Reoperation with xenologous pericardial tubes for aortic graft infection presenting as a contained aortic rupture

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- Ruptured thoracic aortic aneurysms and reoperation on the proximal thoracic aorta remain a surgical challenge

- Time to the operating room, surgical strategy, and cerebral protection play is essential for patients' survival

- Ascending aortic graft rupture, contained below the posterior sternal plate, complicates not only the reentry in the thorax but also endangers the organ protection

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- Presentation of our surgical strategy during the reoperation of a thoracic-contained ruptured aneurysm after acute aortic dissection
- 32-yo male patient presented in 2022 with an acute aortic dissection type A
- He was urgently treated with a mechanical aortic valve replacement, replacement of the non-coronary sinus, ascending aorta, and aortic arch with a dacron prosthesis.
- Innominate and proximal 8 cm of his left common carotid artery were replaced with separate polyester grafts.

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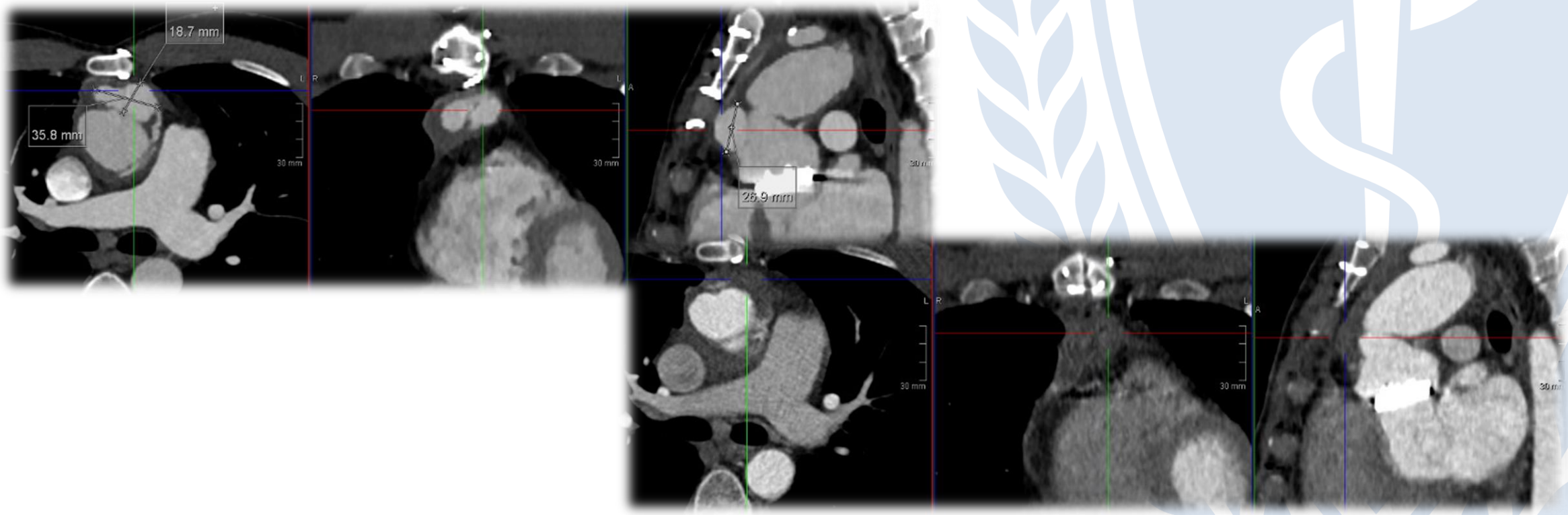
- 18 months later, he presented with fever, shivering, and sweating at the emergency department. Blood cultures and echocardiography remained negative for endocarditis

- Preoperative FDG-PET Scan showed abnormal uptake in the aortic graft and contained graft rupture



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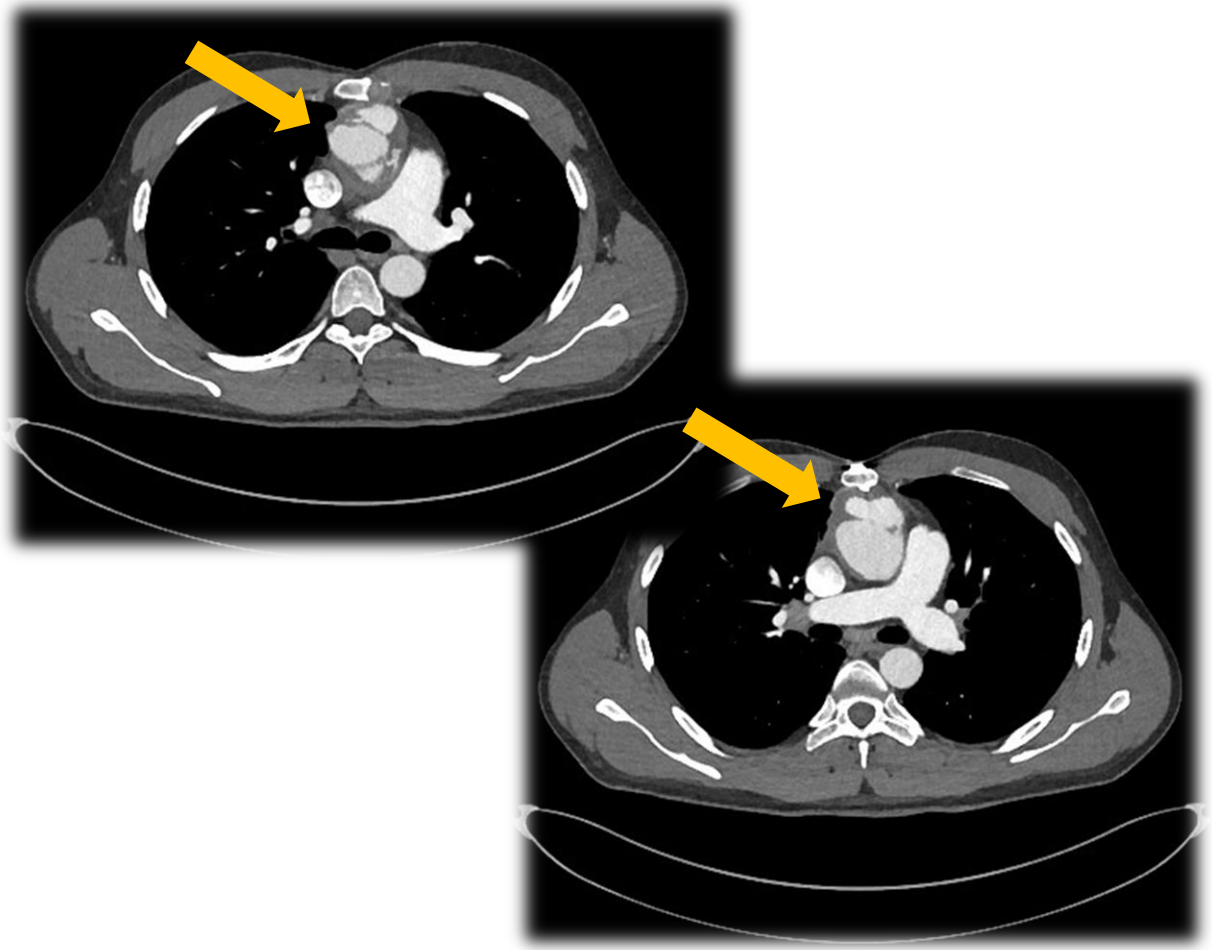

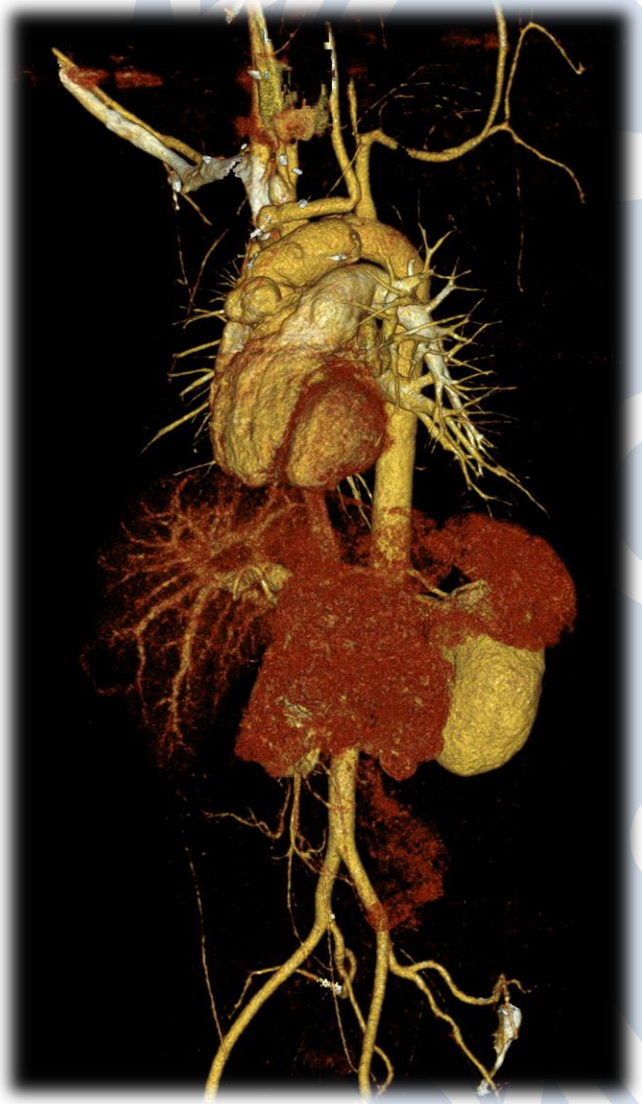

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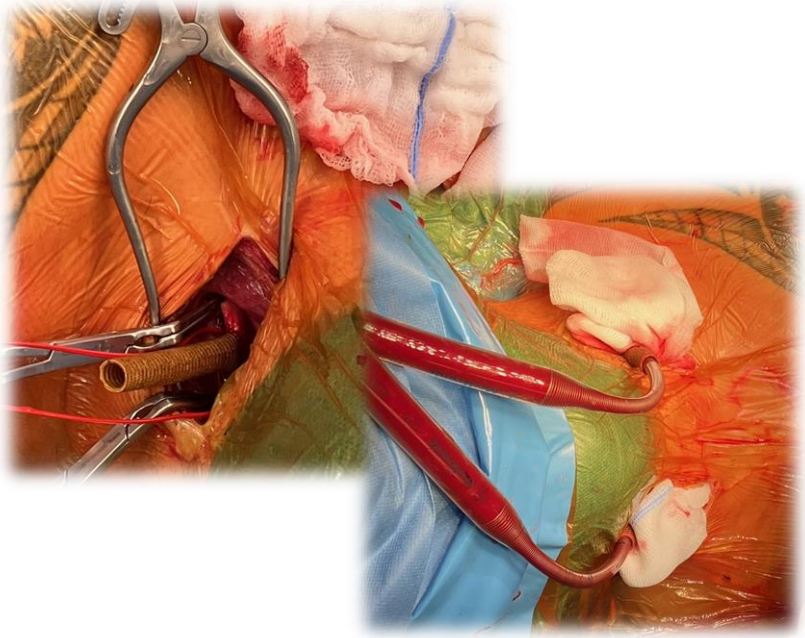
- bilateral cannulation of the carotid arteries and venous cannulation through the right femoral vein



- Simultaneously, two 14x9 cm xenologous pericardium blocks were used to construct two pericardial tubes

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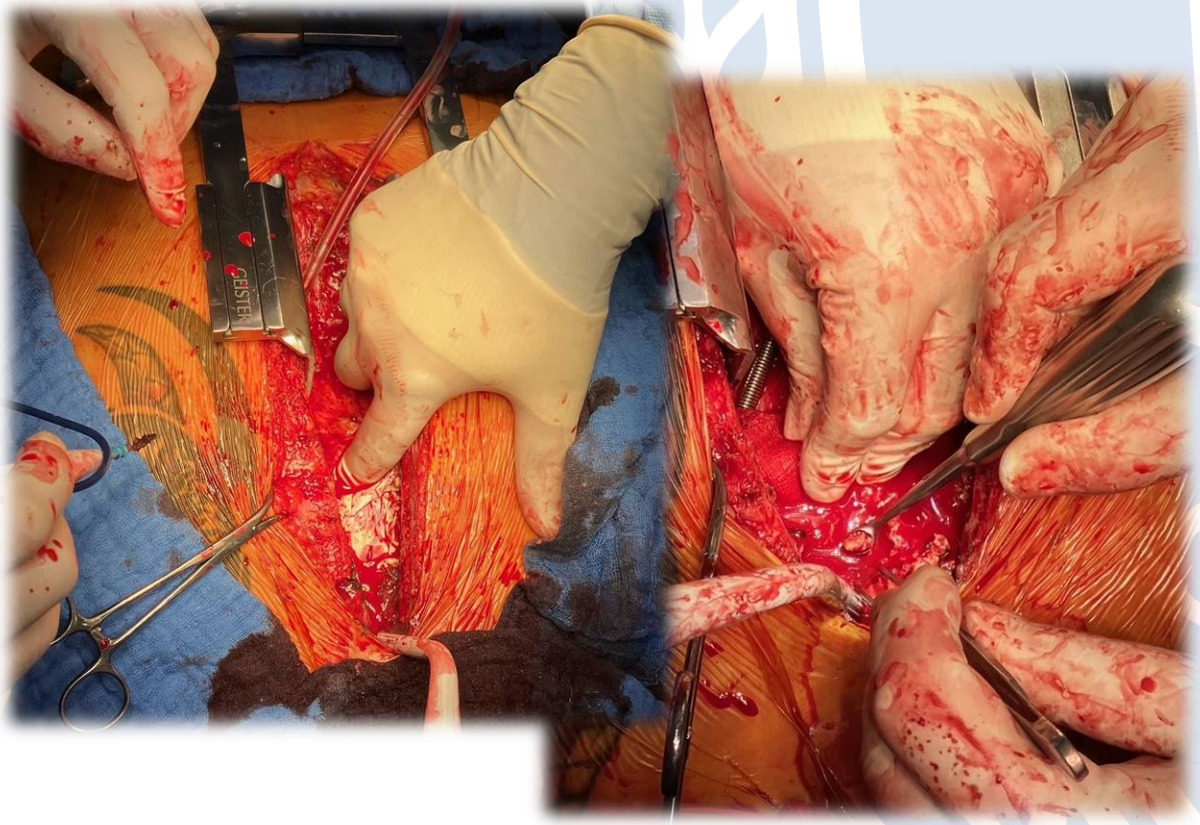
- During re-sternotomy, the contained rupture converted into an open rupture, which was controlled manually by one surgeon while the other surgeon kept preparing the scar tissue.



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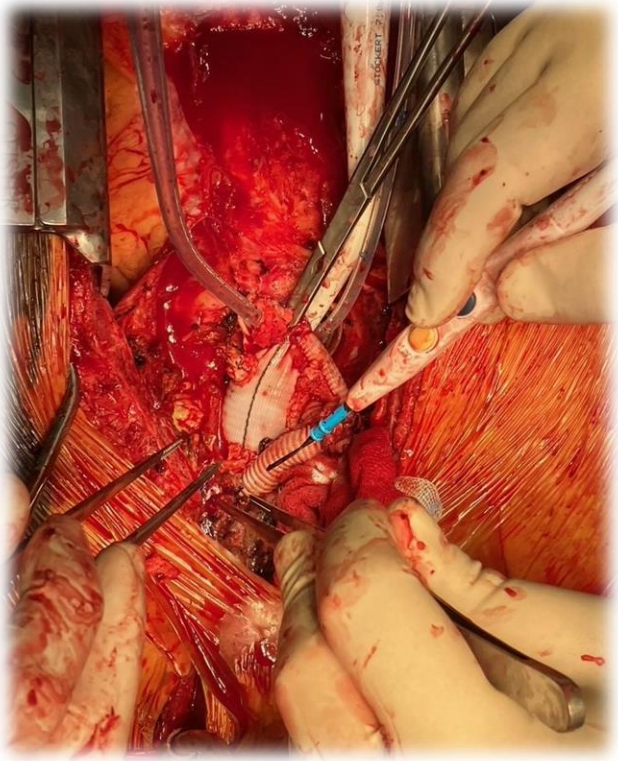
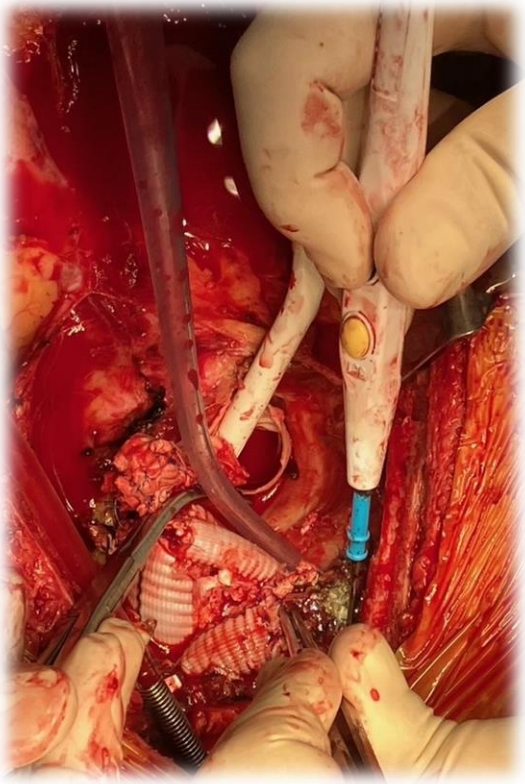
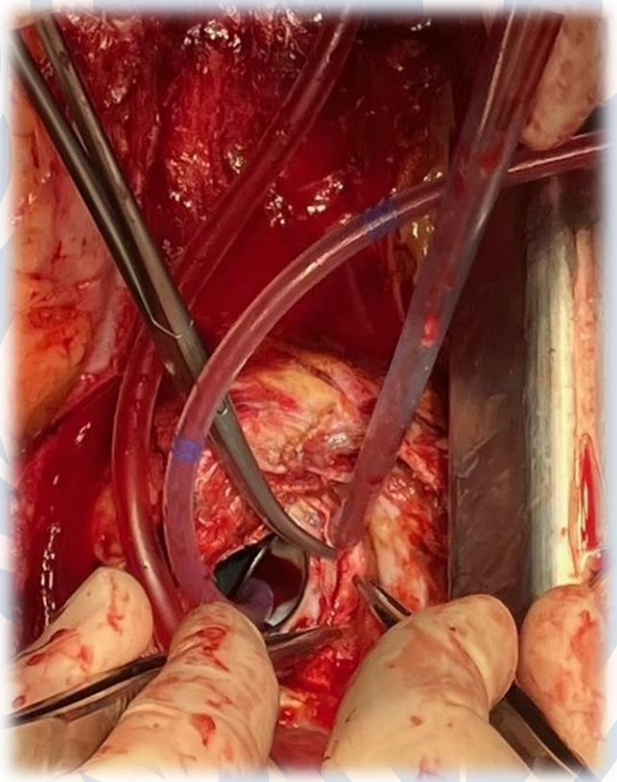
- All prosthesis material, sutures, and felt were removed. Aortic arch showed necrotic and dissected tissue, which was resected







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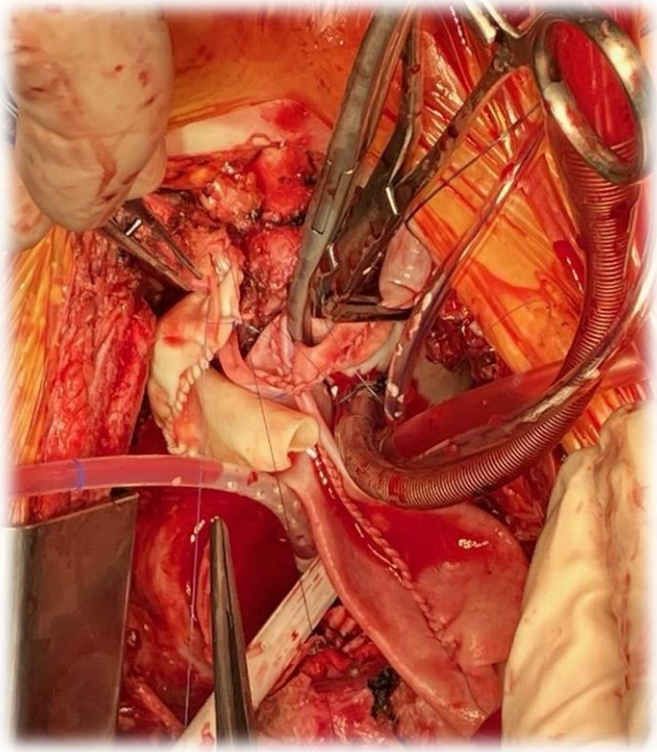
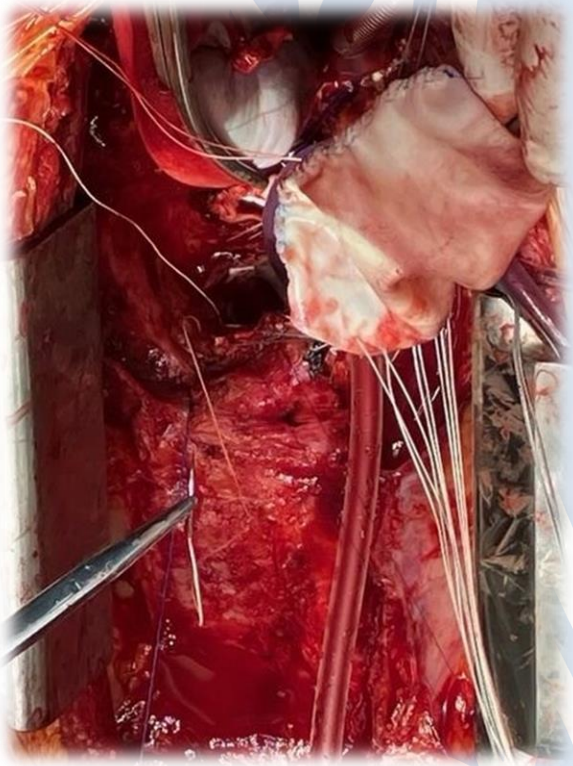
- A xenologic self-made pericardial tube was anastomosed as a neo-aortic arch, clamped, and systemic perfusion started. Implantation of a new mechanical aortic valve.





- Extracorporeal circulation times were 341 min, Aortic clamp time 213 min, antegrade cerebral perfusion 41 min, and visceral ischemia time 41 min

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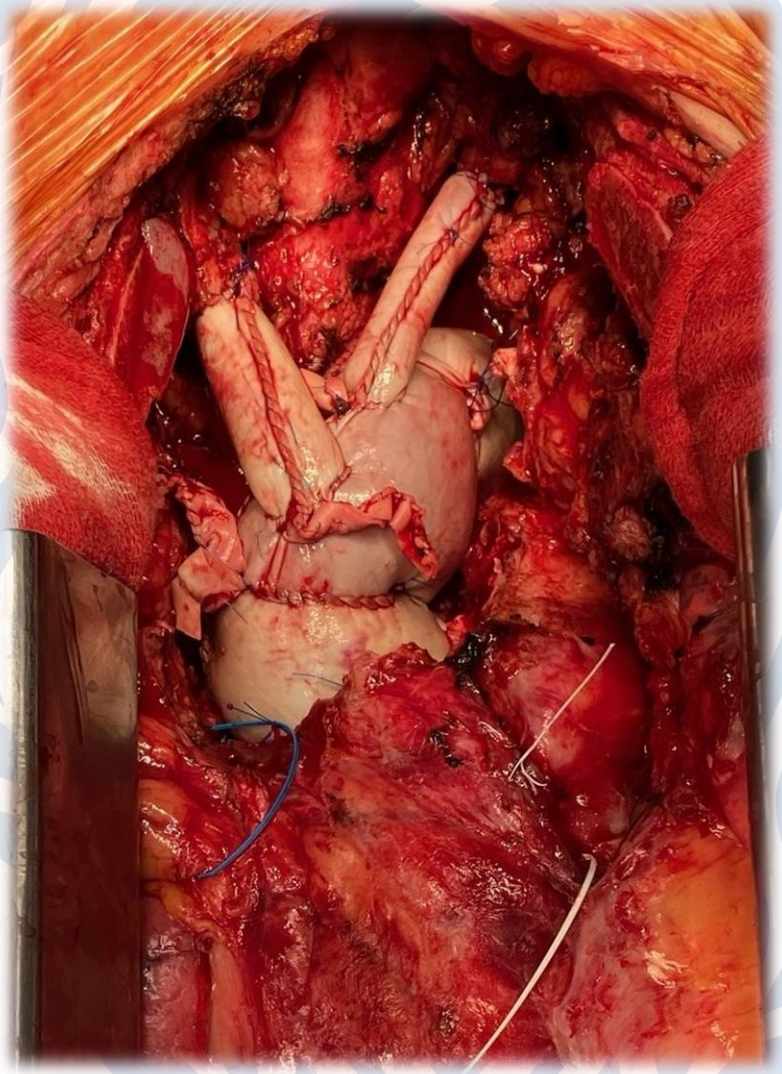
- After reperfusion, the patient was weaned from the bypass properly and transferred to the ICU after the surgery.

- The patient was extubated in the evening hours of the operation day and transferred to the ward on the second postoperative day



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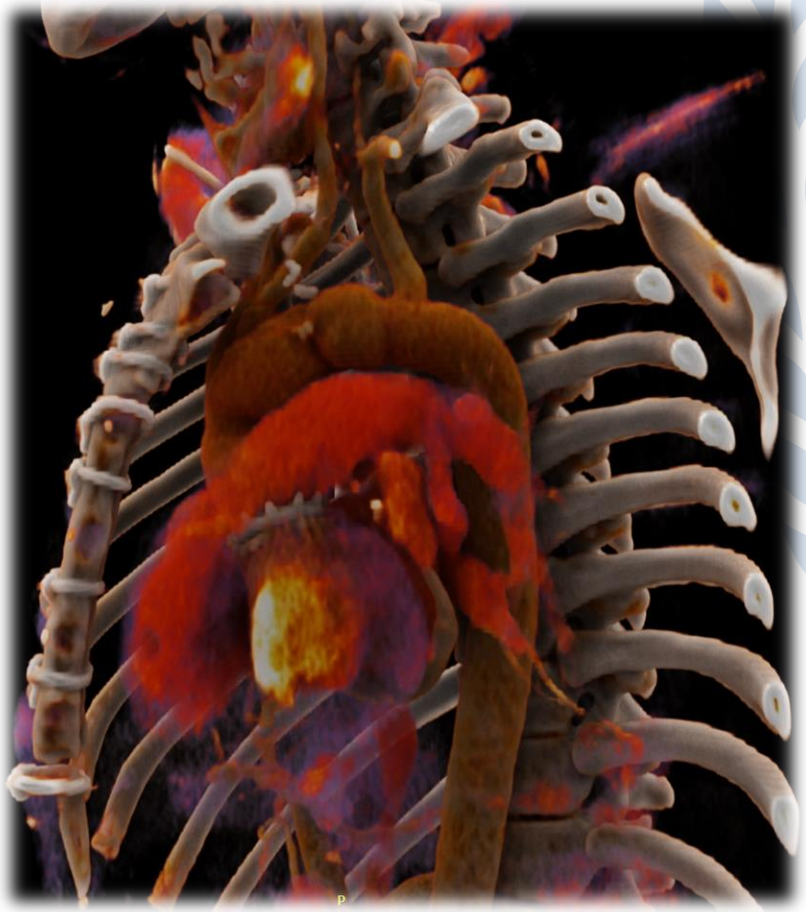
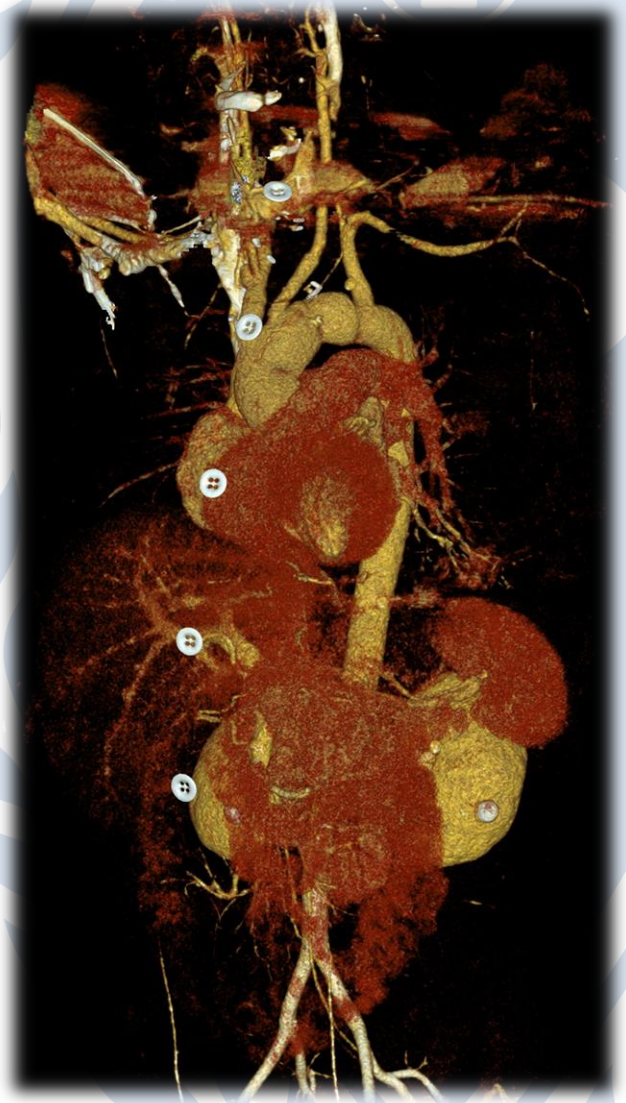
- Postoperative CT scan with xenologous graft

- All intraoperative microbiological samples remained negative





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- Graft infection is a disastrous complication after aortic repair, with reported morbidity and mortality rates exceeding 35%.
- Surgeons confronted with the dare of exploring these aneurysms are facing the probability of numerous unwanted events during surgery.
- Experts' recommendations include radical explantation of the infected graft, extensive debridement followed by aortic reconstruction with homografts or xenopericardial tube grafts, and long-term antibiotic treatment.
- Our patient received antibiotic treatment for a cumulative three months. Today, the patient is suffering only from mild hoarseness.

By means of a structured interdisciplinary team approach, as shown with our patients, even extreme, complex situations can be successfully treated.