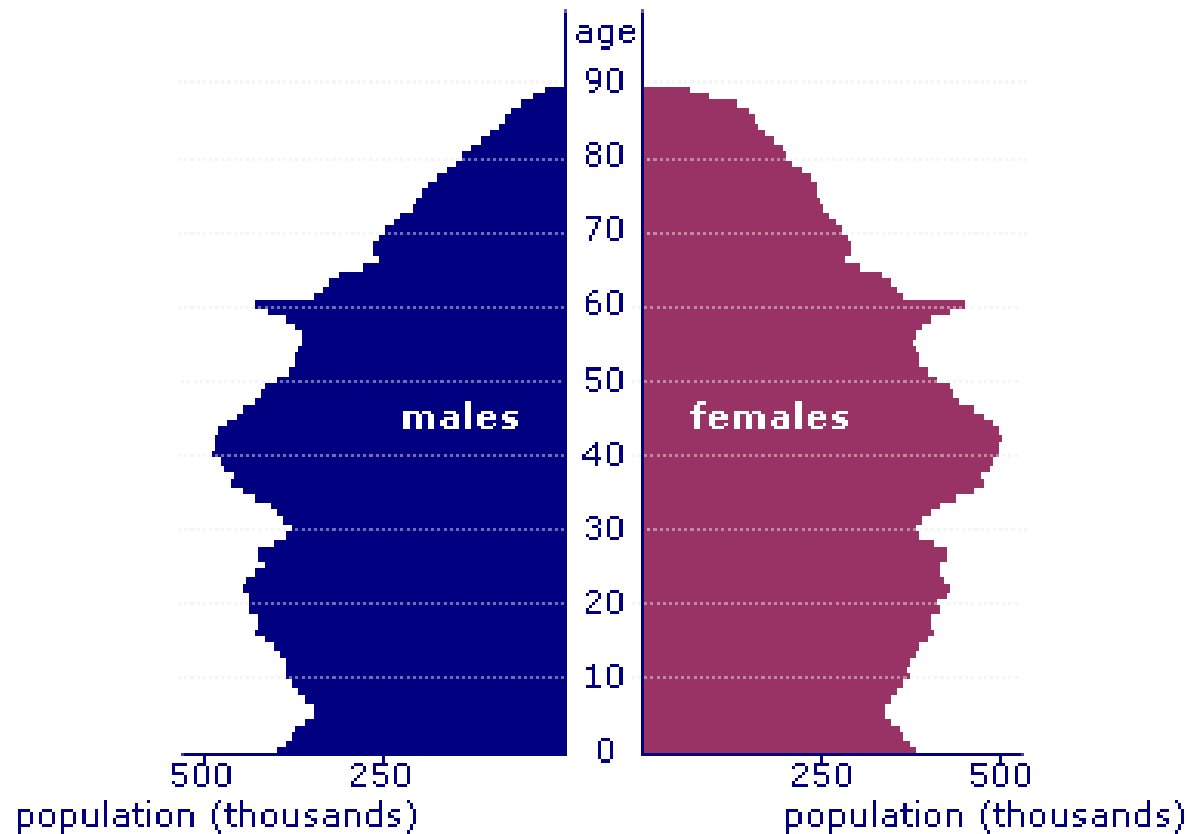
PAT T: 37.0C  
TEE T: 38.4C

75 bpm

# Robotic M V Repair



# UK population 61 million



# Future

- Demographics
- Cost
- Minimally Invasive
- Transcatheter techniques
- Robotics
- Stem cell implants