Supplementary material

1. **Synthetic medical notes**
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1. Synthetic medical notes

Patient 1
Hospitalization from 21.01.2020 to 29.01.2020
Euro score 2: 8.1%

The separate surgical report provides information about the course of the operation. The transesophageal echocardiography showed an intraoperatively preserved left ventricular ejection fraction of 65%. Postoperatively, the intubated patient was transferred to the intensive care unit, with stable hemodynamics and without the need for catecholamines. The cardiac biomarkers increased within the expected range. The patient could be easily extubated on the day of surgery, and subsequently, the gas exchange was always sufficient under low-dose oxygen insufflation through the nasal cannula. The patient was able to be moved to the normal ward in good general condition and hemodynamically stable on 23.01.2020. Postoperatively, the patient experienced numbness in digits III-V with radiation into the forearm, which is most likely due to positioning during surgery. As a result, the liability insurance was activated, and hand ergometry was performed. In addition, a neurological consultation was requested, which had the following result: Clinically, the symptoms reported and examined, with hypoesthesia on the ulnar side of the forearm and the ulnar side of the hand as well as slight weakness in making a fist, finger abduction, and to a lesser extent thumb abduction and flexion at the terminal phalanx, are most consistent with a mild brachial plexus lesion. Correspondingly, two days after the onset of symptoms, a normal finding of the neurographies of the distal sections of the affected nerves was seen. In particular, an ulnar or median nerve compression neuropathy could be excluded. The further postoperative course was unproblematic. The patient was able to enter further cardiac rehabilitation on 29.01.2020.

Patient 2
Hospitalization from 01.03.2020 to 14.03.2020
Euro score 2: 1.3%

The separate surgical report provides information about the course of the operation. The transesophageal echocardiography showed a preserved intraoperative left ventricular ejection fraction. Postoperatively clinical examination revealed a facial palsy and pronation in the arm/leg holding test on the left side. An acute demarcated infarct in the right medial frontal gyrus, sized approximately 3.5cm, could be confirmed by computed tomography. The patient was easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. The patient was able to be moved to the normal ward in good general condition and hemodynamically stable on 04.03.2020. On the ward, on the fifth postoperative day, there was a deterioration in the general condition; the patient became hypotensive, tachycardic, and dyspneic, so an echocardiography was performed on suspicion of a pericardial effusion. A large pericardial effusion could be diagnosed, with signs of tamponade. Subsequently, a subxiphoid drainage was performed urgently. Postoperatively, atrial fibrillation occurred with spontaneous conversion to sinus rhythm after beta-blocker administration. On the seventh postoperative day, atrial fibrillation recurred with successful cardioversion to sinus rhythm. We were able to discharge the patient for further cardiac rehabilitation on 14.03.2020

Patient 3
Hospitalization from 07.05.2021 to 08.06.2021
Euroscore 2: 4.2%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. During the wake-up attempt, a paralysis of the left leg was noticed, which persisted after extubation. CT scans revealed several ischemic CVIs in the cerebellar and right anterior circulation area as well as in the left middle cerebral artery territory. Clinically and neurologically, the patient became somnolent over time with weakness in the left arm and leg, which persisted during hospitalization. The patient could be easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. On the first postoperative morning, a significantly increased central venous pressure with unstable hemodynamics was noticed, so a transthoracic echocardiography was performed. It revealed a pericardial tamponade with compression of the right heart chambers, which led to the indication for rethoracotomy. The hematoma was evacuated, and the thorax initially remained open. With improving hemodynamics and no evidence of recurrent bleeding, the thorax was closed again on the sixth postoperative day. The patient was transferred to the cardiac surgery department on the 14th postoperative day. Intensive physiotherapy was carried out for analgesia and mobility enhancement. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. In addition, a pleural puncture was performed on both sides. The patient underwent intensive physiotherapy and occupational therapy, with slight neurological improvement. We were able to discharge the patient for further neurocardiac rehabilitation on 08.06.2021.

Patient 4
Hospitalization from 12.04.2022 to 24.04.2022
Euro score 2: 1.9%

Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The patient could be easily extubated on the day of surgery, and the gas exchange was always sufficient with low-dose oxygen via nasal cannula. The patient was moved to the ward on the first postoperative day in good general condition and hemodynamically stable. On the second postoperative day, there was a sudden occurrence of left homonymous hemianopsia and a markedly brachially accentuated left-sided motor hemisyndrome. The finger-to-nose test on the left was not possible. An immediate CT angiography was performed, revealing a new subacute demarcated infarct in the right posterior circulation area and a subacute lacunar infarct in the right precentral white matter. After consultation with the colleagues from neurology, the therapy with high-dose aspirin and atorvastatin was continued, and a systolic blood pressure of at least 120mmHg was maintained. The hemisyndrome showed significant improvement under occupational therapy with well-preserved strength. However, the hemianopsia persisted. The ophthalmological examination confirmed a correlation with the ischemic event in the posterior circulation area. In the postoperative course, the patient developed atrial fibrillation. Under antiarrhythmic therapy with amiodarone, a highly bradycardic atrioventricular block was noted, up to short-term asystole. The patient was switched to external DDD pacing, and the antiarrhythmic therapy was stopped. Due to the persistence of the high-grade block, the indication for the implantation of a permanent pacemaker system was given, with subsequent implantation on the seventh postoperative day. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. Follow-up X-rays showed a significant right-sided pleural effusion, so a pleural puncture was performed. The patient was discharged for further cardiac rehabilitation on 24.04.2022.

Patient 5
Hospitalization from 04.03.2020 to 12.03.2020
Euro score 2: 1.6%

The separate surgical report provides details about the course of the operation. The transesophageal echocardiography showed a good intraoperative left ventricular pump function. Postoperative transfer of the intubated patient, with stable hemodynamics and without the need for catecholamines to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient could be easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient with low-dose oxygen insufflation through the nasal cannula. The hemodynamically stable patient was then transferred to the ward in good general condition. In the echocardiographic follow-up, a large pericardial effusion was noted with normal function of the implanted prosthesis, so that a subxiphoid pericardial drainage was performed. The drainage was removed the next day. Paroxysmal postoperative atrial fibrillation occurred in the ward, which could be converted to a sinus rhythm with the administration of amiodarone. The temporary pacemaker wires could be removed after a repeated ECG check and persistent sinus rhythm. The patient was discharged for further cardiac rehabilitation on 12.03.2020.

Patient 6
Hospitalization from 26.04.2022 to 20.05.2022
Euroscore 2: 3.8%

Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient could be easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient with low-dose oxygen insufflation through the nasal cannula. After extubation, the patient was alert, adequate, and without focal neurological deficits. Two hours later, there was a sudden onset of aphasia/dysarthria, as well as a sensorimotor hemisyndrome on the right (no response to pain stimulus, leg and arm paretic). An immediate CT angiography was performed, which showed an almost complete occlusion of the left common carotid artery with hypoperfusion of the entire left hemisphere. Further treatment involved stenting of the left internal carotid artery. Over time, the symptoms slightly regressed, although the arm paralysis persisted. The patient was transferred to the ward in a decreased general condition but hemodynamically stable. A persisting third-degree AV block led to the implantation of a permanent pacemaker. Postoperatively, the patient developed atrial fibrillation, which spontaneously converted to a sinus rhythm under beta-blockade. The external temporary pacemaker wires could be removed after a repeated ECG check and persistent sinus rhythm. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. After intensive physiotherapeutic and occupational therapy, we were able to discharge the patient for further neurocardiac rehabilitation on 20.05.2022.

Patient 7
Hospitalization from 11.09.2017 to 29.09.2017
Euro score 2: 4.3%

The separate surgical report provides information about the course of the operation. The transesophageal echocardiography showed a normal intraoperative LVEF. Postoperative

transfer of the intubated patient to the intensive care unit. Due to hemodynamic instability with increasing noradrenaline and fluid requirements, decreasing hematocrit, and bloody drainage fluid, a re-thoracotomy was performed. The separate report provides details about the course of this operation. The patient was oriented after extubation. However, there was a brachially accentuated left-sided hemiparesis with gaze palsy. Imaging revealed a high-grade stenosis at the origin of the right internal carotid artery with right-hemispheric perfusion mismatch and multiple lacunar ischemias in the right middle cerebral artery territory, consistent with emboli from the proximal right internal carotid stenosis. After interdisciplinary consultation, a decision was made for stenting. Subsequently, the right internal carotid artery was stented with a good angiographic result. However, post-interventionally a complete sensorimotor hemisyndrome on the left was observed. Under intensive physiotherapy and occupational therapy, the hemi-symptoms slightly regressed, and the patient was eventually able to move the left hand and left foot with limitations. In the ward, the patient developed paroxysmal atrial fibrillation. After the administration of beta-blockers and electrolyte substitution, the patient spontaneously converted to a sinus rhythm. Prophylactically, we established oral anticoagulation therapy with Marcoumar for 3 months. Large-volume pleural effusions with compression atelectasis were evidenced, so bilateral pleural puncture was performed. The patient was discharged for further neurocardiac rehabilitation on 29.09.2023.

Patient 8
Hospitalization from 16.05.2023 to 24.05.2023
Euroscore 2: 2.6%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. Due to persistently high catecholamine requirements and clinical and laboratory signs of a low-cardiac-output syndrome with rising lactate and oligo/anuria, computed tomography was performed revealing a large pericardial effusion with hematoma. A re-thoracotomy was performed to evacuate the pericardial hematoma and achieve hemostasis. Neurologically, after the reduction of sedation and during the wake-up attempt, the patient initially presented with slowed responses with a positive CAM-ICU indicative of a hypoactive delirium, which we treated with a non-pharmacological therapy regimen (quiet environment, orientation aids, mobilization, day-night rhythm). No focal neurological deficit could be detected. During the stay in the intensive care unit, the patient became increasingly alert, adequate, and pain-free. The hemodynamically stable patient was transferred to the ward in good general condition. Postoperatively, a bradycardic rhythm was observed due to a high-degree AV block and chronotropic incompetence. Due to persisting rhythm disturbance a pacemaker was implanted on the fifth postoperative day. The postoperative computed tomography showed a regular postoperative finding with a small amount of pleural effusion on both sides, not warranting puncture. The patient was discharged to cardiac rehabilitation on 24.05.2023.

Patient 9
Hospitalization from 24.05.2021 to 31.05.2021
Euroscore 2: 2.5%

The patient was transferred to the intensive care unit with DDD pacing set at 60/min. Subsequently, the patient remained hemodynamically unstable and despite the transfusion of 4 units of FFP and the substitution of 4 liters of crystalloids, continued to be persistently unstable and tachycardic. At the same time, due to the central venous pressure rising from 12 to 21 mmHg, transesophageal echocardiography was performed, showing compression

of the right ventricle due to a hematoma, necessitating an emergency re-thoracotomy in the intensive care unit with pericardial evacuation of the hematoma. No source of bleeding was found during the re-thoracotomy. The cardiac biomarkers increased within the expected range. The patient was extubated without problems and later transferred to the ward cardiorespiratory stable and in good general condition. The further course was otherwise uncomplicated. The patient was discharged home on the seventh postoperative day.

Patient 10
Hospitalization from 19.09.2015 to 09.10.2015
Euroscore 2: 7.9%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the patient to the intensive care unit. Initially, during the wake-up attempt, the patient was oriented without focal neurological deficit and was subsequently extubated on the day of surgery. However, she showed a lack of adequate responsiveness, prompting a CT scan of the head, which revealed a parietal and a posterior CVI. Clinically, a right-sided hemiparesis and aphasia were revealed over time, which persisted with slight improvement until discharge. On the morning of the first postoperative day, increased bloody drainage losses and severe obstructive shock due to pericardial tamponade were observed. Consequently, an emergency re-thoracotomy was performed in the intensive care unit. The separate report provides details about the course of this operation. After transfer to the intensive care unit, the patient was in DDD pacing due to junctional rhythm. She further developed atrial fibrillation and severe bradycardia, so pacing via a temporary pacemaker electrode was necessary to prevent a low output syndrome. Due to the persistence of the rhythm issues, a PM implantation was performed. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. A follow-up X-ray in the ward revealed a significant pleural effusion on the left chest, so a pleural puncture was performed. Subsequent X-ray controls showed no pneumothorax with a regressing amount of effusion. The further postoperative course was uneventful. After intensive physiotherapeutic and occupational therapy, we were able to discharge the patient for further neurocardiac rehabilitation on 09.10.2015.

Patient 11
Hospitalization from 15.09.2018 to 23.09.2018
Euroscore 2: 1.3%

Postoperative transfer of the intubated, hemodynamically stable patient, to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient was easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. On the first postoperative day, the patient developed hemodynamically significant AF, which was successfully cardioverted to sinus rhythm. The patient was transferred to the ward cardiorespiratory stable and in good general condition. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. In addition, a pleural puncture was performed on the left side on the fifth postoperative day. The patient was discharged for further cardiac rehabilitation on 23.09.2018.

Patient 12
Hospitalization from 12.11.2020 to 21.11.2020
Euro score 2: 6.6%

The separate surgical report provides details about the course of the operation. The transesophageal echocardiography showed a preserved intraoperative ejection fraction. Postoperative transfer of the intubated patient to the intensive care unit. The patient was weaned and extubated without problems. He was subsequently transferred to the ward cardiopulmonary stable and in good general condition. In the follow-up echocardiography, a hemodynamically relevant pericardial effusion was detected with a circular extension, especially posteriorly and posterolaterally. The inferior vena cava was dilated and had limited respiratory variability. As a result, a subxiphoid pericardial drainage was performed. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. Due to a large-volume pleural effusion, a pleural puncture was also performed on the right side. The patient was discharged for further cardiac rehabilitation on 21.11.2020.

Patient 13
Hospitalization from 07.03.2023 to 01.04.2023
Euro score 2: 1.5%

Postoperative transfer of the intubated patient to the intensive care unit. The cardiac biomarkers increased within the expected range. During the repeated wake-up attempts, the patient was initially not interacting adequately, and there was a markedly reduced spontaneous movement of the right side of the body. After extubation, a right-sided, proximally accentuated arm and leg paresis, a right facial paresis with emphasis on the mouth, tongue deviation to the right, dysphagia, and visual neglect to the right became apparent. Native computed tomography scans revealed a CVI in the left centrum semiovale. Consequently, intensive physiotherapy and occupational therapy led to slight neurological improvement during hospitalization. Despite discontinuation of all bradycardizing medications, a complete AV block persisted, and led to a pacemaker implantation on the tenth postoperative day. The patient was transferred to the ward in a decreased general condition but cardiopulmonary stable. On 21.03.2023, the patient reported a feeling of thoracic tightness and became hypotensive. A bedside echocardiography showed a significant pericardial effusion, so the symptomatic patient was urgently taken to the operating room for drainage of the pericardial effusion. Postoperatively, atrial fibrillation occurred intermittently on several occasions, which is why loading with amiodarone was initiated. Finally, a conversion to sinus rhythm could be achieved. The postoperative echocardiographic follow-up showed a normal cardiac finding. A simultaneous ultrasound check of both pleurae showed no pleural effusion warranting puncture. The patient was discharged for further neurocardiac rehabilitation on 01.04.2023.

Patient 14
Hospitalization from 20.06.2018 to 08.07.2018
Euroscore 2: 2.7%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. Postoperatively, there was increased bleeding from the retrocardiac drainage along with a simultaneous rise in lactate levels. A transesophageal echocardiography was conducted, which showed a compressing hematoma over the right atrium. An emergency a re-thoracotomy was subsequently performed. The separate surgical report provides details about the course of this operation. After extubation, the patient suddenly developed a left-sided motor hemisyndrome (arm and leg holding test pathological, sinking of left arm and leg). An immediate CT angiography was performed, revealing a CVI with a new perfusion deficit on the right side with a high-grade stenosis of the middle cerebral artery. On the same day, an

intervention with stenting of the right middle cerebral artery was performed. The hemisyndrome on the left arm improved over time, but persisted on the left leg. During the postoperative course, the patient developed a persisting third-degree AV block. On the seventh postoperative day, a pacemaker was implanted and the patient was subsequently transferred back to the department in a decreased general condition. The subsequent check showed proper function of the pacemaker. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. The chest X-ray showed a small amount of pleural effusion on both sides, not warranting puncture. The patient was discharged for further neurocardiac rehabilitation on 08.07.2018.

Patient 15
Hospitalization from 27.04.2018 to 23.05.2018
Euroscore 2: 4.1%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. On the fifth postoperative day, there was an acute neurological deterioration with aphasia and right-sided hemisyndrome. A mechanical thrombectomy was performed after a CT scan of the head showed acute infarct in the left middle cerebral artery territory. This was followed by intensive physiotherapy and occupational therapy. The neurological symptoms showed regression over time, although the right leg remained paretic. Postoperatively, there was a persistent second-degree with intermittent third-degree AV block, leading to the implantation of a pacemaker. Postoperatively, the patient developed intermittent atrial fibrillation which did not convert with medication, so on 18.05.2018, an electrical cardioversion was successfully performed. A pleural puncture was performed on the left side and intensive respiratory therapy with cautious negative fluid balance was initiated for a radiologically and sonographically confirmed pleural effusion. The patient was discharged for further neurocardiac rehabilitation on 23.05.2018.

Patient 16
Hospitalization from 17.04.2022 to 25.04.2022
Euroscore 2: 3.3%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient could be easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. Postoperatively, a third-degree AV block was diagnosed, which did not recover over the following days. A temporary pacemaker was placed via the femoral vein. On the fourth postoperative day, due to persistent bradycardia associated with the third-degree AV block, a permanent pacemaker was implanted. The patient was transferred to the ward cardiopulmonary stable and in good general condition. On the second postoperative day, there was a progressive oxygenation disorder. A chest X-ray showed new bilateral pleural effusions, sonographically 1000 ml on the left side and 100 - 200 ml on the right side. This was followed by a pleural puncture on the left with significant respiratory improvement. On the third postoperative day, atrial fibrillation occurred, which spontaneously converted to a sinus rhythm the next day after supplementation of potassium and magnesium to the high-normal range. Since extubation, the patient had persistent hoarseness and aphonia. The ENT colleagues observed a significantly reduced mobility of the left vocal cord during endoscopic examination, which is most likely due to recurrent nerve palsy from intraoperative injury. Regular training by

speech therapy was conducted. The patient was discharged for further cardiac rehabilitation on the eighth postoperative day.

Patient 17
Hospitalization from 08.05.2021 to 21.05.2021
Euro score 2: 2.3%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient could be easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. We were able to transfer the patient to the ward on the first postoperative day. Over time, a third-degree AV block was noted, leading to the implantation of a pecamaker on the fifth postoperative day. The postoperative check showed a perfectly functioning pecamaker. Following the removal of the external temporary pacemaker wires, a pericardial tamponade occurred. An emergency surgical evacuation of the pericardial tamponade was performed, followed by transfer to the intensive care unit. On the fifth postoperative day, there was an episode of self-limiting AFib. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. In addition, a pleural puncture was performed on the left side following sonographic confirmation of a large-volume pleural effusion. The patient was discharged for further cardiac rehabilitation on 21.05.2021.

Patient 18
Hospitalization from 06.08.2020 to 19.08.2020
Euro score 2: 5.1%

The separate surgical report provides details about the course of the operation. The transesophageal echocardiography showed an intraoperative ejection fraction of 65%. Postoperative transfer of the intubated patient to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient was extubated on the day of surgery with subsequent smooth pulmonary adaptation. Neurologically, a postoperative hypo- to hyperactive delirium was noted, for which we started therapy with risperidone and had haloperidol in reserve. No signs of focal deficits or of a cerebrovascular incident were evident. The patient was transferred to the ward in a cardiopulmonary stable condition. On the evening of the transfer from the intensive care unit, the patient reported dyspnea and became increasingly respiratory insufficient. Due to radiological evidence of a large-volume pleural effusion, 1L of serous effusion was punctured from the left side. This was followed by a significant respiratory improvement of the patient. Postoperatively on the ward, there were repeated occurrences of extrasystoles up to ventricular bigeminy and intermittent atrial fibrillation, for which loading with amiodarone was started on the fourth postoperative day. The patient was discharged for further cardiac rehabilitation on 19.08.2020.

Patient 19
Hospitalization from 21.04.2015 to 10.05.2015
Euro score 2: 6.9%

Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The patient was easily extubated on the day of surgery. On the first postoperative day,

the patient presented with neurological symptoms including left facio-brachio-crural hemiparesis, and left hemianopsia. A CT scan confirmed an ischemic stroke in the right posterior circulation area. The patient received intensive physiotherapy and occupational therapy for further treatment, and was subsequently transferred to the ward in a decreased general condition but cardiopulmonary stable, with slight improvement of neurological symptoms. Postoperatively, a third-degree AV block was documented, with a bradycardia up to 37/min. Due to the persistence of the third-degree AV block, a pacemaker implantation was performed on the seventh postoperative day. Postoperative cardiac CT scans showed open bypasses without evidence of pericardial effusion and with insignificant pleural effusion on both sides. The patient was discharged for further cardiac rehabilitation on 10.05.2015.

Patient 20
Hospitalization from 04.04.2018 to 06.05.2018
Euro score 2: 3.7%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. Due to increased bleeding from the chest drains and increased catecholamine requirements with progressive lactic acidosis, an echocardiography was performed, which showed a partly organized pericardial effusion compressing both the left and right ventricles. An emergency re-thoracotomy was performed to evacuate the hematoma and pericardial blood. The patient was then extubated without any problems. On the first postoperative day during the morning rounds, a right brachiofacial hemisyndrome was evident. The cause was identified by CT as a CVI due to a thromboembolic occlusion of the left middle cerebral artery. Subsequently, due to progressive reduction in alertness and neurological symptoms, a thrombectomy with stent implantation was performed. Thereafter, an improvement in the motor function of the right arm was observed, although the paresis of the right leg persisted. The cardiopulmonary stable patient was transferred to the ward in a decreased general condition. In the postoperative ECGs, we observed a third-degree AV block with persistent bradycardia down to 35bpm, which led to the implantation of a pacemaker on the tenth postoperative day. After sonographical confirmation we performed the puncture of a right-sided pleural effusion. The subsequent X-ray control showed no pneumothorax. After intensive physiotherapy and occupational therapy, we were able to discharge the patient for further neurocardiac rehabilitation on 06.05.2018.

Patient 21
Hospitalization from 16.10.2023 to 04.11.2023
Euroscore 2: 7.2%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. The patient was easily extubated shortly thereafter. During the neurological examination on the evening of the surgery, a gaze palsy to the right was observed, and subsequently a head CT was conducted. It revealed a stroke in the left posterior cerebral artery territory. The patient's neurological symptoms persisted but showed slight improvement over time. The patient was transferred to the ward in a decreased general condition but cardiopulmonary stable. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. A pleural puncture was performed on the left side due to a sonographically confirmed large-volume pleural effusion. The further postoperative course was otherwise uncomplicated. We were able to discharge the patient for further neurocardiac rehabilitation on 04.11.2023.

Patient 22
Hospitalization from 30.06.2016 to 08.07.2016
Euroscore 2: 2.2%

The separate surgical report provides information about the course of the operation. The transesophageal echocardiography showed a normal intraoperative ejection fraction. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The patient was easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. During the stay in the intensive care unit, the patient complained of weakness in the right hand, which clinically presented as a drop hand and pronounced weakness of both the flexors and extensors of the hand. The symptoms were explained as a result of a lower cervical plexus lesion and improved with intensive physiotherapy and occupational therapy. The cardiopulmonary stable patient could be transferred to the ward in good general condition. The postoperative echocardiographic follow-up showed a normal cardiac finding and insignificant pleural effusions on both sides. The further postoperative course was uneventful. We were able to discharge the patient for further rehabilitation on the eighth postoperative day.

Patient 23
Hospitalization from 05.11.2022 to 23.11.2022
Euroscore 2: 5.9 %

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. On the first postoperative evening, the patient exhibited a left sided hemiparesis and reported visual disturbances. A CT scan of the head revealed a CVI in the right frontoparietal and occipital areas. Over time, there was a slight improvement in the visual disturbances, but the left-sided hemiparesis persisted despite intensive physiotherapy and occupational therapy. On the morning of the first postoperative day, atrial fibrillation occurred, which could not be converted into sinus rhythm either with amiodarone or with electrical cardioversion. The atrial fibrillation converted to a sinus rhythm after two days of loading with amiodarone. During postoperative care, a complete AV block was observed without an intrinsic rhythm, leading to the implantation of a pacemker, which was performed on the third postoperative day. The patient was transferred to the regular ward in a decreased general condition but cardiopulmonary stable. On the morning of the fourth postoperative day, the temporary epicardial pacemaker wires were removed. Significant hypotension developed thereafter and echocardiographically we observed a hemodynamically relevant pericardial effusion over the right ventricle. Subsequently, a subxiphoid drainage of the pericardial effusion was urgently performed. In the postoperative chest X-ray, a small amount of pleural effusion was seen on both sides, which was treated with diuretics and negative fluid balance. The patient was discharged for further neurocardiac rehabilitation on 23.11.2022.

Patient 24
Hospitalization from 30.06.2021 to 07.07.2021
Euroscore 2: 2.7%

Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The separate surgical report provides details about the course of the operation. The

patient was easily extubated on the day of surgery and subsequently transferred to the regular ward cardiopulmonary stable and in good general condition on the next day. On the third postoperative day, the patient developed new-onset AF. After administration of a short infusion of amiodarone, he converted to a sinus rhythm. We began loading with oral amiodarone for rhythm control. The further course was uncomplicated. We were able to discharge the patient for further cardiac rehabilitation on 07.07.2021.

Patient 25
Hospitalization from 11.04.2020 to 24.04.2020
Euro score 2: 4.6%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The cardiac biomarkers increased within the expected range. Over the course of the first postoperative day, the patient exhibited a left-sided hemiparesis. Computed tomography revealed extensive acute infarct areas in the posterior circulation territory on both sides, right-dominant, and an acute infarct area in the right middle cerebral artery territory. An intensive physiotherapy and occupational therapy was initiated, with a slight improvement in the patient's neurological symptoms during hospitalization. The patient was easily extubated and subsequently transferred to the ward in a decreased general condition but cardiopulmonary stable. The pleural effusions that occurred during the postoperative course were treated with negative fluid balance and diuretic administration. Otherwise, the postoperative course was uncomplicated. We were able to discharge the patient for further cardiac rehabilitation on 24.04.2020.

Patient 26
Hospitalization from 23.03.2018 to 19.04.2018
Euro score 2: 7.1%

Postoperative transfer of the intubated patient to the intensive care unit. The separate surgical report provides details about the course of the operation. Neurologically, there was a significantly delayed awakening. On the second postoperative day, a newly developed anisocoria was noted. An immediate computed tomography scan revealed several demarcating CVIs in the territories of the right posterior cerebral artery and right middle cerebral artery. The patient only slowly regained consciousness and exhibited a left sided hemisyndrome, which persisted until discharge. On the third postoperative day, there was increased bloody discharge from the chest drains and a drop in hemoglobin. Ultimately, an echocardiography revealed a tamponading pericardial hematoma, approximately 2.5 cm wide in front of the right heart chambers. Under these circumstances, there was an indication for hematoma evacuation and an emergency re-thoracotomy was performed. The separate surgical report provides details about the course of this operation. The patient was subsequently transferred to the ward on 10.04.2018. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. A large-volume pleural effusion confirmed by sonography led to a pleural puncture on the left side. After intensive physiotherapy and occupational therapy with slight improvement in neurology, the patient was discharged to neurocardiac rehabilitation on 19.04.2018.

Patient 27
Hospitalization from 14.02.2015 to 22.02.2015

Euro score 2: 5.6%

Postoperative transfer of the intubated patient to the intensive care unit. The separate surgical report provides details about the course of the operation. The patient was extubated without any issues. On the evening of the first postoperative day, the patient developed a hyperactive delirium, which led us to start treatment with dexmedetomidine. Under this therapy, there was a rapid improvement until complete orientation the next day. The cardiopulmonary stable patient was transferred to the ward in good general condition. The patient experienced postoperative atrial fibrillation, which converted to a sinus rhythm with electrolyte supplementation. Under Enoxaparin and Marcoumar, a symptomatic pericardial effusion developed, leading to an emergency insertion of a subxiphoid pericardial drain on 19.02.2015 due to the onset of tamponade. Follow-up chest X-ray revealed a pleural effusion on the right side, which led to a pleural puncture after sonographic confirmation. Subsequent X-ray controls showed no pneumothorax with a regressing amount of effusion. The further course was uneventful. We were able to discharge the patient for further rehabilitation on 22.02.2015.

Patient 28
Hospitalization from 13.08.2023 to 30.08.2023
Euroscore 2: 6.3%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. After successful pulmonary weaning, the patient was extubated on the day of surgery. On the morning of the following day, increased bloody drainage and an obstructive shock due to pericardial tamponade were observed. Due to acute circulatory failure with increasing catecholamine support, an emergency re-thoracotomy was performed in the intensive care unit. The separate surgical report provides details about this operative course. On the second postoperative day, the patient was aphasic with right-sided hemiparesis. A CT scan revealed two acute cortical ischemias in the left superior frontal gyrus and insular left. Clinically, the right-sided hemiplegia and motor aphasia persisted. The patient was transferred to the ward in a decreased general condition but cardiopulmonary stable. Postoperatively, however, the patient developed persistent cardiac arrhythmias with a third-degree AV block. There was also intermittent atial filbrillation, which could not be treated with beta-blockade due to the high-degree AV block. Due to the persistence of the above rhythm problems, a pecamaker implantation was performed on the 9th postoperative day to enable beta-blockade and atial filbrillation treatment. Follow-up chest X-rays showed voluminous pleural effusions on both sides, so bilateral pleural punctures were performed. The final X-ray checks showed no pneumothorax. After intensive physiotherapy and occupational therapy with subsequent slight neurological improvement, the patient was discharged for further neurocardiac rehabilitation on 30.08.2023.

Patient 29
Hospitalization from 03.05.2017 to 10.05.2017
Euro score 2: 5.3%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The patient was extubated without any problems on the day of surgery. During the postoperative course in the intensive care unit, a third-degree AV block persisted with no ventricular escape rhythm, and subsequently a permanent pacemaker was implanted on the

fourth postoperative day. The cardiopulmonary stable patient was transferred to the ward in good general condition. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. On the fifth postoperative day, a right-sided pleural puncture was performed upon detection of a large pleural effusion in the pleural sonography. The further postoperative course was uncomplicated, and we were able to discharge the patient for cardiac rehabilitation on 10.05.2017.

Patient 30
Hospitalization from 06.01.2017 to 15.01.2017
Euro score 2: 7.5%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. The cardiopulmonary stable patient was extubated without any problems on the evening of the surgery and was transferred to the ward in good general condition. In the postoperative follow-up echocardiography, a circular pericardial effusion with a maximum diameter of 2.5 cm was observed, exerting pressure on the right ventricle, necessitating a subxiphoid relief of the pericardial effusion on the fifth postoperative day. Due to a third-degree AV block with accompanying bradycardia, a PM was implanted on the seventh postoperative day. Follow-up chest X-ray showed good placement of the PM leads without pneumothorax and with good PM function. The patient was discharged for further cardiac rehabilitation on 15.01.2017.

Patient 31
Hospitalization from 18.04.2022 to 26.04.2022
Euroscore 2: 3.6%

The separate surgical report provides details about the course of the operation. The transesophageal echocardiography showed an intraoperative ejection fraction of 65%. Postoperative transfer of the hemodynamically stable, intubated patient to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient was easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. The patient was then transferred to the ward in good general condition. On the evening of the transfer to the ward, the patient experienced a drop in blood pressure to 60 mmHg systolic with newly onset AFib, and was immediately moved to the emergency room for electrical cardioversion. This was followed by conversion to a sinus rhythm, after which the now stable patient was once again transferred to the ward. Due to persistent pain in the arm with a tense and hardened forearm and newly developed sensory disturbances in the left hand, a revision of the former radial artery harvest site was performed using regional anesthesia of the brachial plexus. We also began medication with pregabalin alongside occupational therapy exercises for the arm. The hospital stay was otherwise uncomplicated. We were able to discharge the patient for further cardiac rehabilitation on 26.04.2022.

Patient 32
Hospitalization from 20.10.2016 to 28.10.2016
Euro score 2: 2.8%

Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The separate surgical report provides details about the course of the operation. After

extubation, the patient was oriented, and without focal neurological deficits. However, he was hoarse, so that the otorhinolaryngology colleagues were consulted, attributing the hoarseness to a temporary unilateral recurrent laryngeal nerve palsy postoperatively. The cardiopulmonary stable patient was transferred to the ward in good general condition on the first postoperative day. On the second postoperative day, the patient experienced a syncope, which prompted the start of telemetry monitoring. Telemetry revealed episodes of third-degree AV block with pauses up to 7 seconds, leading to a PM implantation on the sixth postoperative day. The patient was discharged for further cardiac rehabilitation on 28.10.2016.

Patient 33
Hospitalization from 01.02.2021 to 25.02.2021
Euroscore 2: 7.4%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. On the first postoperative day, there was a prolonged awakening reaction with lack of movement in the left arm and leg, while the right arm and leg had normal movement upon request. An emergency computed tomography of the head showed a fresh, likely embolic closure of the superior branch of the right M2 artery with an acute demarcated infarct area in the right inferior frontal gyrus, frontal operculum, and posterior insular region. Due to a mismatch with a larger penumbra frontally and parietally, an interventional thrombectomy was performed. This was followed by slight neurological improvement with intensive physiotherapy and occupational therapy. The patient was easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. The cardiopulmonary stable patient was transferred to the ward in good general condition. Postoperatively, there was a persistent third-degree AV block with episodes of pronounced bradycardia, leading to the implantation of a pacemker on the 11th postoperative day. Postoperative checks showed good pacemker function with good electrode placement on the X-ray. In the postoperative computed tomography, a hemorrhagic pericardial effusion with a maximum width of 27 mm over the right atrium was observed. An echocardiographic check confirmed a hemodynamically significant pericardial effusion, which led to a surgical subxiphoid drainage being performed in the beginning symptomatic patient. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. On the fifth postoperative day, a right-sided pleural puncture was performed upon detection of a large pleural effusion in the pleural sonography. After intensive physiotherapy and occupational therapy with slight improvement in neurological symptoms, the patient was discharged for further neurocardiac rehabilitation on 25.02.2021.

Patient 34
Hospitalization from 20.04.2015 to 30.04.2015
Euro score 2: 5.1%

Postoperative transfer of the intubated patient to the intensive care unit. The separate surgical report provides information about the course of the operation. The cardiopulmonary stable patient was easily extubated on the day of surgery and was transferred to the ward in good general condition on the first postoperative day. On the fourth postoperative day, the patient developed atrial fribillation, which could not be converted electrically despite electrolyte substitution and loading with amiodarone. The patient subjectively experienced this as significantly disturbing due to low blood pressure values. Consequently, a follow-up echocardiography was conducted for further evaluation. This revealed a large pericardial effusion, which was hemodynamically significant over the area of the right atrium. Therefore,

a subxiphoid pericardial drainage of approximately 500ml of old blood effusion was performed. In the ward, a persistent third-degree AV block with bradycardia was noted, leading to the implantation of a pacemaker on the eighth postoperative day. The postoperative check showed good pacemaker function. Radiologically, a new elevation of the left diaphragm was detected postoperatively. Sonographic examination showed limited, but not paradoxical, mobility of the left diaphragm. The findings were interpreted in the context of phrenic nerve paralysis. The patient was respiratory always compensated. Follow-up chest X-ray revealed small bilateral pleural effusions and diuretic therapy was initiated as a treatment. The patient was discharged for further cardiac rehabilitation on 30.04.2015.

Patient 35
Hospitalization from 22.07.2023 to 29.07.2023
Euroscore 2: 7.4%

Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The separate surgical report provides details about the course of the operation. The patient was easily extubated on the day of surgery. On the first postoperative day during the morning rounds, a right brachiofacial hemisyndrome was evident. Since there was no perfusion deficit on the CT scan of the head and the symptoms completely regressed over time, we considered a periinterventional CVI as the most likely cause. Subsequently, the symptoms completely regressed. The patient was transferred to the ward in good general condition. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions, and a pleural puncture was performed due to a sonographically detectable significant pleural effusion on the left. The further course was uncomplicated. We were able to discharge the patient for further cardiac rehabilitation on 29.07.2023.

Patient 36
Hospitalization from 31.01.2017 to 09.02.2017
Euro score 2: 1.8%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The patient was extubated without any problems on the day of surgery. The patient arrived at the intensive care unit with DDD pacing and no intrinsic rhythm. Since no intrinsic rhythm could be detected even on the second postoperative day, a permanent PM was implanted on the same day. The patient was transferred to the ward cardiopulmonary stable and in good general condition. A persistent decrease in sensitivity in digits I-III on the right side, without motor deficits, was reported postoperatively. After evaluation by the neurologists in the hospital, the sensory losses could most likely be clinically associated with a distal lesion of the median nerve. Due to fluid retention and bilateral pleural effusions during the postoperative course, a diuretic therapy was administered under control and substitution of electrolytes. Otherwise, the hospital stay was uncomplicated. We were able to discharge the patient home on 09.02.2017.

Patient 37
Hospitalization from 10.12.2023 to 19.12.2023
Euroscore 2: 2.9%

Postoperative transfer of the intubated patient to the intensive care unit. The separate surgical report provides details about the course of the operation. The cardiac biomarkers increased within the expected range. The patient was easily extubated on the day of surgery. On the first postoperative day, the cardiopulmonary stable patient was transferred to the ward in good general condition. On the third postoperative day, the patient experienced new-onset hemodynamically significant AF, prompting an electrical cardioversion on the same day. Subsequently, sinus rhythm persisted until discharge. The postoperative cardiac CT showed properly contrasted bypasses. Incidentally, a large pleural effusion was noted on the right side, which was successfully punctured. The patient was discharged for further cardiac rehabilitation on 19.12.2023.

Patient 38
Hospitalization from 05.04.2021 to 14.04.2021
Euroscore 2: 1.1%

The separate surgical report provides information about the course of the operation. The transesophageal echocardiography showed an intraoperative ejection fraction of 65%. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient was easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. On the first postoperative day, the patient was transferred to the ward in good general condition. The hospital stay was overall uncomplicated. We were able to discharge the patient for further cardiac rehabilitation on 14.04.2021.

Patient 39
Hospitalization from 02.02.2023 to 10.02.2023
Euro score 2: 1.4%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. The cardiopulmonary stable patient was transferred to the ward in good general condition. On the fourth postoperative day, new onset atial filbrillation was treated initially with beta-blockade, followed by an electrical cardioversion to sinus rhythm on the following day. A hemodynamically significant pericardial effusion with a maximum width of 2 cm over the right ventricle was diagnosed during a postoperative echocardiographic check and a subxiphoidal pericardial drain was carried out on the fifth postoperative day. The postoperative cardiac CT scan showed proper contrast of all bypasses and only a small, insignificant amount of pleural effusion bilaterally. The patient was discharged home on 10.02.2023.

Patient 40
Hospitalization from 06.02.2017 to 24.02.2017
Euro score 2: 1.8%

Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The separate surgical report provides details about the course of the operation. Upon cessation of sedation, motor weakness on the left side of the body, particularly of the arm, as well as motor aphasia, were observed. A head CT scan ruled out bleeding, showing a small area with a blurred cortex-medulla boundary as a correlate of the symptoms. Persistent clinical

findings led to a follow-up CT the next day, which showed a hypodensity measuring approximately 2cm frontoparietal right in the white matter. Due to sudden apathy on the second postoperative day with lack of responsiveness, a new computed tomography showed an unchanged finding. Brain protective measures were initiated. Due to strong blood pressure fluctuations, treatment was phased between norepinephrine and urapidil via perfusor; both could be stopped later on. The cardiopulmonary stable patient was transferred to the ward in decreased general condition. On the seventh postoperative day, the temporary pacemaker leads were removed. The patient was hypotensive in the afternoon. An echocardiographic examination revealed a hemodynamically significant pericardial effusion, prompting an emergency subxiphoidal relief of the pericardial effusion. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. Additionally, the patient underwent pleural punctures on both sides for significant effusions in the ward. The patient was discharged for further cardiac rehabilitation on 24.02.2017.

Patient 41
Hospitalization from 07.11.2017 to 25.11.2017
Euroscore 2: 5.2%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. Soon after transfer to the intensive care unit, the patient exhibited a left hemiplegia, prompting a computed tomography scan of the head. This revealed cortical and subcortical ischemic CVIs throughout the right hemisphere, as well as in the left precentral gyrus and left cerebellum. Intensive physiotherapy and occupational therapy were initiated, followed by slight clinical improvement. The patient was transferred to the ward in a decreased general condition but cardiopulmonary stable. In the postoperative course, there were episodes of atrial fibrillation followed by pronounced bradycardia, indicative of a bradycardia-tachycardia syndrome. On the night of the sixth postoperative day, there were high-grade blocks and pauses up to 7 seconds without antiarrhythmic therapy. Consequently, a permanent PM was implanted on the eighth postoperative day. After intensive physiotherapy and occupational therapy with slight improvement in the neurological condition of the patient, discharge to neurocardiac rehabilitation on 25.11.2017.

Patient 42
Hospitalization from 18.01.2020 to 28.01.2020
Euroscore 2: 3.9%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The cardiac biomarkers increased within the expected range. Upon awakening, a right hemiparesis was noted. A CT scan of the head showed no evidence of ischemia. The symptoms completely regressed over time, suggesting a transient cerebrovascular insult. The patient was transferred to the ward in a decreased general condition but cardiopulmonary stable. Postoperatively, the patient was consistently pecamaker-dependent due to a third-degree AV block, which led to the implantation of a pecamaker on the eighth postoperative day. Despite negative fluid balance, there were still large-volume pleural effusions on both sides, so bilateral pleural punctures were performed. Subsequent radiological checks showed a good outcome with significant regression of the pleural effusions. The patient was discharged for further cardiac rehabilitation on 28.01.2020.

Patient 43
Hospitalization from 19.07.2019 to 26.07.2019
Euro score 2: 2.7%

The separate surgical report provides details about the course of the operation. The transesophageal echocardiography showed an intraoperative ejection fraction of 65%. Postoperative transfer of the intubated patient to the intensive care unit. The patient was extubated without any issues on the evening of the surgery and was transferred to the ward in good general condition on the next day. A single postoperative episode of atial filbrillation was terminated by electrolyte substitution and escalation of beta-blockade. Follow-up chest X-rays revealed a pleural effusion on the right side, leading to a pleural puncture. Subsequent X-ray checks showed no pneumothorax with a regressing amount of effusion. The further hospital stay was uneventful. The patient was discharged home on 26.07.2019.

Patient 44
Hospitalization from 23.02.2015 to 22.03.2015
Euro score 2: 2.9%

Postoperative transfer of the intubated patient to the intensive care unit. The separate surgical report provides details about the course of the operation. Due to increasing bloody output from the pericardial and retrosternal drains, increasing catecholamine requirement, lactate rise, tachycardia, and decreased cardiac output, an echocardiography was performed, which showed a circumferential tamponading hematoma, necessitating a re-thoracotomy. The separate report provides details about this surgical course. Due to reduced alertness after cessation of sedation, the patient could only be extubated with delay on the eighth postoperative day. Clinically, a new right-sided hemi-syndrome with motor aphasia were observed. A computed tomography of the head correspondingly found an acute ischemic CVI in the left frontal-parietal area. Intensive physiotherapy and occupational therapy were conducted, although an arm-emphasized hemiparesis persisted over time. The patient was transferred to the ward cardiopulmonary stable and in good general condition. Postoperative chest X-ray showed little pleural effusion bilaterally, which was treated with negative fluid balance and diuretic administration. After intensive physiotherapy and occupational therapy with slight improvement in neurological symptoms, the patient was discharged for further neurocardiac rehabilitation on 22.03.2015.

Patient 45
Hospitalization from 03.11.2018 to 13.11.2018
Euroscore 2: 3.3%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. Laboratory findings on the first postoperative day showed a drop in central venous oxygen saturation and a livid discoloration of both lower extremities indicating malperfusion. The patient had an increasing need for catecholamines, so that a transesophageal echocardiography was performed. This revealed an organized hematoma in front of the right ventricle, and an emergency re-thoracotomy was performed. The patient was easily extubated on the second postoperative day, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. The cardiopulmonary stable patient was then transferred to the ward in good general condition. On the fifth postoperative day, the patient reported a newly developed visual impairment. A computed tomographic examination of the

head revealed an ischemic CVI in the left occipital area. The complaints regressed over the course of the hospitalization. Postoperatively, the patient developed Afib, which converted to a sinus rhythm under beta-blockade. The patient was discharged for further cardiac rehabilitation on 13.11.2018.

Patient 46
Hospitalization from 09.02.2019 to 18.02.2019
Euro score 2: 4.1%

Postoperative transfer of the intubated patient to the intensive care unit. The separate surgical report provides information about the course of the operation. The patient was easily extubated on the evening of the surgery. The patient was transferred to the ward on the second postoperative day in a decreased general state. Due to insufficient intrinsic rhythm, a pacemaker was implanted on the fifth postoperative day. On the sixth postoperative day, the temporary epicardial pacemaker wires were removed. Shortly afterwards, the patient was hemodynamically unstable. A transthoracic echocardiography revealed a hemodynamically significant pericardial effusion, necessitating an emergency subxiphoidal pericardial drainage. The postoperative echocardiographic check showed a normal cardiac finding. Incidentally, a large right-sided pleural effusion was detected, which was punctured. The final radiological control showed a good result without pneumothorax or residual effusion. Because of sensory disturbance on the right lower leg and the sole of the foot, a neurological consultation was carried out. Clinically, there was suspicion of a peripheral origin of the sensory disturbance due to the venous harvesting. Sonography showed no hematoma of the left lower leg. To complete the diagnostics, an MRI of the head was performed, which showed no pathological findings. The sensory disturbance is most likely associated with a peripheral nerve injury during vein harvesting. Otherwise, the course was uncomplicated. We were able to discharge the patient for further cardiac rehabilitation on 18.02.2019.

Patient 47
Hospitalization from 03.07.2020 to 10.07.2020
Euroscore 2: 1.7%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. The cardiac biomarkers increased within the expected range. The patient was easily extubated on the day of surgery, and the gas exchange was subsequently always sufficient under low-dose oxygen insufflation through the nasal cannula. The cardiopulmonary stable patient was transferred to the ward in good general condition on the first postoperative day without any issues. Postoperatively, no intrinsic rhythm was observed due to a third-degree AV block, so a PM implantation was carried out on the third postoperative day. The hospital stay was otherwise uncomplicated, and we were able to discharge the patient for further cardiac rehabilitation on the seventh postoperative day.

Patient 48
Hospitalization from 26.07.2021 to 07.08.2021
Euroscore 2: 7.2%

The separate surgical report provides information about the course of the operation. Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care

unit. The patient was easily extubated on the day of surgery. On the first postoperative day, a right hemiplegia and right facial paralysis were noted. An emergency CT scan of the head revealed a CVI due to acute closure of the left middle cerebral artery in the M1 segment with delayed perfusion in the entire middle cerebral artery territory. An interventional thrombectomy was performed, followed by a slight improvement in the hemiplegia, which persisted especially in the leg area. The patient was transferred to the ward in a decreased general condition but cardiopulmonary stable. Postoperatively, the patient presented with atrial fribillation and supraventricular tachycardias, alternating with bradycardia up to a frequency of 30/min, indicative of a tachycardia-bradycardia syndrome. On the 6th postoperative day, due to persistent rhythm disturbances, a pacemaker implantation was carried out. Diuretic therapy was initiated to treat perioperative fluid retention and bilateral pleural effusions. Despite negative fluid balance, persistent dyspnea occurred. Following the sonographic detection of a large-volume pleural effusion on the right, a pleural puncture was performed, resulting in a significant clinical improvement of the patient. After intensive physiotherapy and occupational therapy with slight improvement in neurological symptoms, the patient was discharged for further neurocardiac rehabilitation on 07.08.2021.

Patient 49
Hospitalization from 30.01.2019 to 07.02.2019
Euroscore 2: 2.8%

Postoperative transfer of the intubated, hemodynamically stable patient to the intensive care unit. The separate surgical report provides details about the course of the operation. The cardiac biomarkers increased within the expected range. The patient was easily extubated on the day of surgery and was transferred to the ward cardiopulmonary stable and in good general condition on the first postoperative day. On the fourth postoperative day, the patient developed atrial fribillation, which converted to a sinus rhythm with beta-blockade. The external temporary pacemaker wires could be removed after a repeat ECG control and persistent sinus rhythm. Due to postoperative hoarseness, consultants from the otorhinolaryngology department were involved. A complete paralysis of the left vocal cord with insufficient glottal closure was observed, most likely due to an intraoperative injury to the recurrent laryngeal nerve. The hospital stay was otherwise uneventful, and the patient was discharged for further cardiac rehabilitation on the eighth postoperative day.

Patient 50
Hospitalization from 23.11.2023 to 21.12.2023
Euro score 2: 1.4%

The separate surgical report provides details about the course of the operation. Postoperative transfer of the intubated patient to the intensive care unit. The patient was easily extubated on the day of surgery. After extubation, a complete left-sided hemiparesis was observed. A CT scan revealed a demarcated ischemia in the right parietal area. Supportive brain-protective treatment was provided, along with intensive physiotherapy and occupational therapy for the patient. The neurological symptoms showed slight regression but persistent left-sided paresis especially of the leg. The patient was transferred to the ward in a decreased general condition but cardiopulmonary stable. During the postoperative echocardiographic check-up, a tamponading pericardial effusion over the lateral wall of the left ventricle with a maximum diameter of 2.5 cm was noted, necessitating a subxiphoid pericardial drainage. The separate surgical report provides details about the course of this operation. Postoperatively, a third-degree AV block occurred, with pronounced bradycardia and a very low ventricular escape rhythm of 20bpm. Consequently, a permanent pacemker

was implanted. Bilateral pleural punctures were performed following radiological and sonographic confirmation of significant pleural effusions. Additionally, diuretic therapy was initiated to achieve a negative fluid balance. The final X-ray checks showed a normal finding without pneumothorax or pleural effusions. We continued physiotherapy and occupational therapy treatment during the hospitalization. The patient was discharged to neurocardiac rehabilitation on 21.12.2023.

2. Gold standard data frame

id	admission	exit	es.2	stroke	reoperation	pm	a.fib	pleural.tap	stroke.noise	pleural.tap.noise	stroke.abbreviation.noise	pm.implantation.noise	a.fib.noise	euroscore.noise
1	21.01.2020	29.01.2020	8.1	0	0	0	0	0	1	0	0	0	0	1
2	01.03.2020	14.03.2020	1.3	1	1	0	1	0	0	0	0	0	0	1
3	07.05.2021	08.06.2021	4.2	1	1	0	0	1	0	0	CVI	0	0	0
4	12.04.2022	24.04.2022	1.9	1	0	1	1	1	0	0	0	0	0	1
5	04.03.2020	12.03.2020	1.6	0	1	0	1	0	0	0	0	0	0	1
6	26.04.2022	20.05.2022	3.8	1	0	1	1	0	0	1	0	0	0	0
7	11.09.2017	29.09.2017	4.3	1	1	0	1	1	0	0	0	0	0	1
8	16.05.2023	24.05.2023	2.6	0	1	1	0	0	1	1	0	0	0	0
9	24.05.2021	31.05.2021	2.5	0	1	0	0	0	0	0	0	0	0	0
10	19.09.2015	09.10.2015	7.9	1	1	1	1	1	0	0	CVI	PM	0	0
11	15.09.2018	23.09.2018	1.3	0	0	0	1	1	0	0	0	0	AF	0
12	12.11.2020	21.11.2020	6.6	0	1	0	0	1	0	0	0	0	0	1
13	07.03.2023	01.04.2023	1.5	1	1	1	1	0	0	1	CVI	0	0	1
14	20.06.2018	08.07.2018	2.7	1	1	1	0	0	0	1	CVI	0	0	0
15	27.04.2018	23.05.2018	4.1	1	0	1	1	1	0	0	0	0	0	0
16	17.04.2022	25.04.2022	3.3	0	0	1	1	1	1	0	0	0	0	0
17	08.05.2021	21.05.2021	2.3	0	1	1	1	1	0	0	0	pecamaker	AFib	1
18	06.08.2020	19.08.2020	5.1	0	0	0	1	1	1	0	0	0	0	1
19	21.04.2015	10.05.2015	6.9	1	0	1	0	0	0	1	0	0	0	1
20	04.04.2018	06.05.2018	3.7	1	1	1	0	1	0	0	CVI	0	0	1
21	16.10.2023	04.11.2023	7.2	1	0	0	0	1	0	0	0	0	0	0
22	30.06.2016	08.07.2016	2.2	0	0	0	0	0	1	1	0	0	0	0
23	05.11.2022	23.11.2022	5.9	1	1	1	1	0	0	1	CVI	pacemker	0	0
24	30.06.2021	07.07.2021	2.7	0	0	0	1	0	0	0	0	0	AF	0
25	11.04.2020	24.04.2020	4.6	1	0	0	0	0	0	1	0	0	0	1
26	23.03.2018	19.04.2018	7.1	1	1	0	0	1	0	0	CVI	0	0	1
27	14.02.2015	22.02.2015	5.6	0	1	0	1	1	1	0	0	0	0	1
28	13.08.2023	30.08.2023	6.3	1	1	1	1	1	0	0	0	pecamaker	atial filbrillation	0
29	03.05.2017	10.05.2017	5.3	0	0	1	0	1	0	0	0	0	0	1
30	06.01.2017	15.01.2017	7.5	0	1	1	0	0	0	0	0	PM	0	1
31	18.04.2022	26.04.2022	3.6	0	0	0	1	0	1	0	0	0	AFib	0
32	20.10.2016	28.10.2016	2.8	0	0	1	0	0	1	0	0	PM	0	1
33	01.02.2021	25.02.2021	7.4	1	1	1	0	1	0	0	0	pacemker	0	0
34	20.04.2015	30.04.2015	5.1	0	1	1	1	0	1	1	0	0	fribillation	1

35	22.07.2023	29.07.2023	7.4	1	0	0	0	1	0	0	CVI	0	0	0
36	31.01.2017	09.02.2017	1.8	0	0	1	0	0	1	1	0	PM	0	1
37	10.12.2023	19.12.2023	2.9	0	0	0	1	1	0	0	0	0	AF	0
38	05.04.2021	14.04.2021	1.1	0	0	0	0	0	0	0	0	0	0	0
39	02.02.2023	10.02.2023	1.4	0	1	0	1	0	0	1	0	0	atial filbrillation	1
40	06.02.2017	24.02.2017	1.8	1	1	0	0	1	0	0	0	0	0	1
41	07.11.2017	25.11.2017	5.2	1	0	1	1	0	0	0	CVI	PM	0	0
42	18.01.2020	28.01.2020	3.9	1	0	1	0	1	0	0	0	pecamaker	0	0
43	19.07.2019	26.07.2019	2.7	0	0	0	1	1	0	0	0	0	atial filbrillation	1
44	23.02.2015	22.03.2015	2.9	1	1	0	0	0	0	1	CVI	0	0	1
45	03.11.2018	13.11.2018	3.3	1	1	0	1	0	0	0	CVI	0	Afib	0
46	09.02.2019	18.02.2019	4.1	0	1	1	0	1	1	0	0	0	0	1
47	03.07.2020	10.07.2020	1.7	0	0	1	0	0	0	0	0	PM	0	0
48	26.07.2021	07.08.2021	7.2	1	0	1	1	1	0	0	CVI	0	fribillation	0
49	30.01.2019	07.02.2019	2.8	0	0	0	1	0	1	0	0	0	fribillation	0
50	23.11.2023	21.12.2023	1.4	1	1	1	0	1	0	0	0	pacemker	0	1

3. LLM Prompt

Table 1. LLM prompt.

Prompt text	Involved variable
I will enter a fictitious text. Based on the information provided in the text please create a table with nine columns. Add a row in the table and fill each column based on the following instructions.	*All*
The first column is named “patient.id.llm”. Its value is the number following the word “Patient” in the first line of the patient medical note.	*Patient identifier*
The second column is named “admission.date.llm”. Its value is the first of the two dates in the second line of the patient medical note.	*Admission date*
The third column is named “exit.date.llm”. Its value is the second of the two dates in the second line of the patient medical note.	*Discharge date*
The fourth column is named “euroscore.2.llm”. Its value is the number following the phrase “Euroscore 2” in the third line of the patient medical note. Please remove the “%” character from the value.	*Euroscore 2*

The fifth column is named “stroke.llm”. It takes the value “1” if the patient had a stroke during hospitalization. It takes the value “0” if the patient did not have a stroke during hospitalization. Both permanent and transient strokes are defined as a stroke. Both ischemic and hemorrhagic strokes are defined as a stroke. *Stroke*

The sixth column is named “reop.for.tamponade.or.bleeding.llm”. It takes the value “1” if the patient had a reoperation for pericardial tamponade or intrapericardial bleeding during hospitalization. It takes the value “0” if the patient did not have such a complication during hospitalization. Pericardial tamponade is defined as a hemodynamically significant, large pericardial effusion or a hemodynamically significant, large pericardial hematoma. *Reoperation for cardiac tamponade or bleeding*

The seventh column is named “pm.implantation.llm”. It takes the value “1” if the patient had implantation of a pacemaker during hospitalization. It takes the value “0” if the patient did not have implantation of a pacemaker during hospitalization. *Pacemaker implantation*

The eighth column is named “a.fib.llm”. It takes the value “1” if the patient had at least one episode of atrial fibrillation during hospitalization. It takes the value “0” if the patient did not have any episodes of atrial fibrillation during hospitalization. *Atrial fibrillation*

The ninth column is named “pleural.puncture.llm”. It takes the value “1” if the patient underwent pleural puncture during hospitalization. It takes the value “0” if the patient did not have a pleural puncture during hospitalization.	*Pleural tap*
If no explicit information is provided in the text for any of the columns “stroke.llm”, “reop.for.tamponade.or.bleeding.llm”, “pm.implantation.llm”, “a.fib.llm” and “pleural.puncture.llm”, you can assume that the value of each column is “0”.	*All*
You do not have to explain the results. Just provide the requested table.	*All*
“Text of patient medical note”	*All*

EuroSCORE: European system for cardiac operative risk evaluation; LLM: large language model.

The instructions and the medical note were entered simultaneously in each LLM prompt.

4. RoBERTa base prompt

Table 2. RoBERTa base prompt.

Prompt text	Involved variable
Please provide the value of “patient.id.llm”. Its value is the number following the word “Patient” at the beginning of the patient medical note.	*Patient identifier*
When did the patient enter the hospital?	*Admission date*
When did the patient exit the hospital?	*Discharge date*
What was the Euroscore of the patient?	*Euroscore 2*
Had the patient a stroke during hospitalization? Both permanent and transient strokes are defined as a stroke. Both ischemic and hemorrhagic strokes are defined as a stroke.	*Stroke*
Had the patient a reoperation for pericardial tamponade or intrapericardial bleeding during hospitalization? Pericardial tamponade is defined as a hemodynamically significant, large pericardial effusion or a hemodynamically significant, large pericardial hematoma.	*Reoperation for cardiac tamponade or bleeding*

Had the patient a pacemaker implantation during hospitalization?	*Pacemaker implantation*
Had the patient any episodes of atrial fibrillation during hospitalization?	*Atrial fibrillation*
Had the patient a pleural puncture during hospitalization?	*Pleural tap*

EuroSCORE: European system for cardiac operative risk evaluation.

Each medical note was entered as the context for each question answering prompting session. Each question was entered separately for each question answering prompting session.

5. Additional LLM metrics

Table 3. Additional LLM metrics.

	Entity extraction Accuracy	Classification Accuracy	Specificity	Recall
Claude 3.0 Opus	1	0.992	0.984	1
Claude 3.0 Sonnet	0.99	0.988	0.976	1
Claude 2.0	1	0.98	0.96	1
GPT 4	1	0.98	0.984	0.976
Claude 2.1	1	0.976	0.952	1
Gemini Advanced	0.995	0.972	0.984	0.96
PaLM 2 chat bison	1	0.968	0.952	0.984
Llama 3 - 70b	1	0.968	0.936	1
Gemini	0.98	0.94	0.96	0.92
GPT 3.5	1	0.908	0.832	0.984
Claude 1.0	0.99	0.884	0.912	0.856
Llama 2 - 70b chat	1	0.864	0.784	0.944
Llama 3 - 8b	0.88	0.92	0.88	0.96
Claude 3.0 Haiku	0.945	0.868	0.736	1
Llama 2 - 13b chat	1	0.684	0.624	0.744
RoBERTa base SQuAD	0.8	0.696	0.992	0.4
Cohere command	0.88	0.532	0.576	0.488
Llama 2 - 7b chat	0.895	0.492	0.752	0.232
Mistral 7b	0.78	0.42	0.44	0.4

LLM: large language model.

6. LLM metrics confidence intervals (95%)

Table 4. LLM metrics confidence intervals (95%).

	TP 95% CI	TN 95% CI	FP 95% CI	FN 95% CI	TT 95% CI	Accuracy 95% CI	Recall 95% CI	Precision 95% CI	F1 95% CI
Claude 1.0	(92-121)	(99-129)	(5-18)	(11-26)	(408-429)	(0.906-0.953)	(0.793-0.909)	(0.851-0.954)	(0.835-0.919)
Claude 2.0	(111-140)	(105-135)	(1-10)	(0-0)	(440-449)	(0.979-0.997)	(1-1)	(0.923-0.992)	(0.959-0.996)
Claude 2.1	(111-140)	(104-134)	(2-11)	(0-0)	(439-448)	(0.975-0.995)	(1-1)	(0.915-0.985)	(0.955-0.992)
Claude 3.0 Opus	(111-140)	(107-137)	(0-5)	(0-0)	(445-450)	(0.988-1)	(1-1)	(0.96-1)	(0.979-1)
Claude 3.0 Sonnet	(111-140)	(106-137)	(0-7)	(0-0)	(440-449)	(0.977-0.997)	(1-1)	(0.948-1)	(0.973-1)
Claude 3.0 Haiku	(110-141)	(77-107)	(22-44)	(0-0)	(394-417)	(0.875-0.926)	(1-1)	(0.725-0.857)	(0.84-0.923)
Cohere command	(48-74)	(58-85)	(41-65)	(50-77)	(290-328)	(0.644-0.728)	(0.404-0.58)	(0.444-0.622)	(0.427-0.582)
Gemini	(101-130)	(105-134)	(1-10)	(5-17)	(421-439)	(0.937-0.975)	(0.865-0.962)	(0.918-0.991)	(0.904-0.966)
Gemini Advanced	(105-135)	(108-137)	(0-5)	(2-10)	(436-447)	(0.968-0.993)	(0.923-0.985)	(0.956-1)	(0.949-0.988)
GPT 3.5	(109-139)	(90-118)	(12-30)	(0-5)	(418-435)	(0.928-0.966)	(0.959-1)	(0.798-0.91)	(0.879-0.947)
GPT 4	(107-137)	(107-137)	(0-5)	(0-7)	(440-449)	(0.977-0.997)	(0.946-1)	(0.959-1)	(0.96-0.995)
Llama 2 - 7b chat	(19-39)	(79-108)	(20-42)	(81-112)	(283-319)	(0.628-0.708)	(0.156-0.312)	(0.355-0.618)	(0.222-0.401)
Llama 2 - 13b chat	(78-109)	(63-92)	(36-59)	(22-42)	(356-387)	(0.791-0.86)	(0.663-0.819)	(0.589-0.737)	(0.637-0.761)
Llama 2 - 70b chat	(104-133)	(84-112)	(18-36)	(2-12)	(403-427)	(0.895-0.948)	(0.9-0.981)	(0.75-0.874)	(0.833-0.913)
Llama 3 - 8b	(104-135)	(95-125)	(7-23)	(1-10)	(393-418)	(0.873-0.928)	(0.922-0.991)	(0.833-0.944)	(0.886-0.956)
Llama 3 - 70b	(110-141)	(102-132.025)	(3-14)	(0-0)	(437-447)	(0.971-0.993)	(1-1)	(0.896-0.977)	(0.945-0.988)
Mistral 7b	(38-63)	(42-68)	(57-84)	(61-90)	(242-280)	(0.537-0.622)	(0.311-0.491)	(0.327-0.511)	(0.324-0.487)
PaLM 2 chat bison	(109-138)	(103-134)	(2-11)	(0-5)	(436-447)	(0.968-0.993)	(0.959-1)	(0.916-0.985)	(0.945-0.988)
RoBERTa base SQuAD	(38-62)	(108-138)	(0-3)	(61-89)	(316-352)	(0.702-0.782)	(0.316-0.484)	(0.933-1)	(0.477-0.651)

CI: confidence intervals; LLM: large language model.