



Robotically-assisted Aortic Valve Replacement: A Case Report

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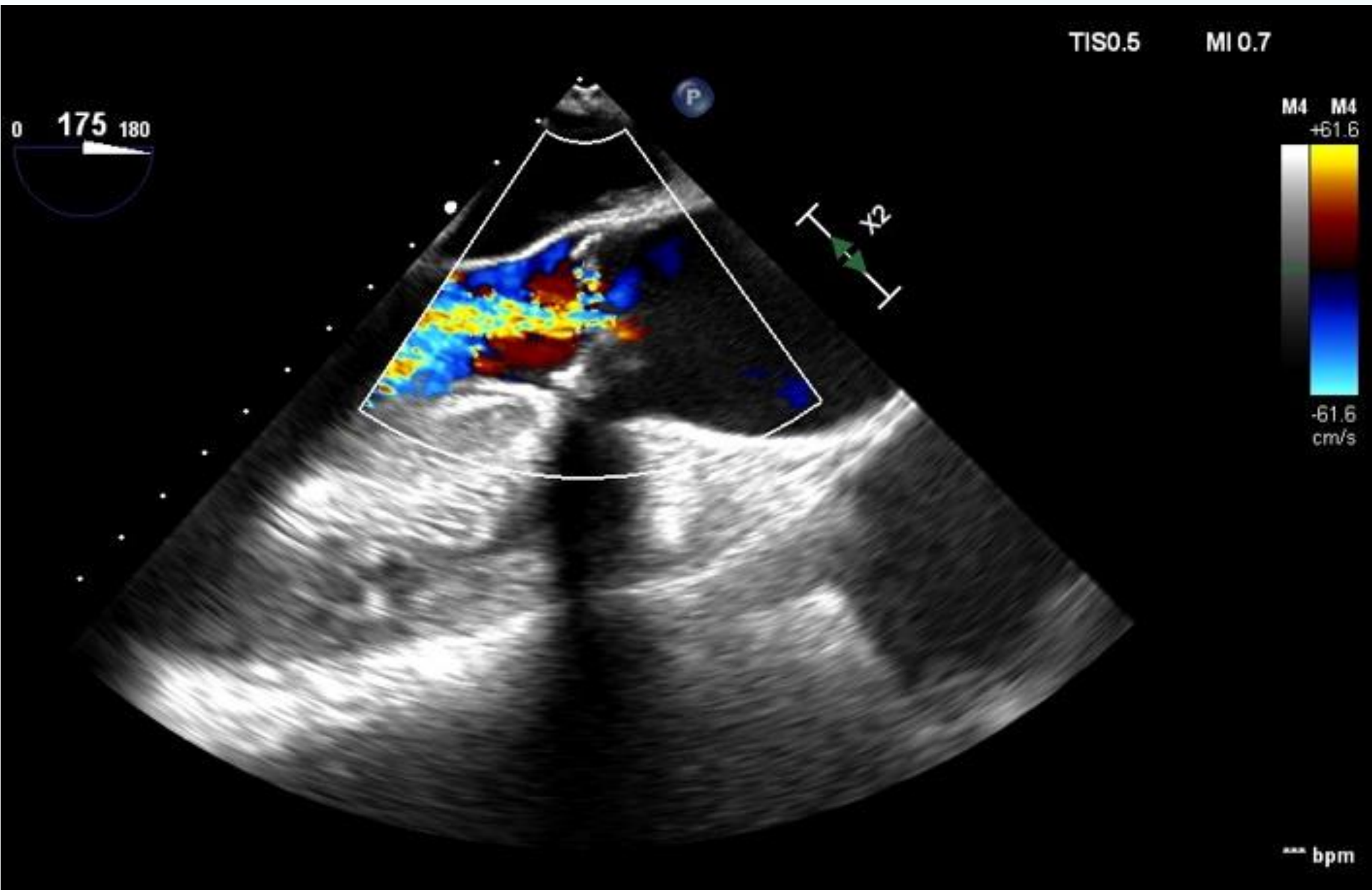
Introduction

This is a step-by-step guide of our approach to robotically-assisted Aortic valve replacement in a patient with combined Aortic valve disease.

Patient's baseline characteristics

60-year-old male patient
Combined aortic valve disease
Progressive shortness of breath, NYHA class II
Arterial hypertension
Dyslipidemia
Gastroduodenal ulcer disease
Smoker

Baseline Transesophageal Echocardiogram



Severe aortic stenosis

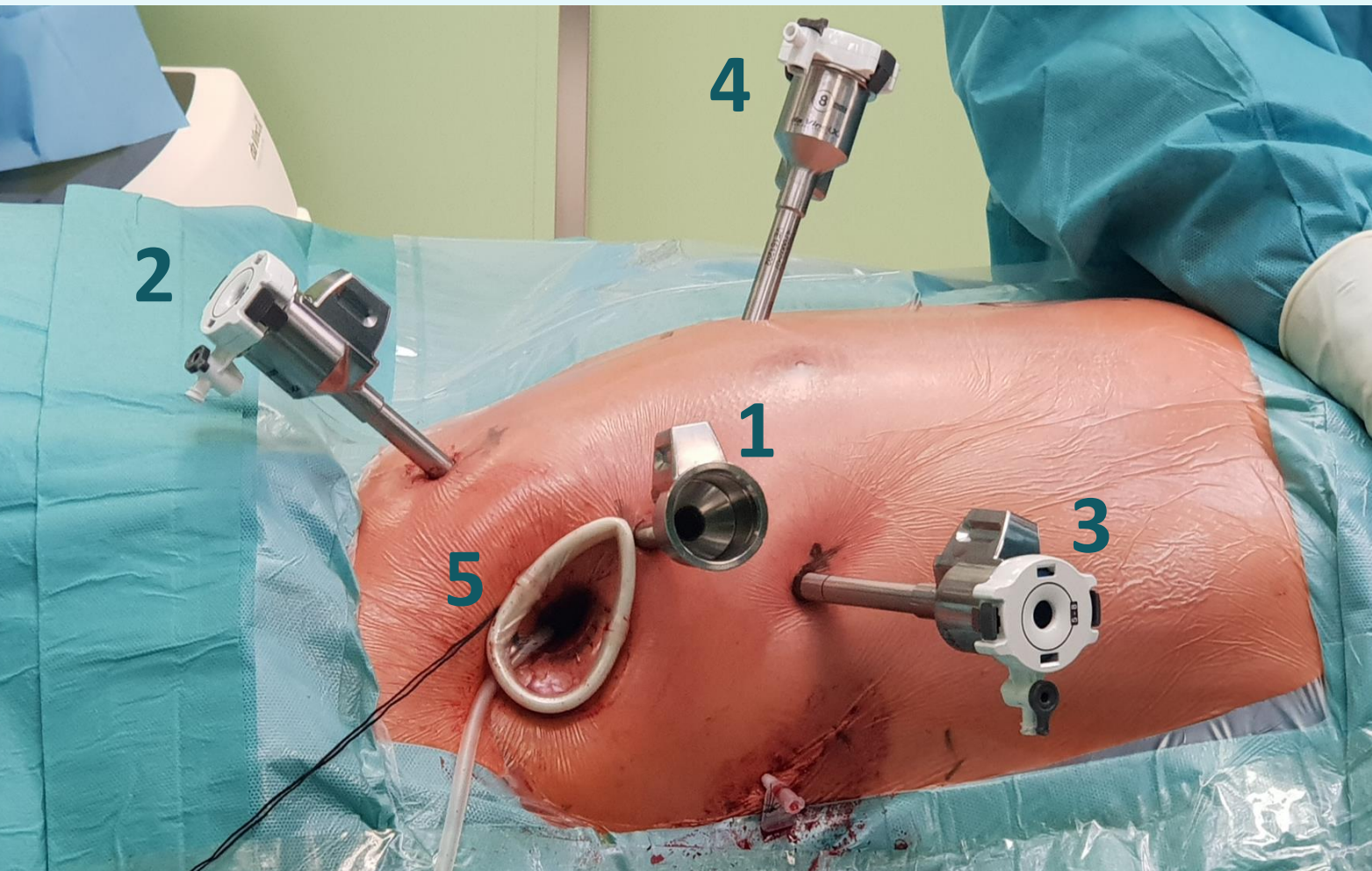
- Maximum gradient: 120 mmHg
- Mean gradient: 70 mmHg
- Aortic valve area index: 0.6 cm²/m²

Moderate aortic insufficiency

Ejection fraction of the left ventricle: 65%

Surgical techniques

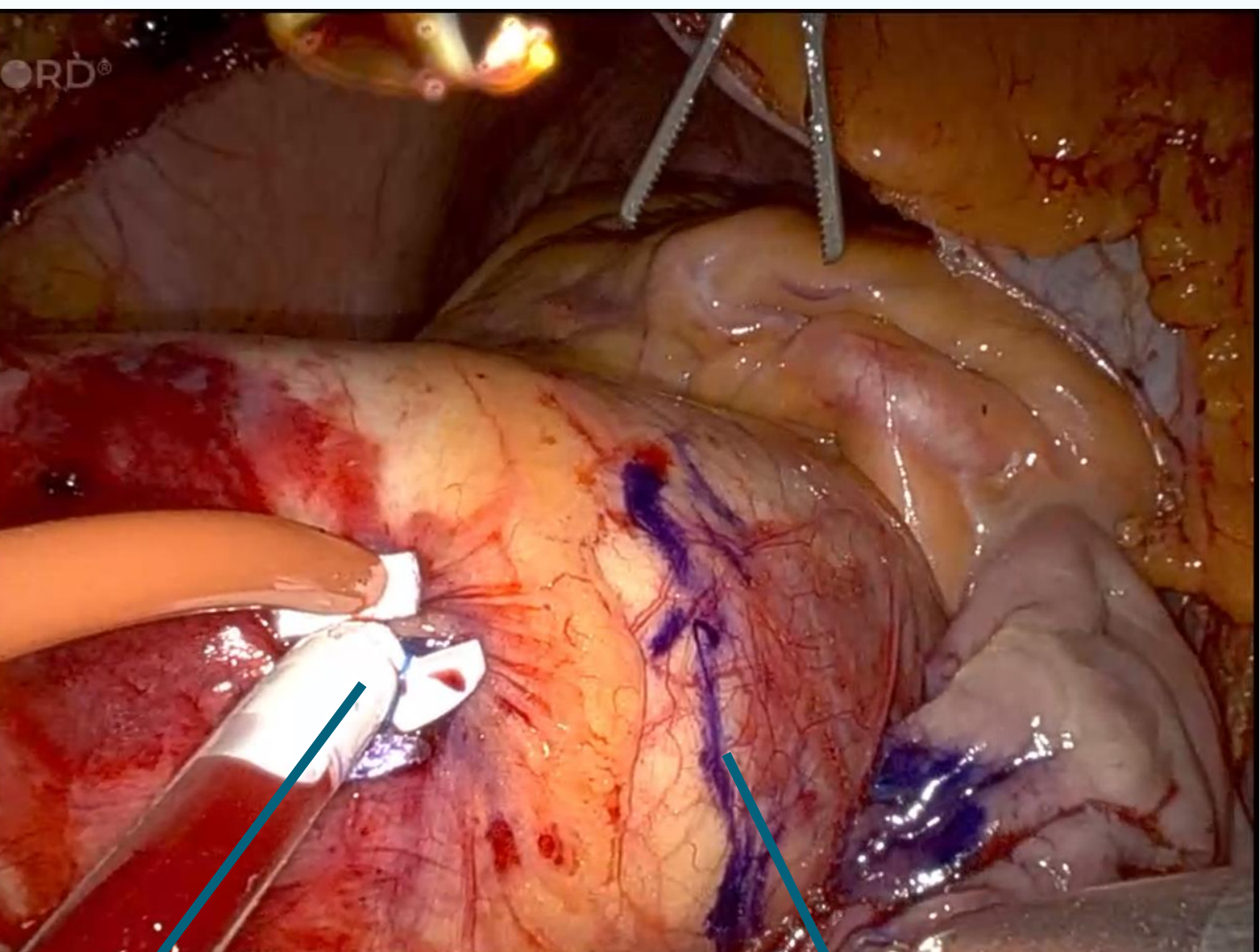
Patient positioning
The patient is placed in a supine position with a roll under the right scapula, elevating the right chest to approximately 30 degrees above the horizontal plane.



Robotic ports (inserted in the right hemithorax):

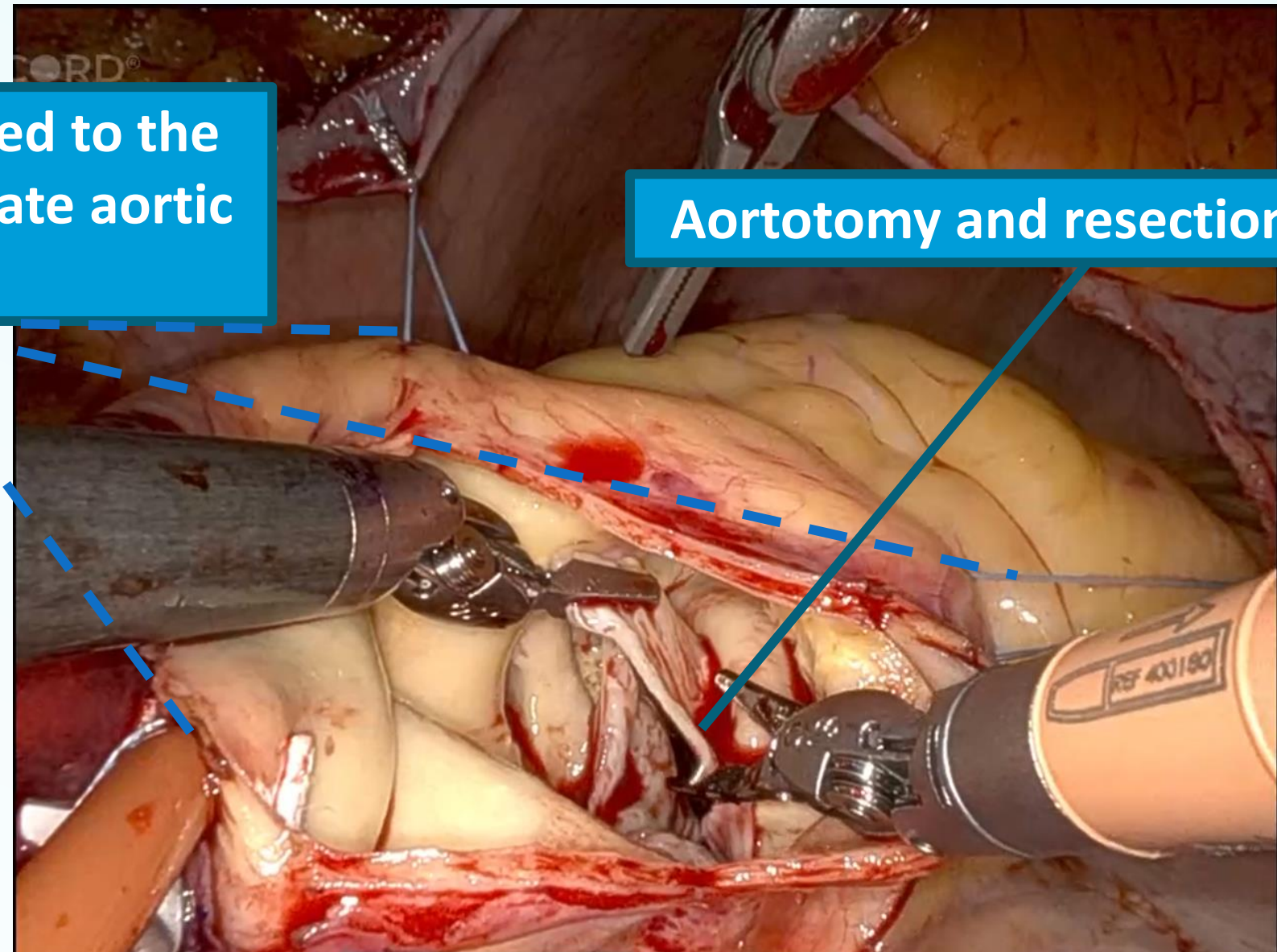
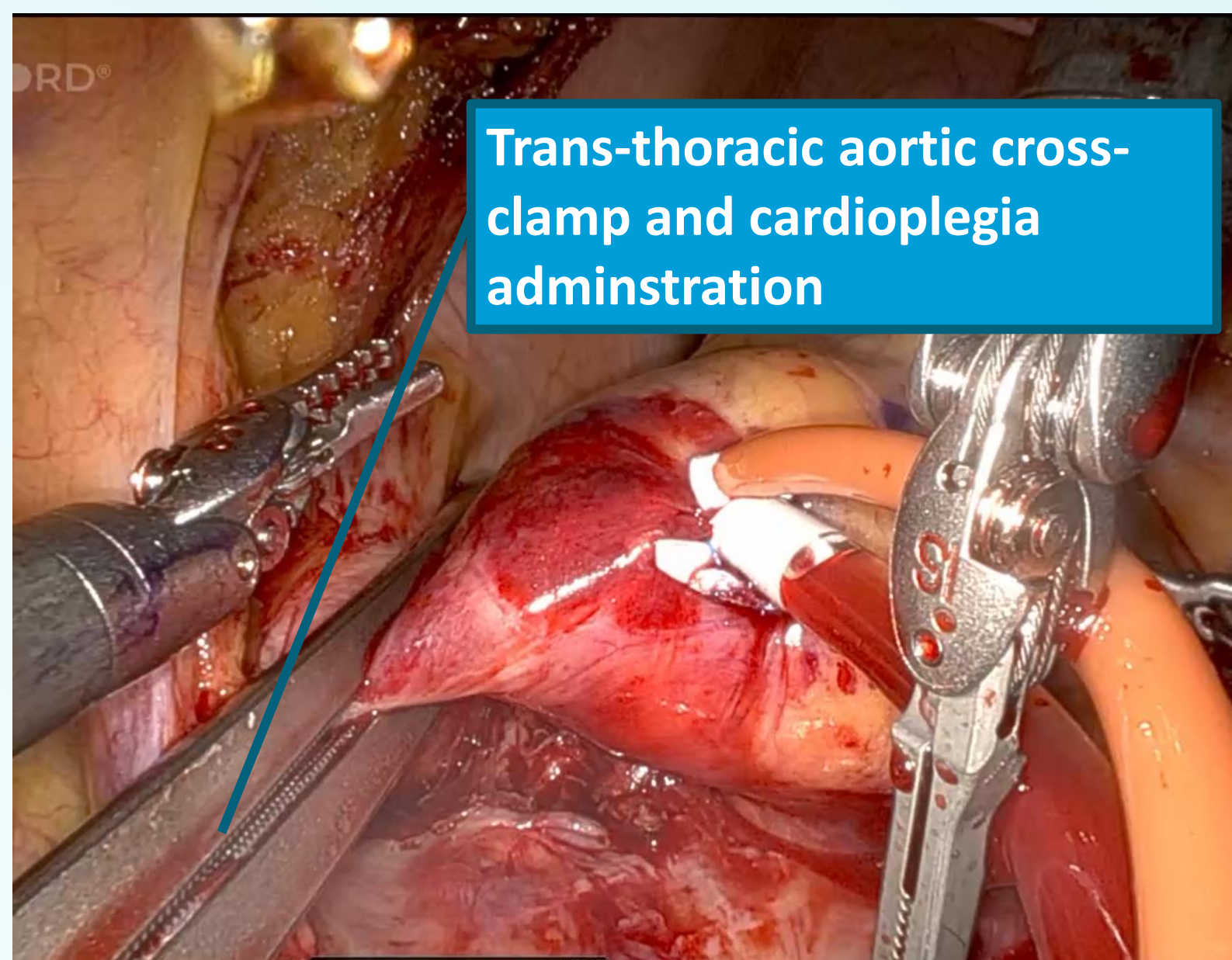
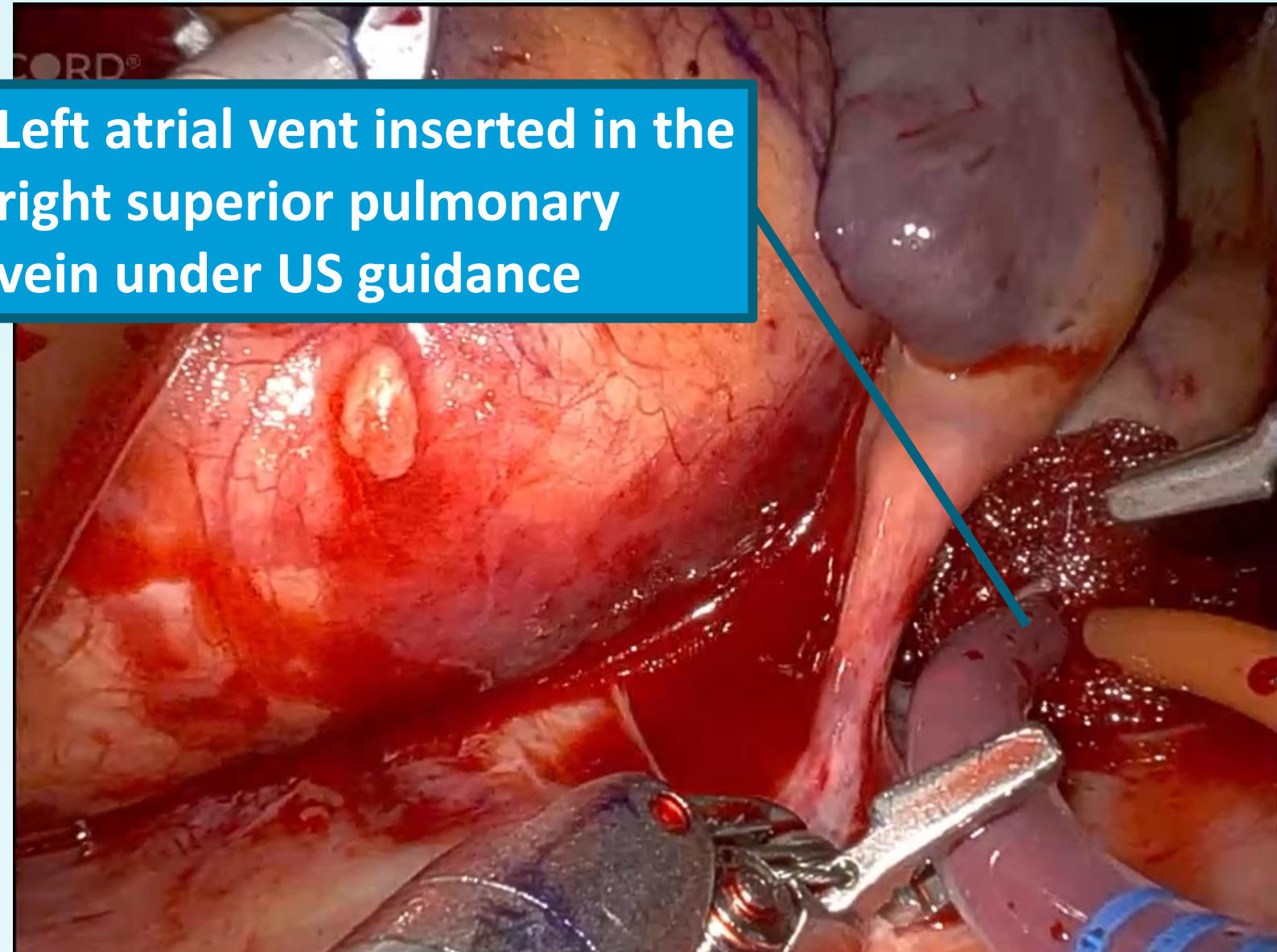
1. Camera port: 3rd intercostal space, between the midclavicular and interior axillary lines
- 2 and 3. Left and right robotic arms inserted in the 2nd and 5th intercostal spaces, respectively.
4. The final arm port is placed parasternally in the 4th intercostal space
5. 3-4 cm working port is made lateral to the camera port in the 3rd intercostal space

❖ **Cardiopulmonary bypass** is established via cannulation of the femoral artery and vein

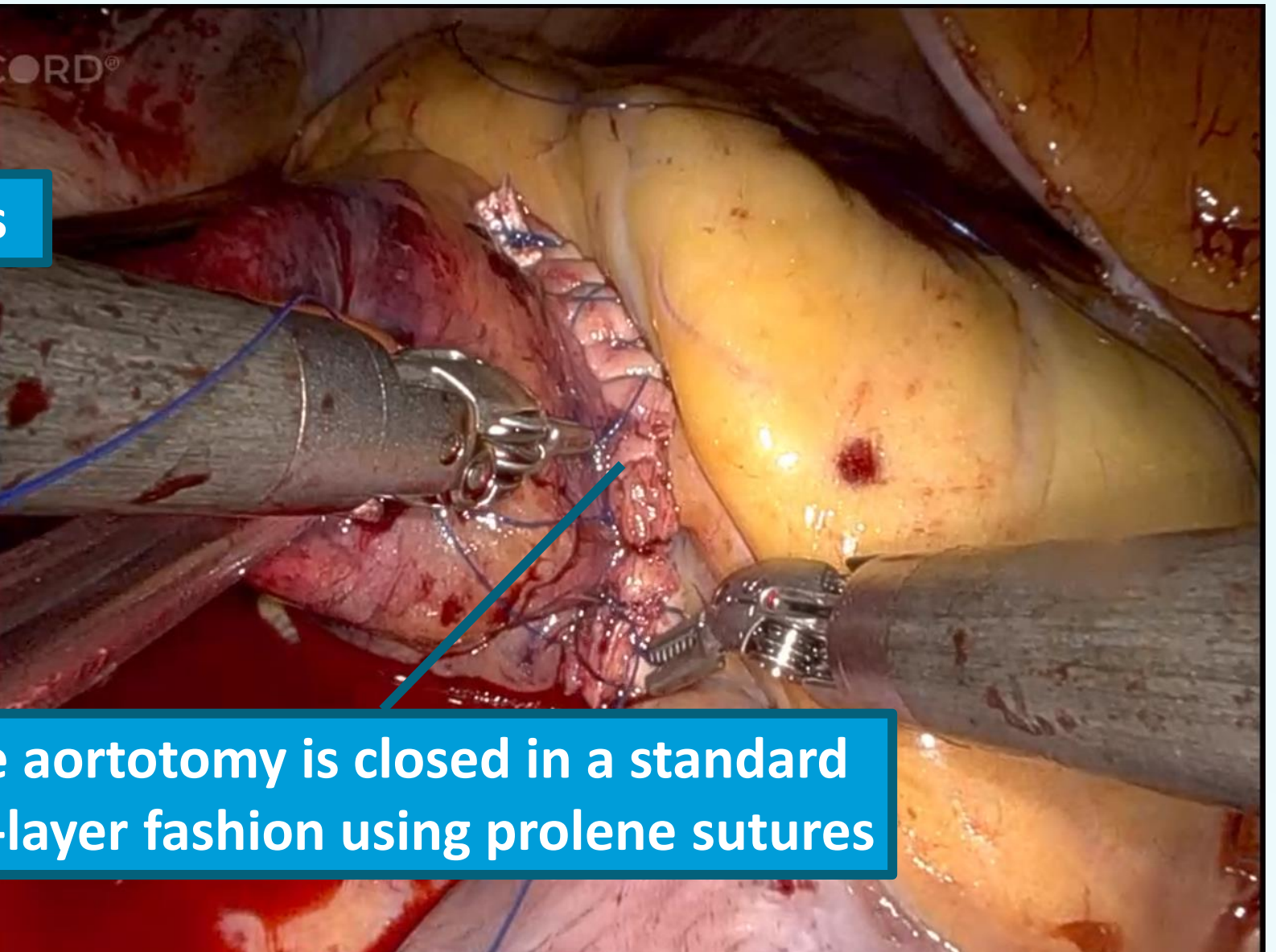
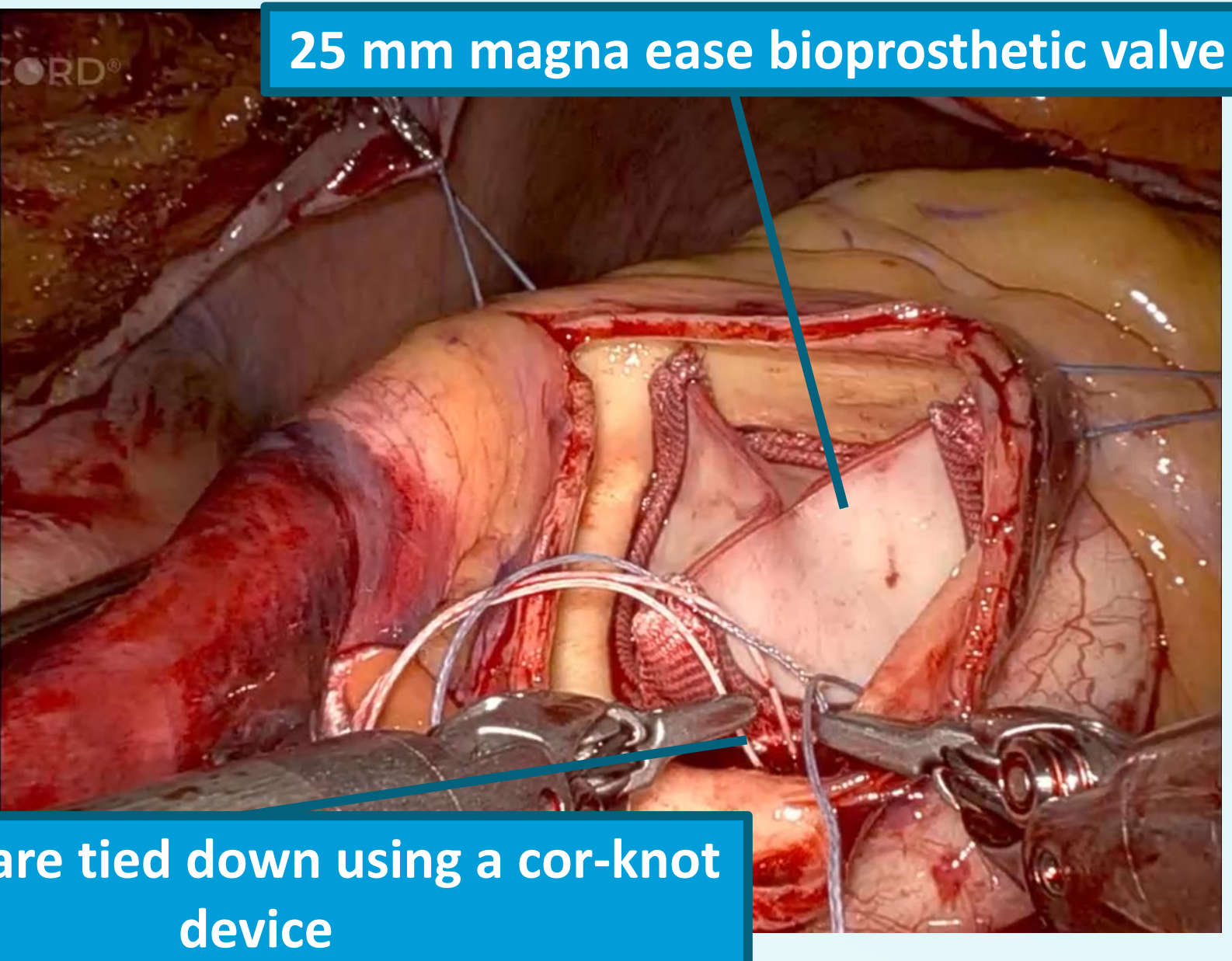
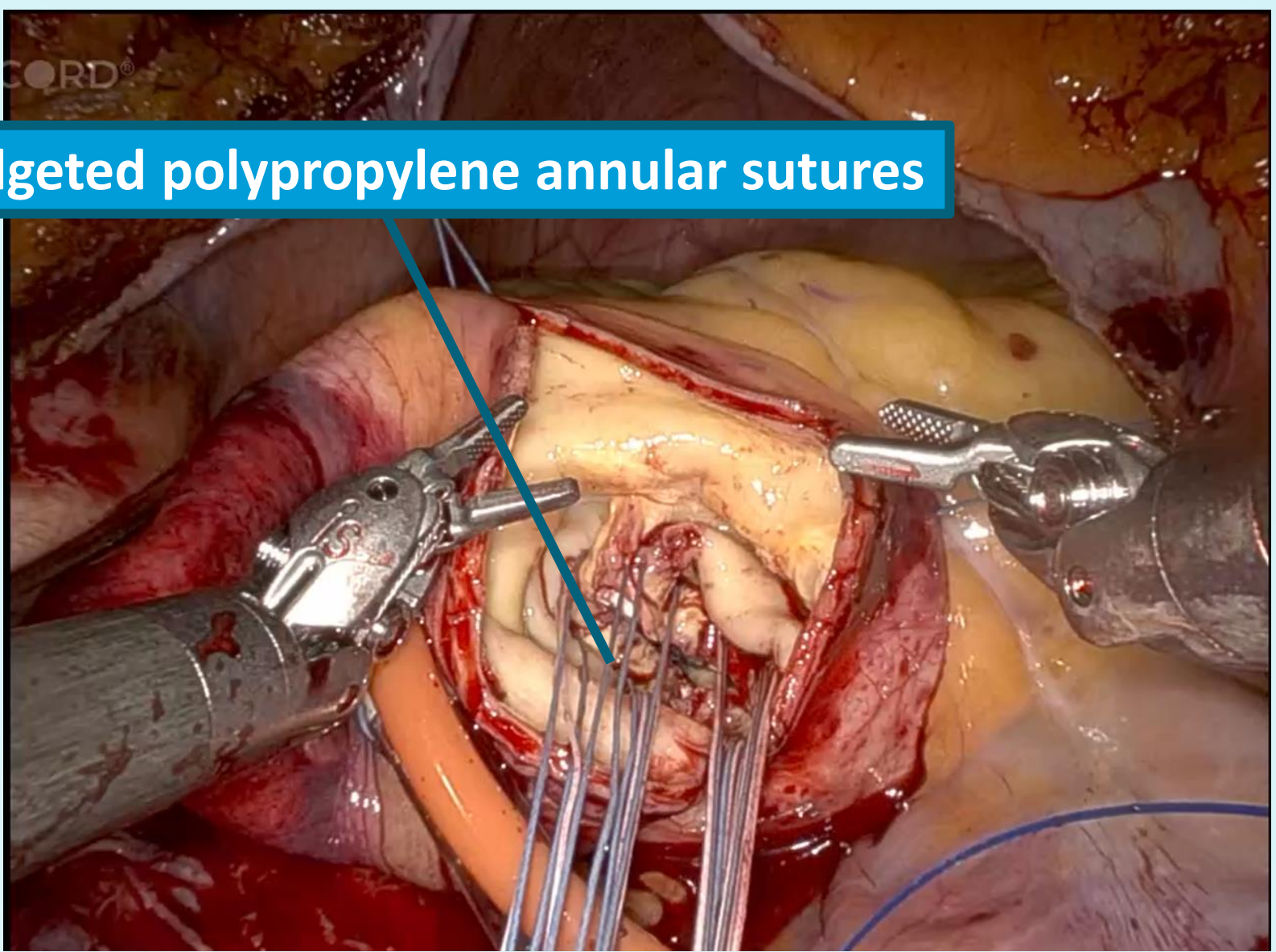


Cardioplegia needle inserted

Aortotomy zone is marked

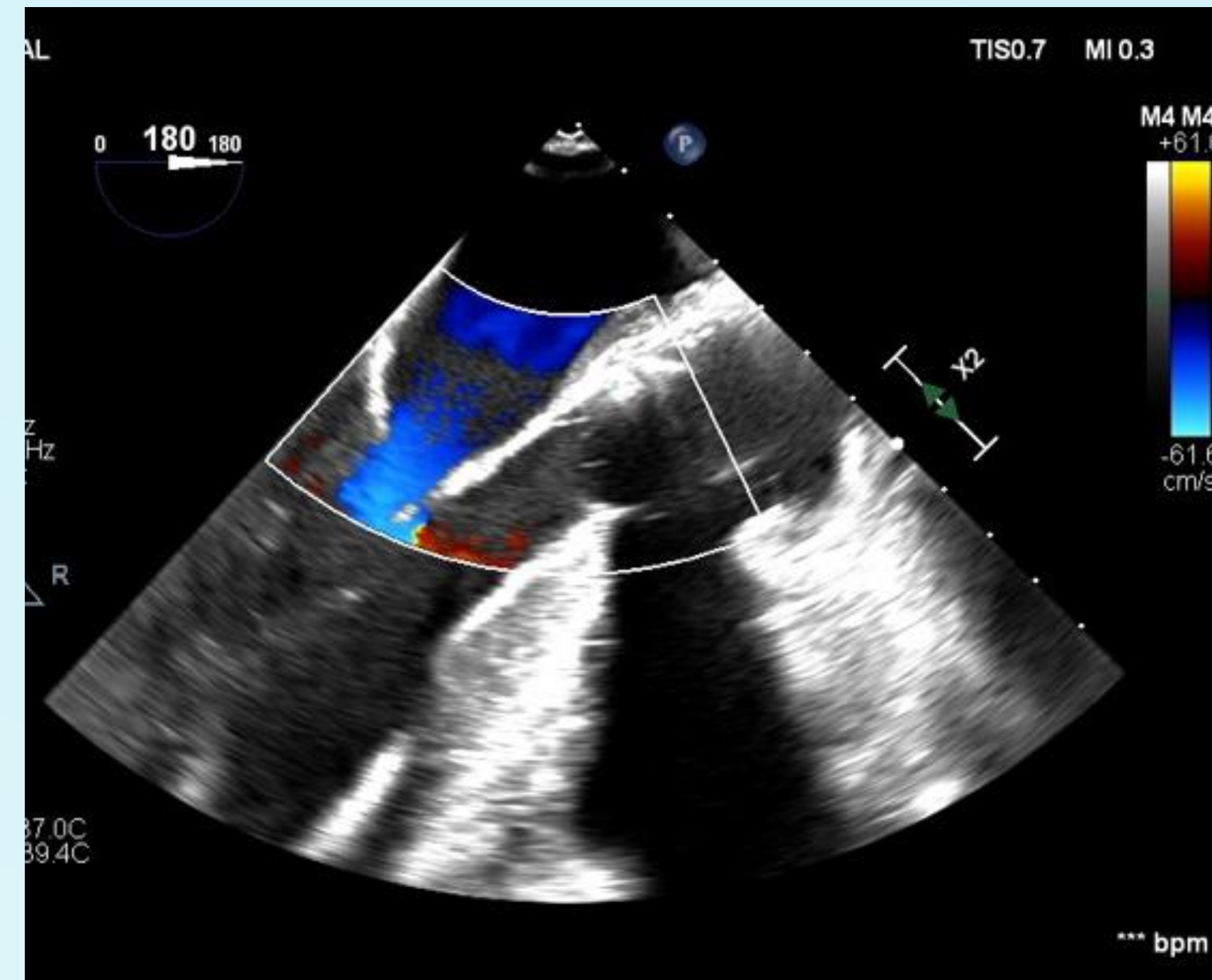


❖ The remaining dose of cardioplegia is administered by direct cannulation of the coronary ostia after performing the aortotomy



❖ De-airing of the aorta and left ventricle is carried out before tying the sutures

Intra-operative echocardiogram



No residual Aortic stenosis or regurgitation

- Maximum gradient: 50 mmHg
- Mean gradient: 29 mmHg

Post-operative course

The patient had 2 episodes of paroxysmal atrial fibrillation and returned to sinus rhythm after administration of Amiodarone. On post-op day 5 we found left-sided pleural effusions, this was drained by thoracocentesis. Patient was discharged on post-op day 7 with no further complications.

Conclusion

This poster describes our approach to one of the first robotically-assisted aortic valve replacements to be performed at our department. The procedure was performed without intra-operative or major post-operative complications. At one-year follow-up the patient was doing well.