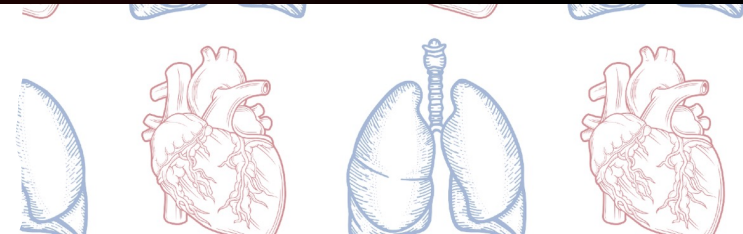
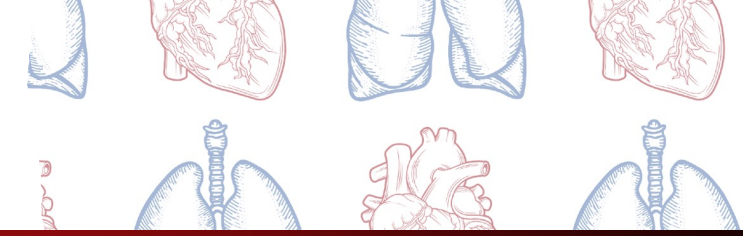
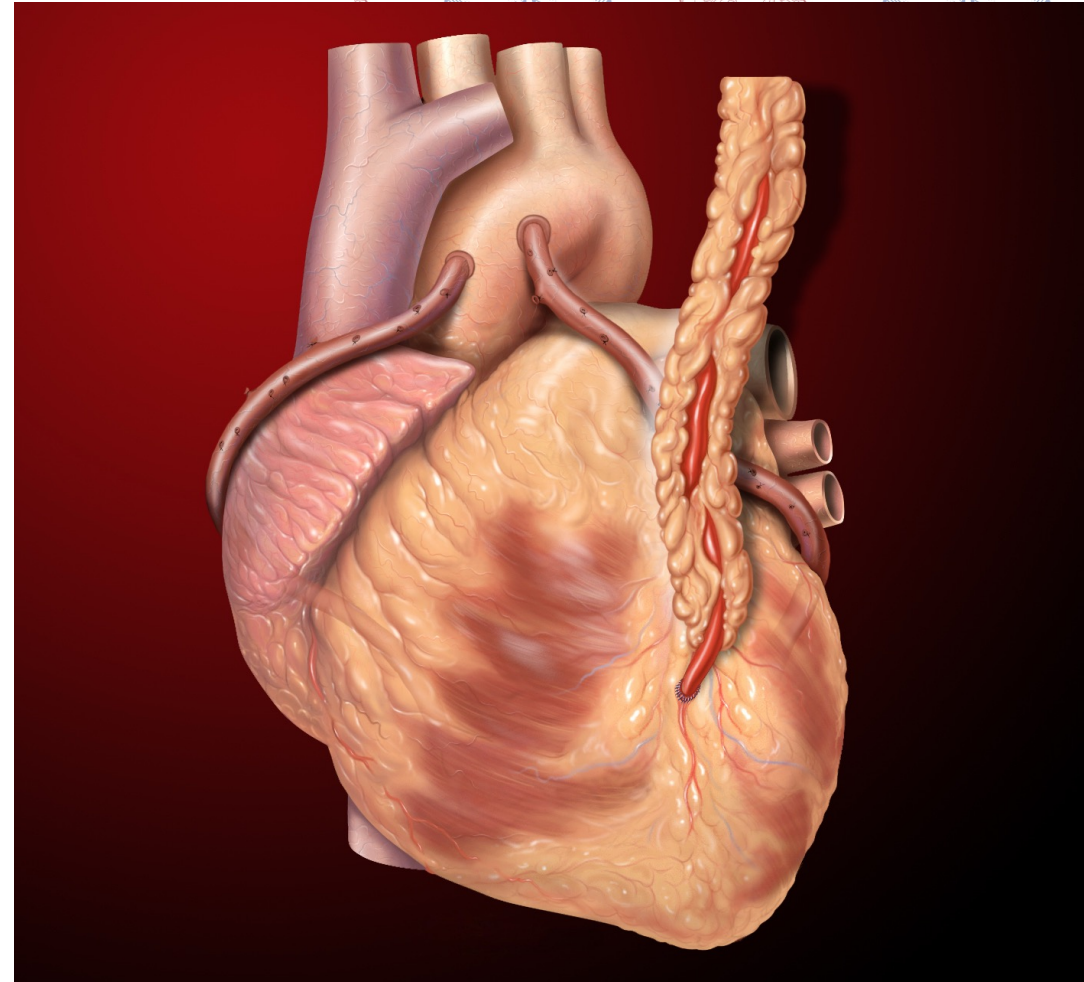


**Cardiac Case
Walkthrough Part 2
CPB Separation to ICU**



Case 1

Mr Thomas





Case 1

Mr Thomas

CABG*3

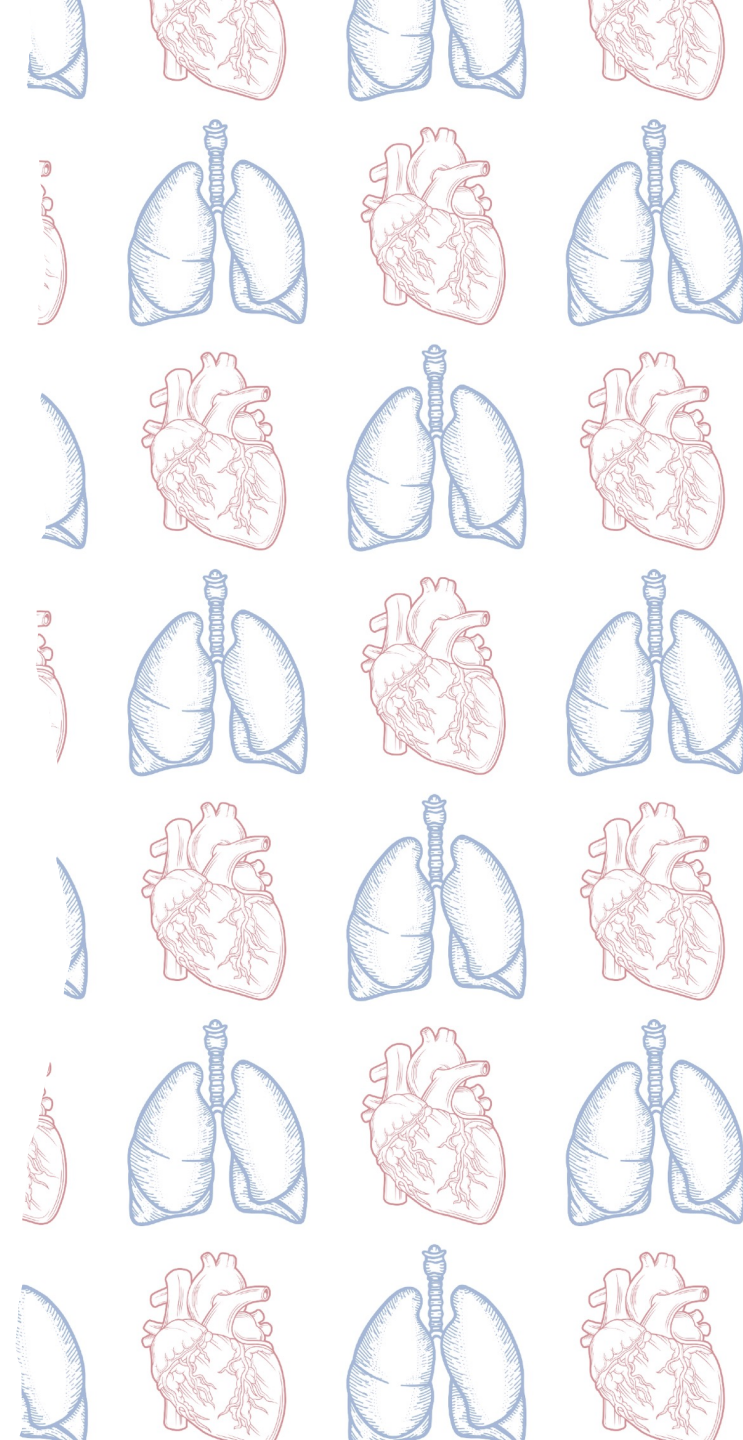
LIMA -> LAD

SVG -> OM1

SVG -> PDA

CPB time: 71 minutes

AXC time: 55 minutes



Case 1

Weaning from CPB

Have a system

HALT!

Heart rate, rhythm, support

Alarms on, ABG done

Lungs on

Temperature ok



Case 1

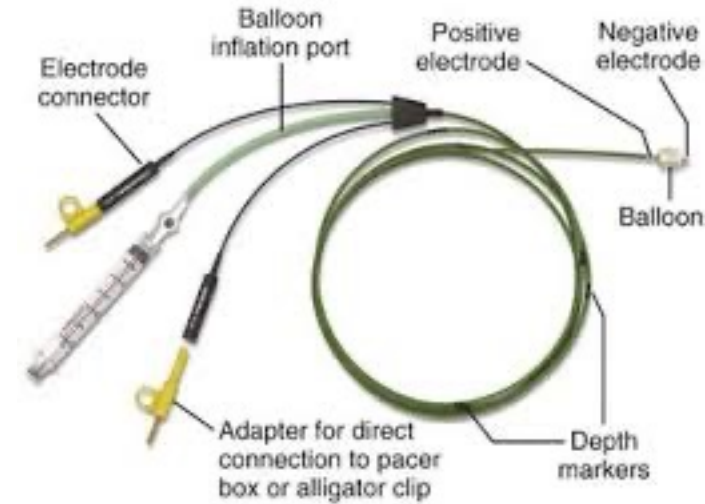
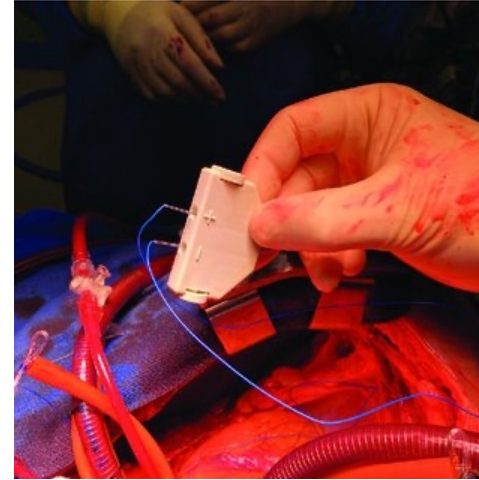
Heart rate, rhythm, and support

Native sinus?

Epicardial pacing wires

Transvenous pacing wires

Is the CVS support
adequate to come off
CPB?



Case 1

Heart rate, rhythm and support



Case 1

Heart rate, rhythm and support

What CVS support do you expect Mr Thomas to need to come off pump?

A. Nothing

B. Noradrenaline or GTN

C. Inotrope + Norad

D. 2 Inotropes + Norad

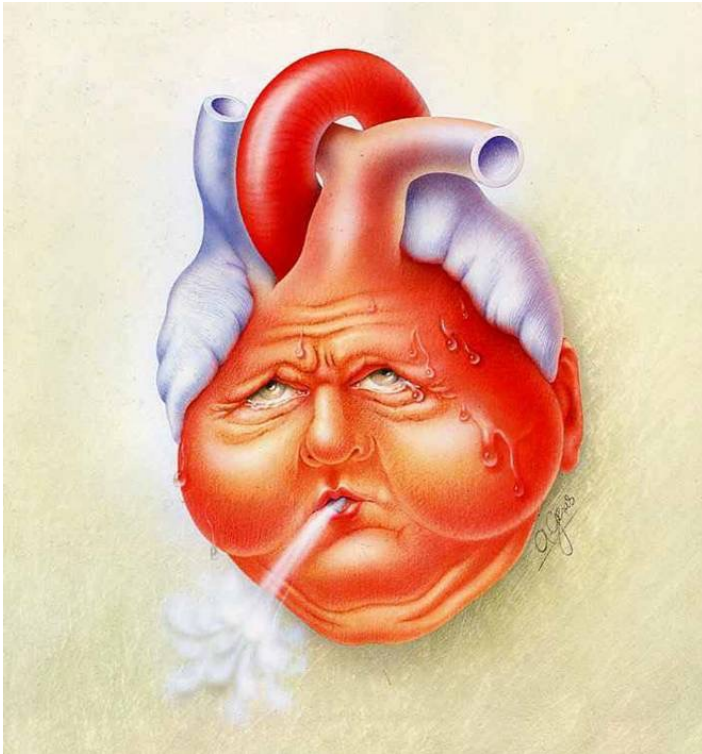
E. Intra-aortic balloon pump

F. VA ECMO

Case 1

Heart rate, rhythm and support

Potential problems



Case 1

Heart rate, rhythm and support

Is the CVS support adequate to come off CPB?

Glyceryl Trinitrate

.....mg/ml

or

Noradrenaline

.....micrograms/ml

Case 1

Heart rate, rhythm and support

Inotropy

Predictors for requiring an inotrope:

- Pre-op LV dysfunction (systolic or diastolic)
- Pre-op RV dysfunction
- Mitral or tricuspid regurgitation correction
- Difficulties with myocardial protection
- Long bypass time
- DHCA – suggests long bypass time
- Urgent cases

Options

Noradrenaline
.....micrograms/ml

Enoximone
.....mg/ml

Milrinone
.....mg/ml

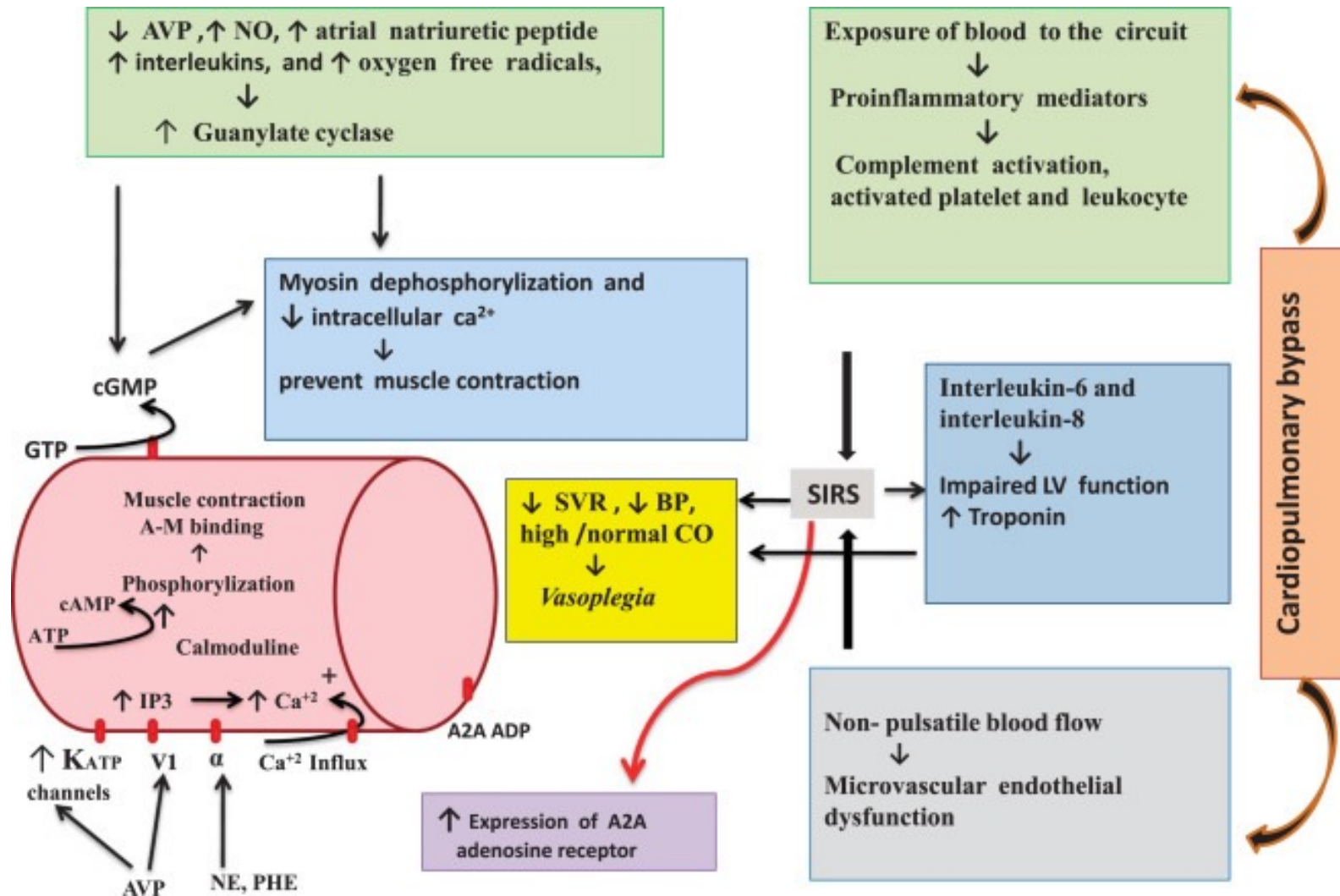
Dobutamine
.....mg/ml

Adrenaline
.....micrograms/ml

Case 1

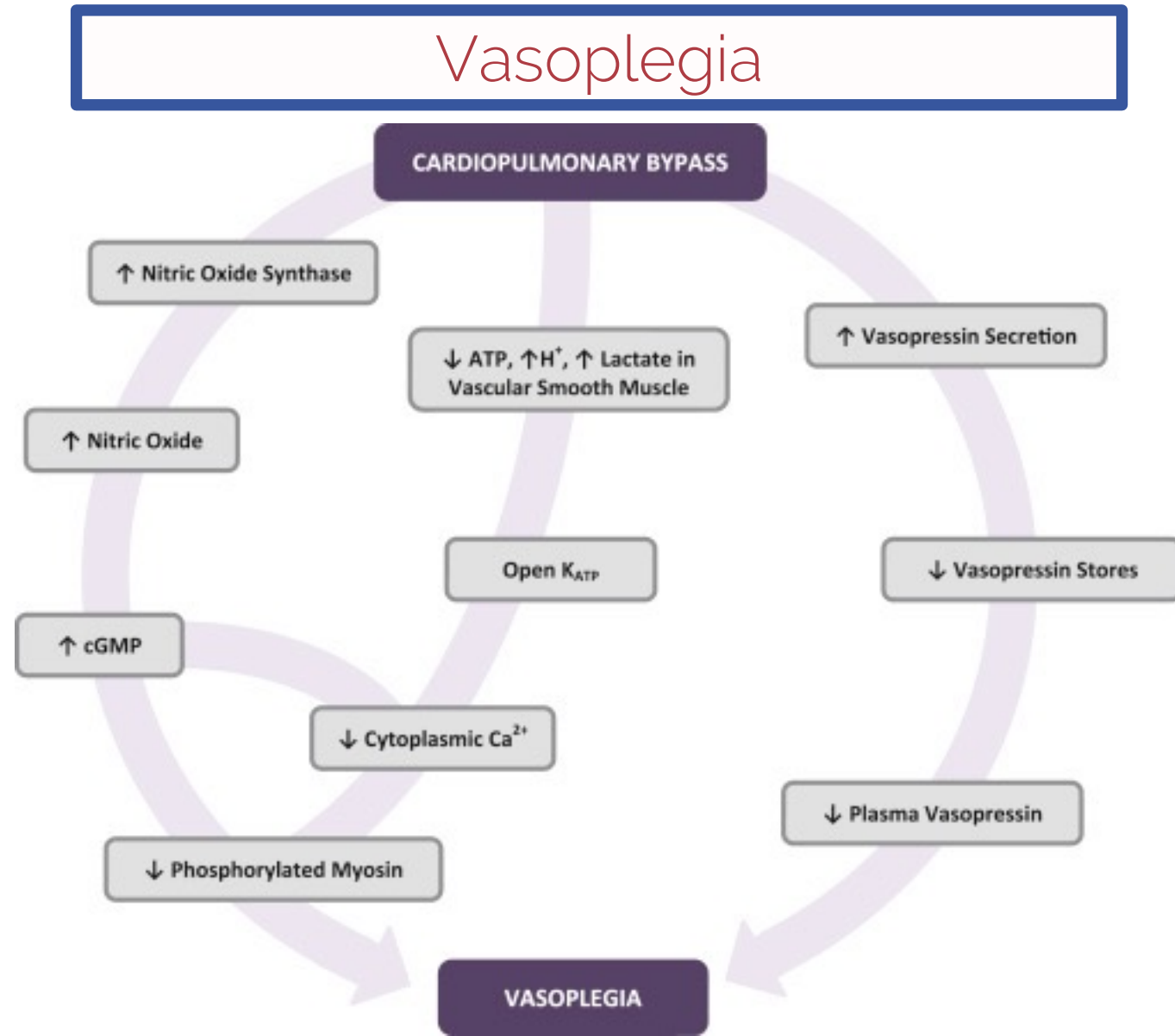
Heart rate, rhythm and support

Vasoplegia



Case 1

Heart rate, rhythm and support



Case 1

Heart rate, rhythm and support

Vasoplegia

Noradrenaline

.....micrograms/ml

Vasopressin

.....units/ml

Adrenaline

.....micrograms/ml



Case 1

Heart rate, rhythm and support

Is the CVS support adequate to come off CPB?

Noradrenaline

.....micrograms/ml

+

Milrinone

.....mg/ml

+

Adrenaline

.....micrograms/ml

or

Vasopressin

.....units/ml



Case 1

Heart rate, rhythm and support

Is the CVS support adequate to come off CPB?

Noradrenaline

.....micrograms/ml

+

Milrinone

.....mg/ml

+

Vasopressin

.....units/ml

+

Adrenaline

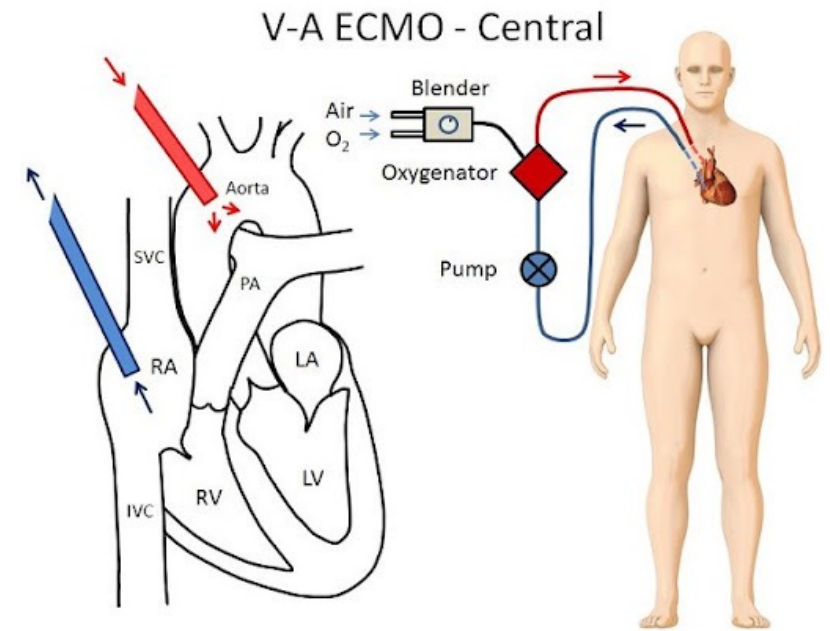
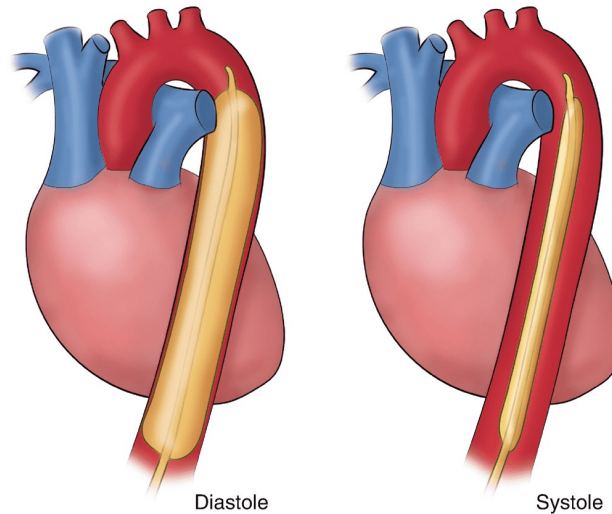
.....micrograms/ml



Case 1

Heart rate, rhythm and support

Is the CVS support adequate to come off CPB?



Case 1

Heart rate, rhythm and support

What's the support exit strategy?

Recovery

Long term pharmacological support

Durable mechanical circulatory support

Transplantation



Case 1

Alarms on



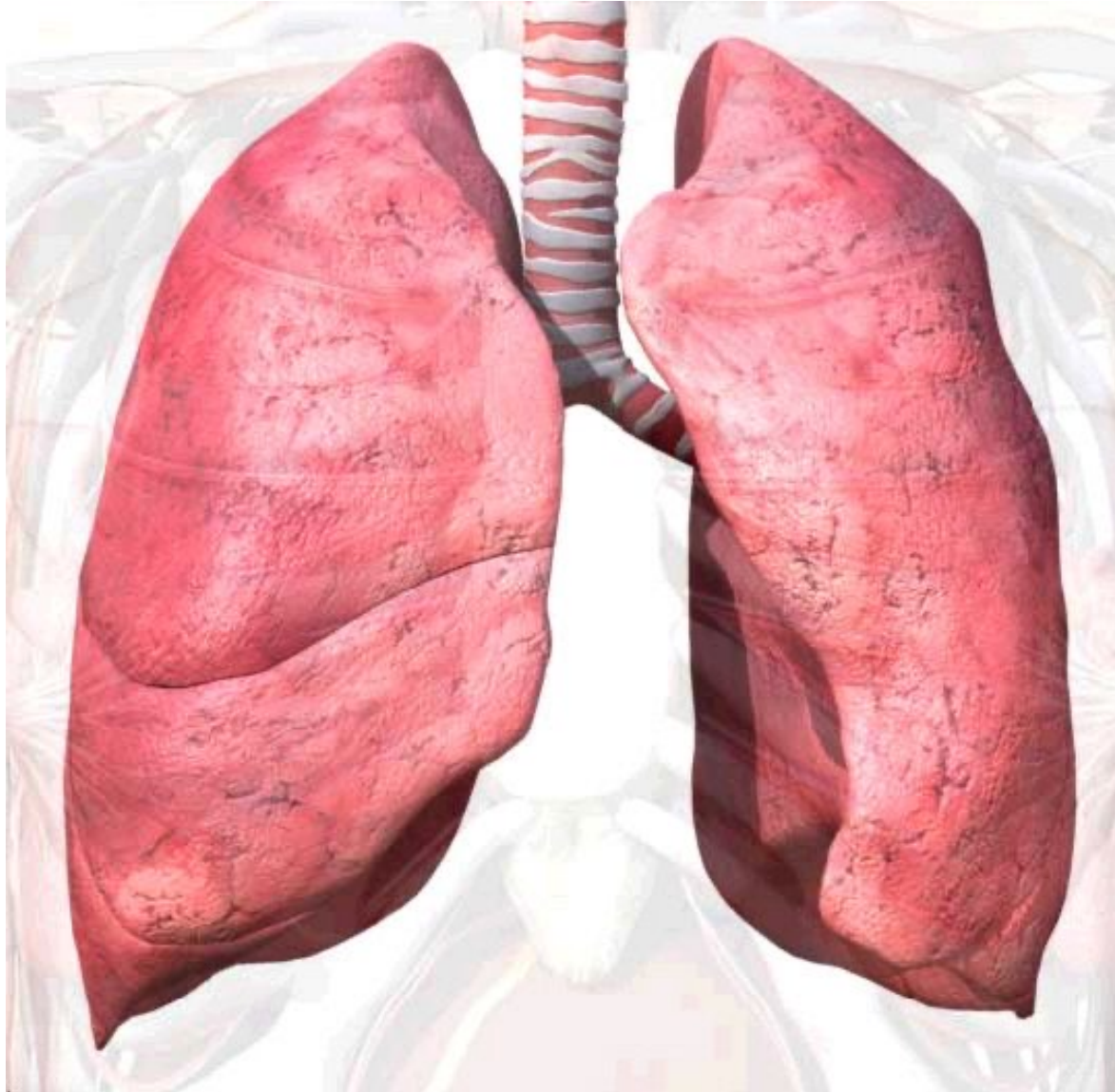
Case 1

ABG



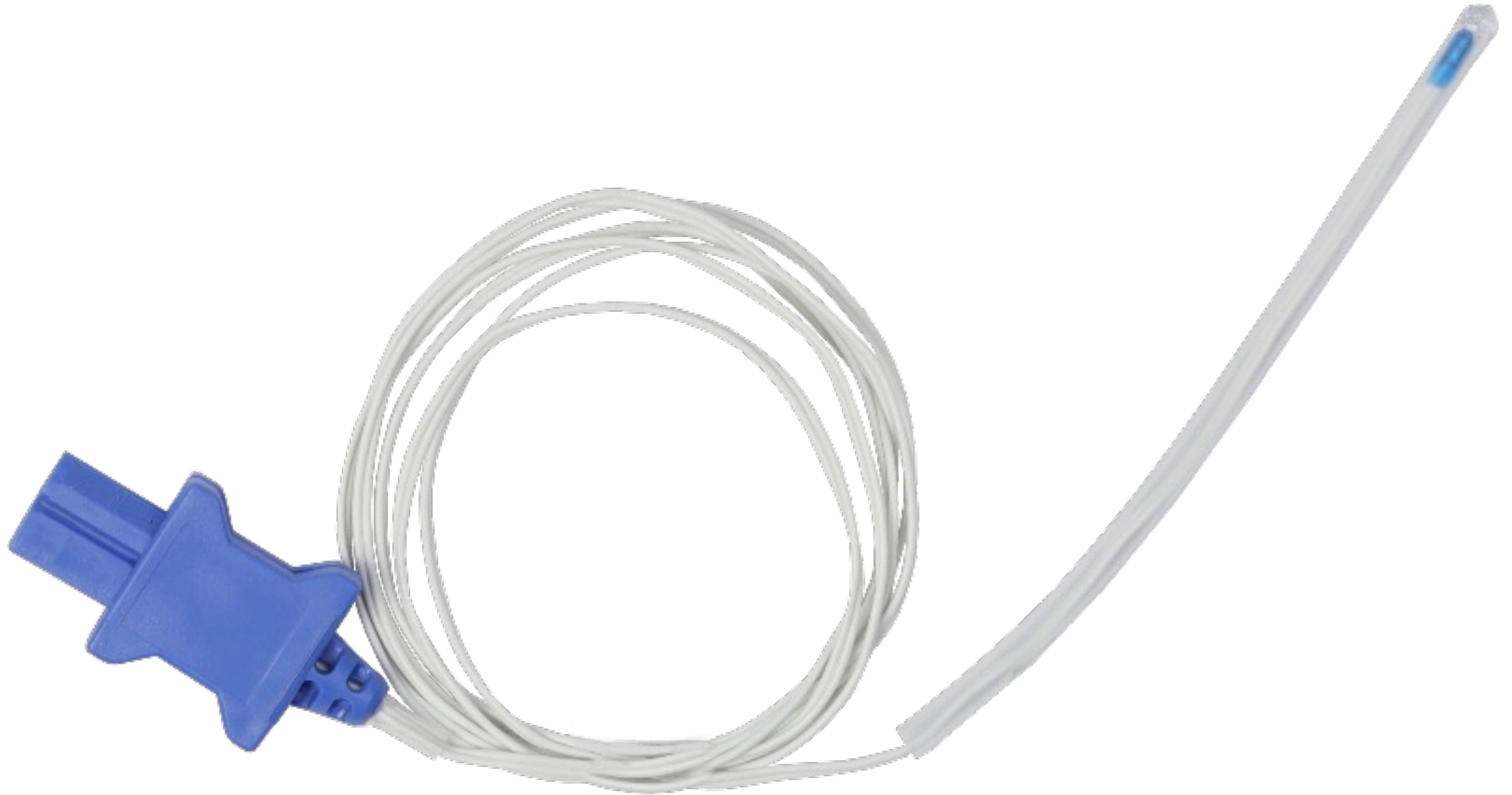
Case 1

Lungs on

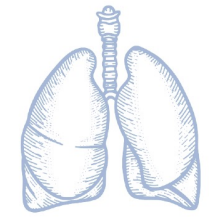
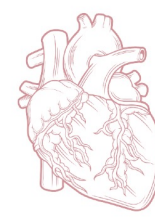
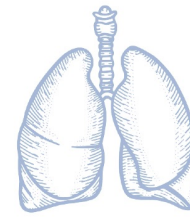
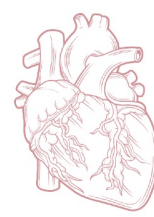
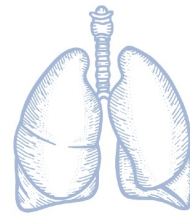
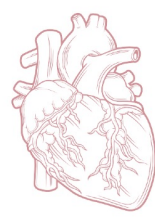
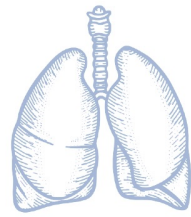
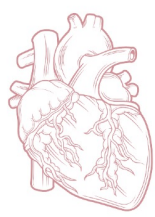
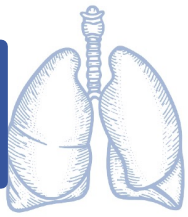


Case 1

Temperature ok



Case 1



Off bypass

Case 1

Check the TOE

If you have one



Case 1

Haemostasis

Protamine



Case 1

Haemostasis

Talk to perfusion

Volume in the pump

Tranexamic acid

Cell saver

Is it dry?



Case 1

Haemostasis

Predictors of the need for
coagulation support

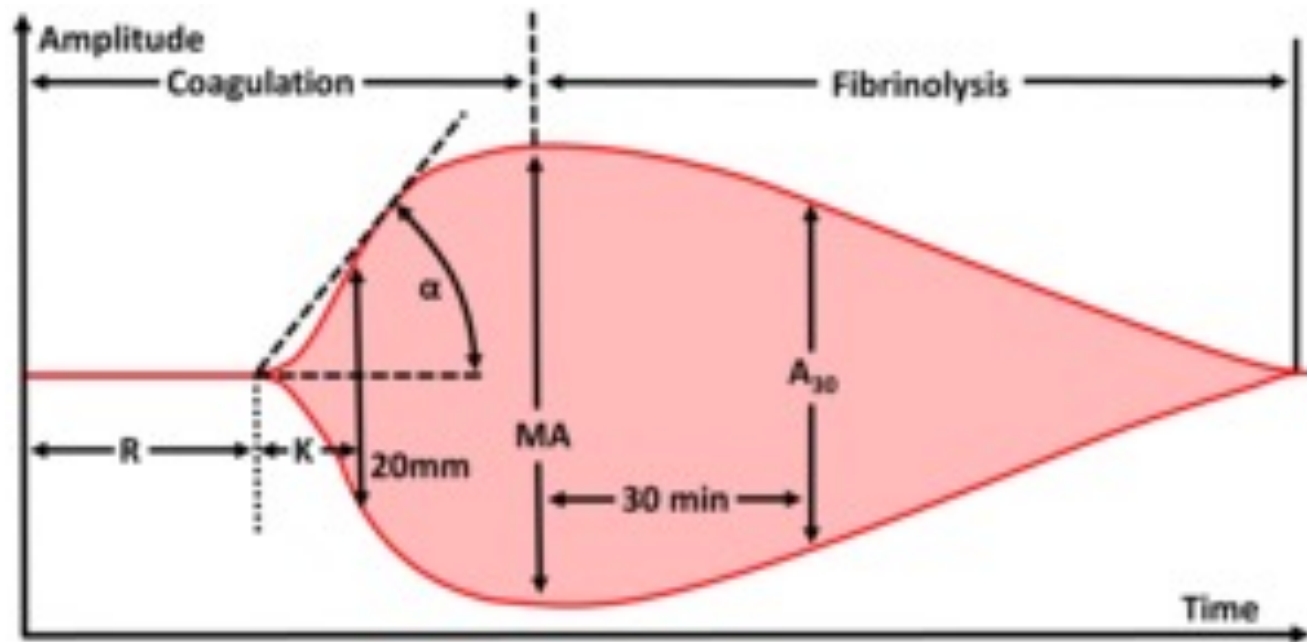
Pre-op clotting dysfunction
Liver disease
Anti-platelets
Anti-coagulants
Long bypass times
Hypothermia
Endocarditis
Re-do surgery



Case 1

Haemostasis

TEG





Case 1

Closure

ACT & ABG +/- TEG

Analgesia

Prepare for transfer



Case 1

ICU handover

PMHx

Induction

Pre-bypass

CPB and AXC times

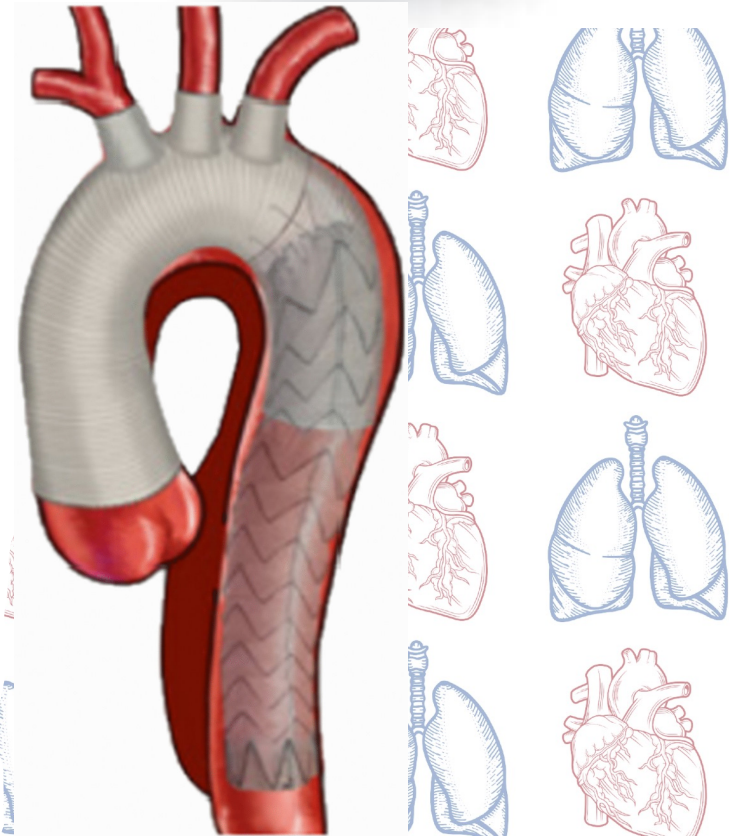
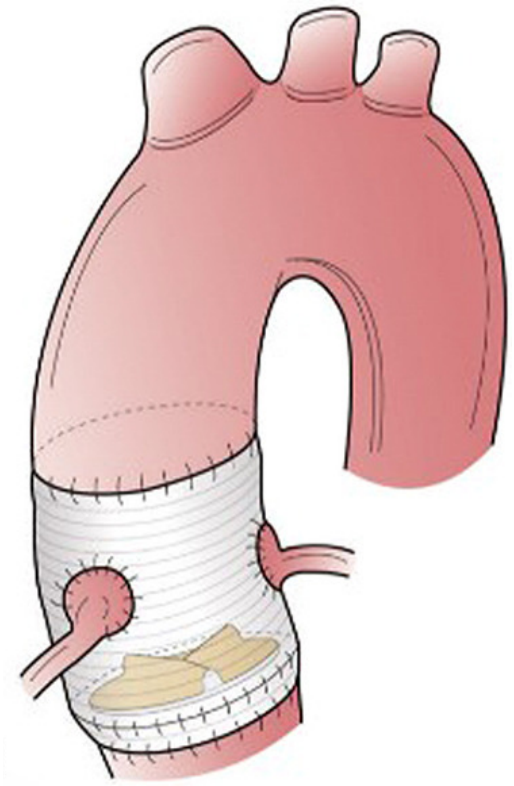
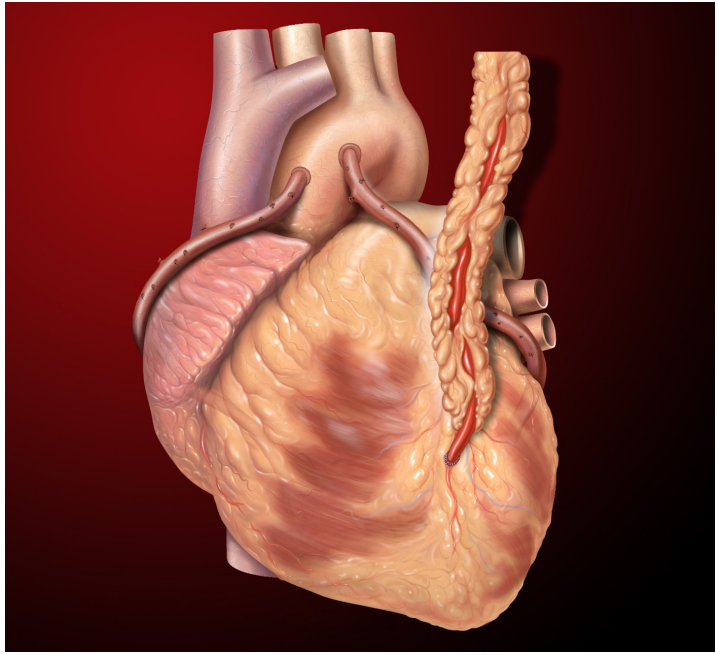
Post-bypass

Analgesia

Plan



Case 2
Mr Smith





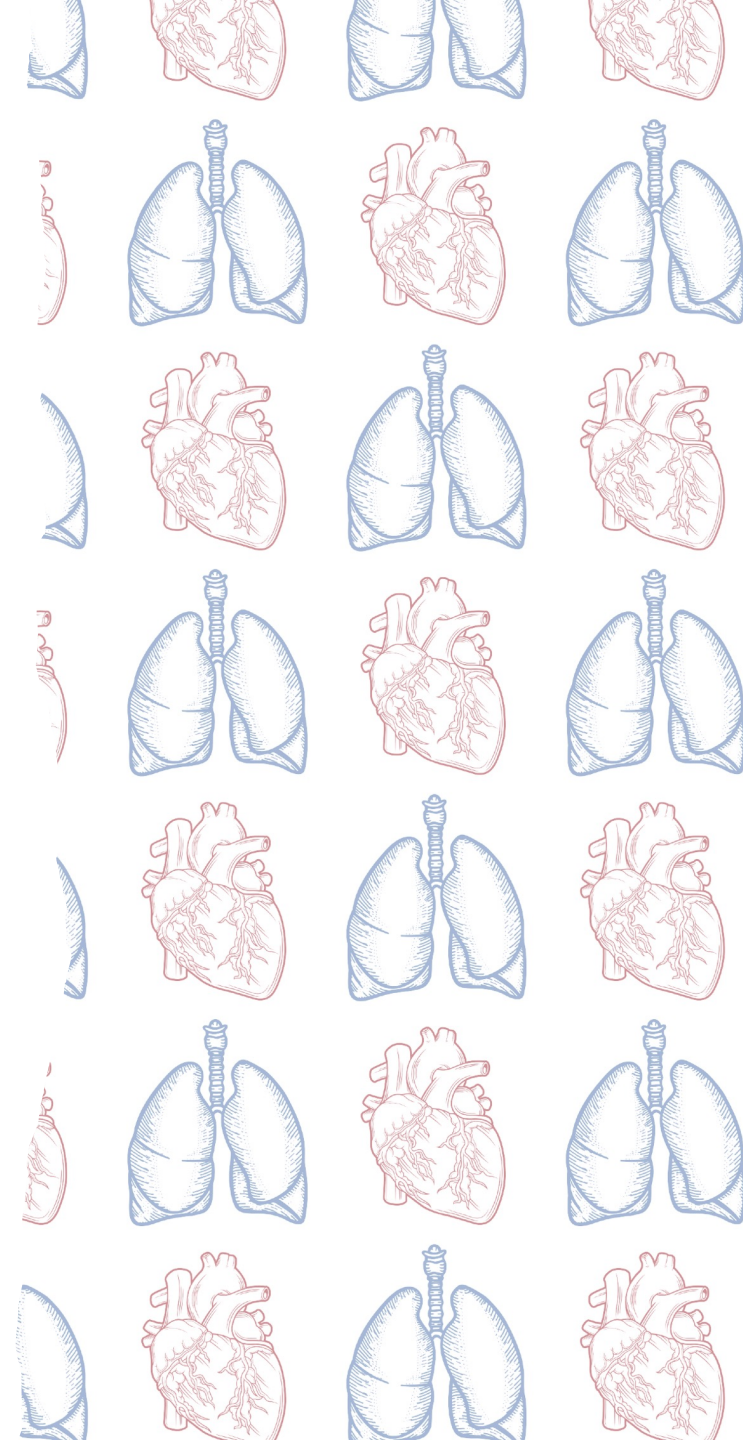
Case 2

Mr Smith

CABG*3
SVG -> LAD
SVG -> PDA
SVG -> OM1

Tissue AVR
Aortic root replacement
Whole arch replacement
Frozen elephant trunk

CPB time: 606 mins
AXC time: 338 mins
DHCA: 70 mins
ACP: 94 mins



Case 2

Weaning from CPB

Have a system

HALT!

Heart rate, rhythm, support

Alarms on, ABG done

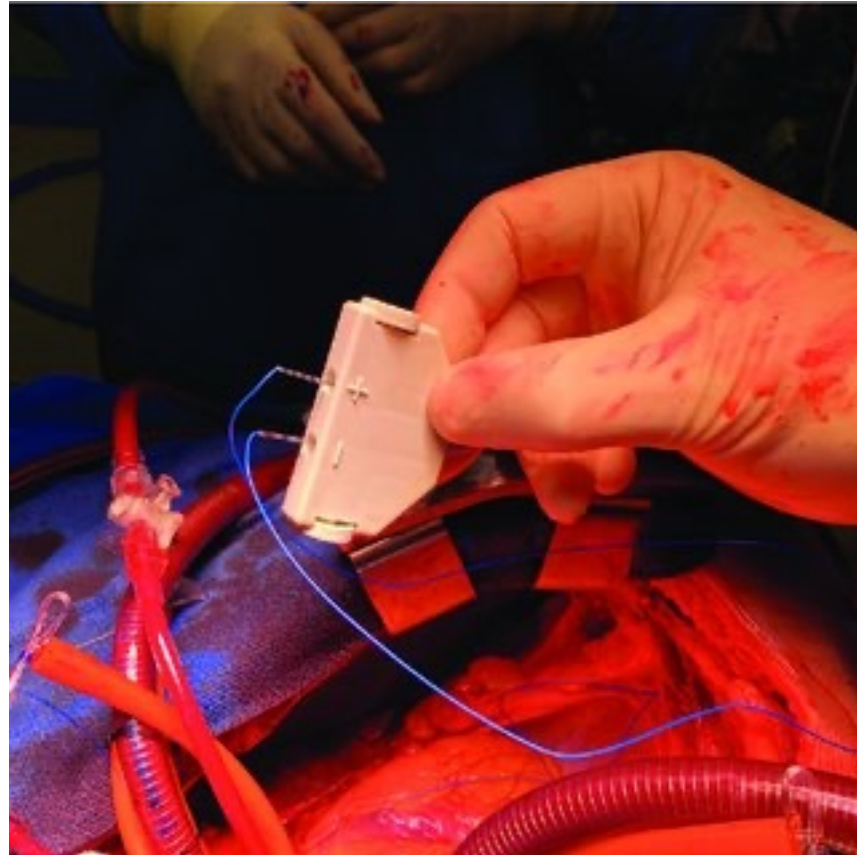
Lungs on

Temperature ok



Case 2

Heart rate, rhythm and support



Case 2

Heart rate, rhythm and support

Weaning 1st attempt

Noradrenaline
.....micrograms/ml

+

Milrinone
.....mg/ml

Rapid desaturation hypotension and biventricular failure

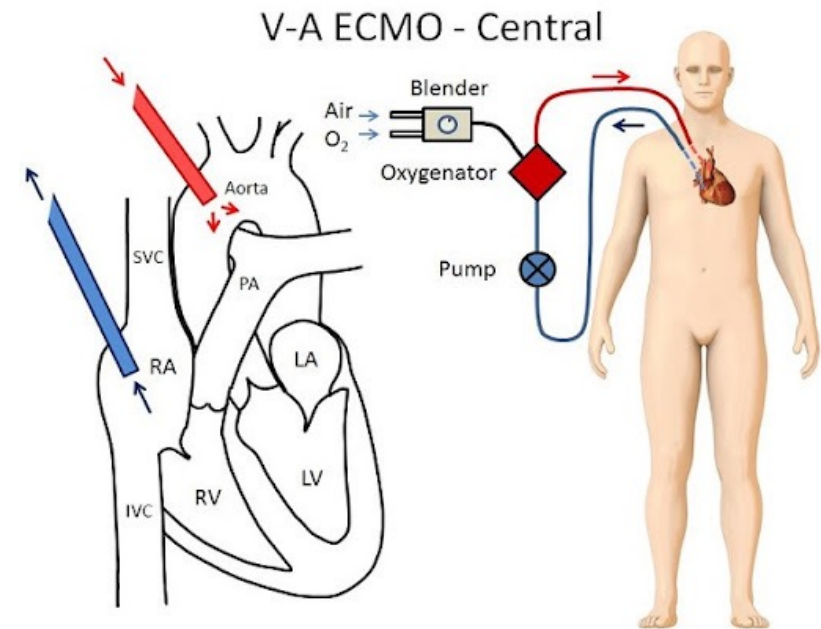
Weaning 2nd attempt

Noradrenaline
.....micrograms/ml

+

Milrinone
.....mg/ml

+



Case 2

Haemostasis

Products given

FFP x 19

Cryo x 6

Platelets x 4

RBC x 9

Cell saver volume returned 6l

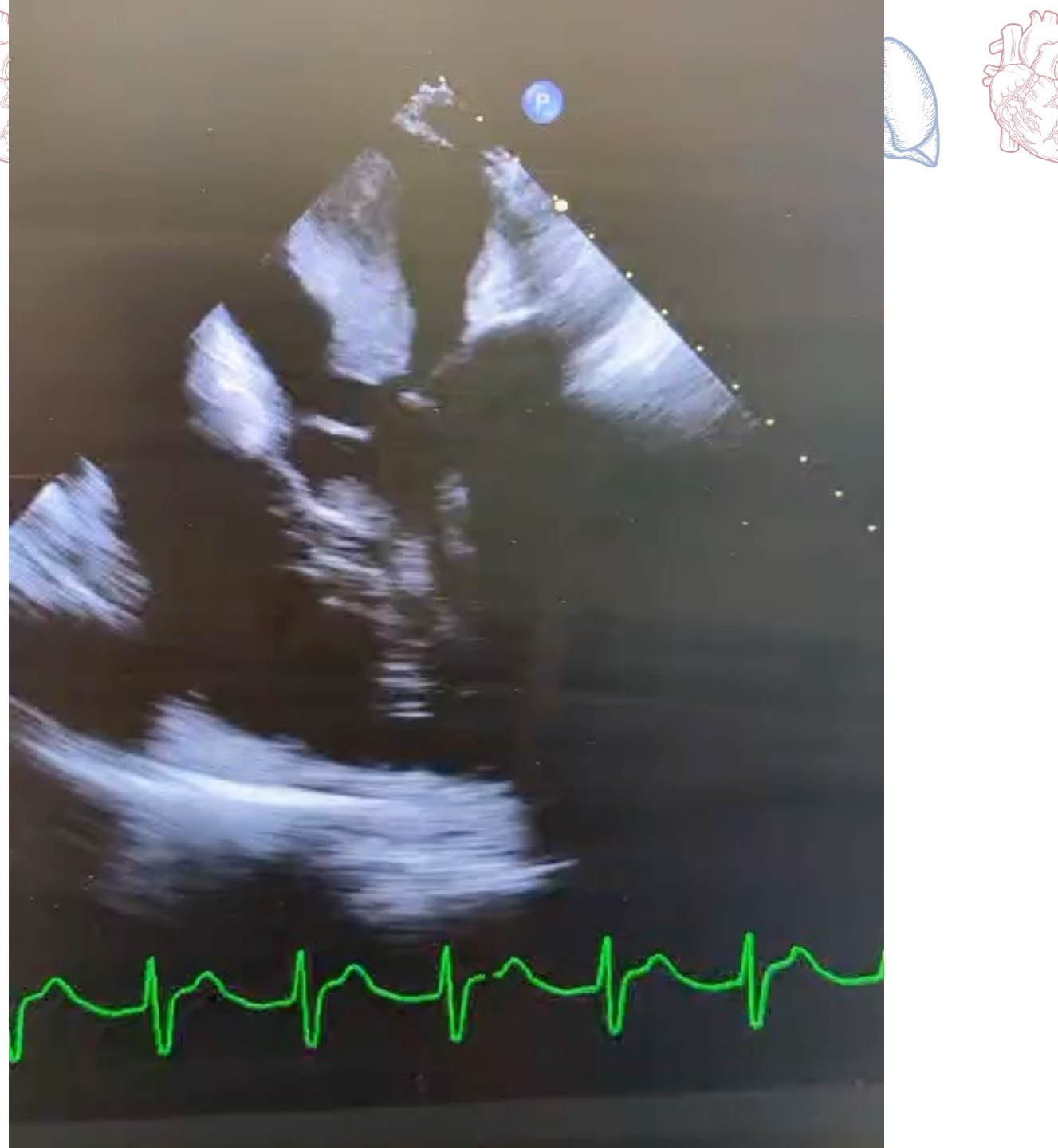
TXA 4g.

Total EBL 20,000mls.



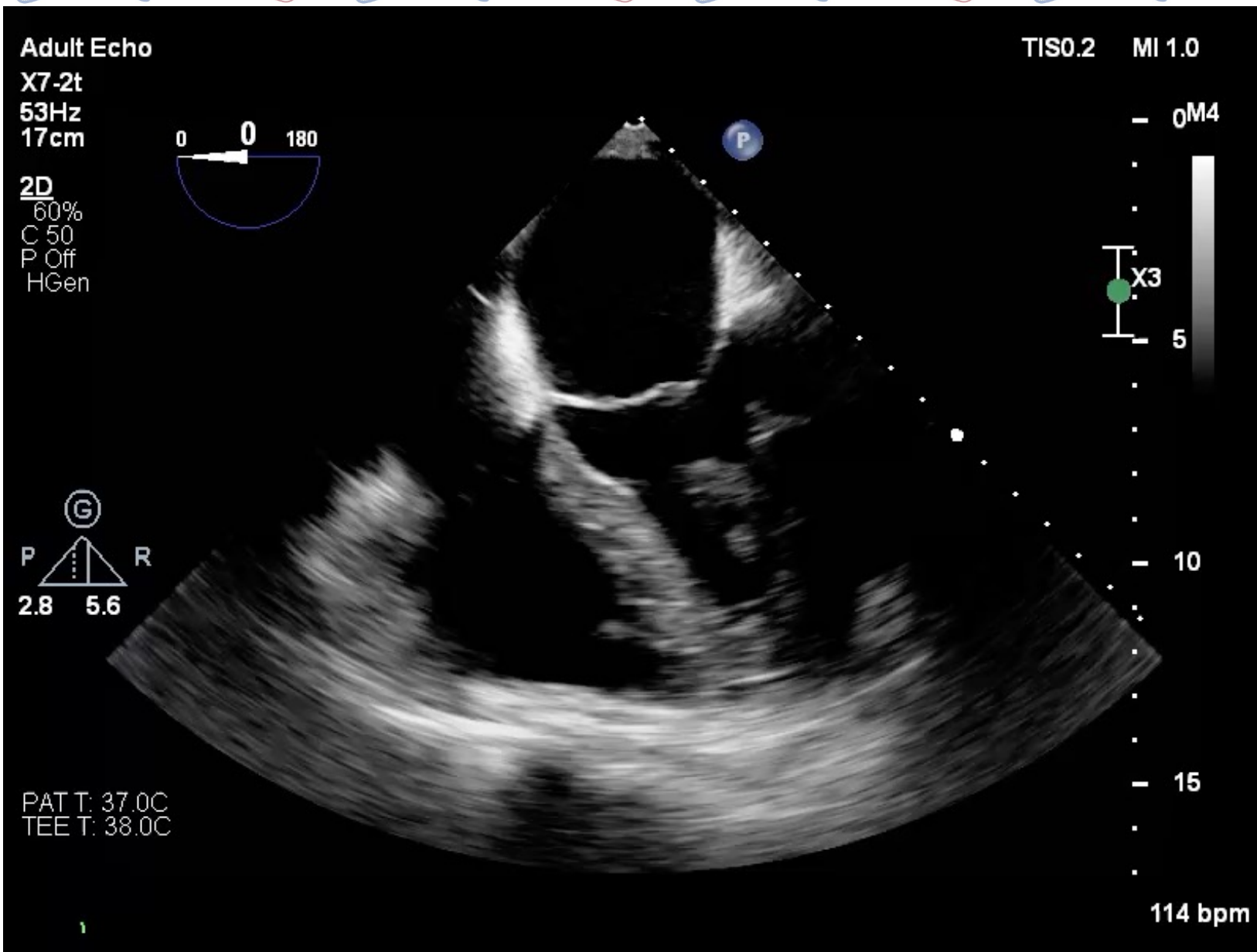
Case 2

TOE Check



Case 2

TOE Check





Case 2

Separation -> ICU

CVS support

VA-ECMO

2 vasoactives

Haemostasis

Massive transfusion

Closure

Chest splinted open



Case 2

Plan

Central VA ECMO as bridge to recovery

Inhaled NO for RV offloading

Filter for lactate and fluid control as well as RRT

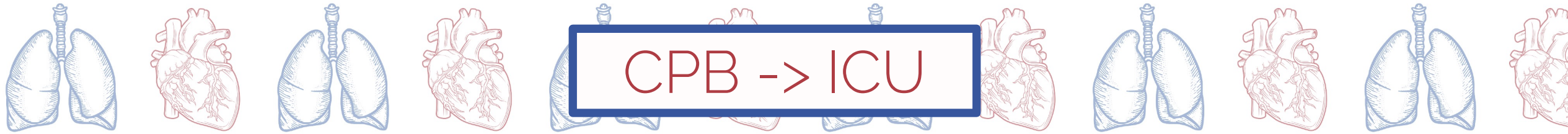
Antimicrobial prophylaxis

Sedation and paralysis with open chest

Ventilator wean once chest closed

Blood management support – anti-coagulation

Update family – set expectations



CPB -> ICU

Separation - HALT

Haemostasis

Analgesia

Recovery plan