

Catatonic stupor and seizures after open-heart surgery: Case report

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Abstract

Catatonic stupor and seizures after open-heart surgery are a very rare, unusual manifestation, which can be clinically confused with a real cerebral stroke. Clinical apparent seizures after open-heart surgery, are alarming and a great concern for the doctors and patient's family.

In cardiac surgery procedures, we fear neuropsychiatric complications, in spite of the right surgical indication and simple procedure, without being able to anticipate and prevent them. The presence of these complications is not always associated with a neurologic injury and they spontaneously disappear after a couple of days.

It is of a major importance to conduct accurate investigation and differential diagnosis, for a better treatment and prognosis expectation. In our case, we suspected a subclinical epileptic status, based on the family medical history of the two sons, with clinical manifestations of epilepsy.

Introduction

Despite important advances in surgical technique and extracorporeal circulation technology, the open-heart surgery still remains a major event that has an important impact on the patient's life. The effort of doing some of the heart surgeries without a heart-lung machine, did not eliminate the rate of brain complications [1]. Seizures and catatonic stupor can appear, associated or not with a real cerebral stroke.

It is of a utmost importance to conduct an accurate investigation and differential diagnosis, for a better treatment and prognosis expectation. All postoperative complications (bleeding, pneumothorax, infection) and especially neurological ones, increased hospitalization and hospital mortality [3].

In our case, we suspected a subclinical epileptic status, based on the family medical history of the two sons, with clinical manifestations of epilepsy and clinical evolution on the next days.

Case report

A 66-year-old female was admitted with an ascending aortic aneurysm 5.5 cm, mild aortic valve regurgitation, chronic atrial fibrillation, dyslipidemia, obesity III degree. The patient had no prior history of neurologic dysfunction or seizures and was investigated by clinical examination, chest x-ray, echocardiography, Echo Doppler carotid, CT-multislices and coronarography. All complementary medical examination, preoperatively checklist, have been made; dental examination, gynecology, ORL, SARS-CoV2 negative, where done, routinely. Normal coronary arteries, after angiography.

The open-heart procedure was performed on 21.09.2021/OP-419, by median sternotomy, aortic cannulation and single stage venous cannula, normothermia, antegrade cardioplegia with St Thomas solution. Surgical procedure consisted of ascending aortic aneurysm resection and replacement by a JOTEC Flow-Weave Bioseal 34 mm diameter, just at the junction, after aortic valve inspection and checking with saline solution. Aortic clamping was short, 33 minute, uneventful (Figure 1).

In the first hours in the Intensive Care Unit, the patient was stable with minimal dose of inotropic supports and was extubated the next morning. Next day, the patient was found to be slack, without moving her right hand and foot, gradually becoming stuporous, with episodic seizures. On the second postoperative day, she was addressed for CT-brain and neurological examination. During all this time, the patient was hemodynamically stable, blood gases, serum electrolytes, liver function tests, and transthoracic echocardiography were within normal limits. Clinical neurological examination revealed the muscular rigidity of both upper and lower limbs and CT-brain scan was repeated on the 4th postoperative day. The same, normal result, without any neurological injury. Finally, the patient was diagnosed with catatonic stupor associated with seizures, but not cerebral stroke. Looking back on the family medical history, both sons, were diagnosed with epileptic disease, but not the mother. Subsequent postoperative evolution was slow, but without other events and the patient was discharged 14 days later.

Discussion

Cerebral postoperative strokes in the first days after open-heart surgery is a major complication and concern, having a high (20 %) mortality, compared with 2 - 4%, for patients without stroke. They are a lot of neurological injuries after cardiac surgery; encephalopathy, cognitive-behavioral disturbances, memory disorder, delirium, catatonia, seizure, but the stroke and coma are the most disastrous.

Preoperative checking predictors of neurological injury after open-heart surgery are: previous stroke, carotid stenosis, aortic and cerebral

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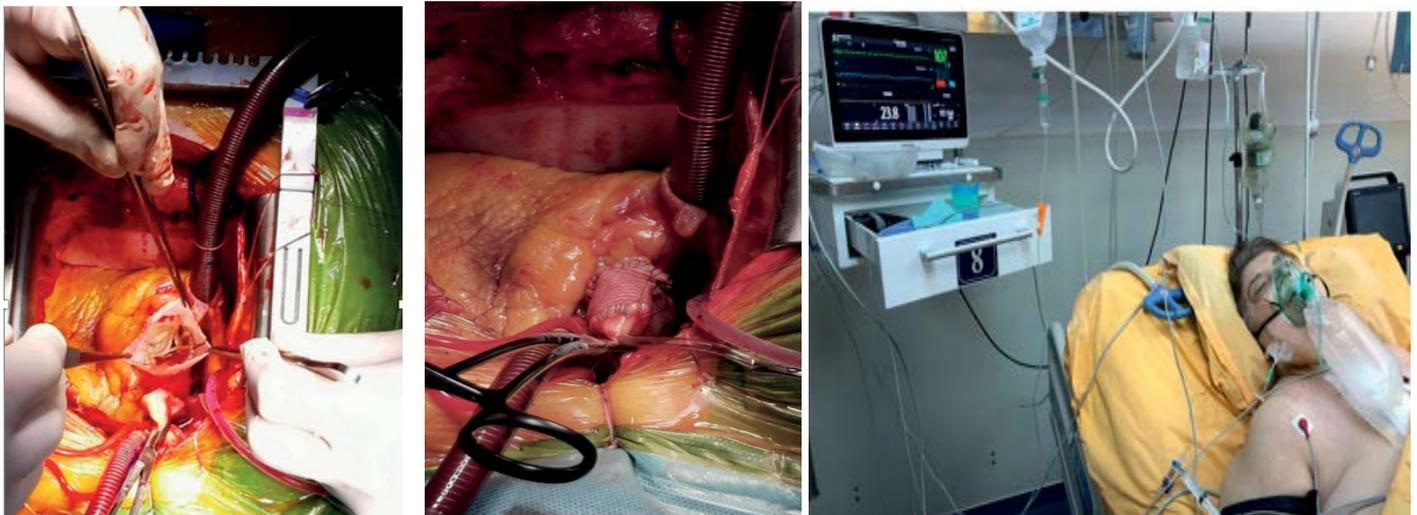


Figure 1: Ascending aortic aneurysm, resection and JOTEC Flow-Weave Bioseal 34 mm, interposition end-to-end. A simple procedure and postoperative catatonic stupor

vessel atherosclerosis, atrial fibrillation, age over 65 years (four time higher), gender (women appear to have a higher incidence).

Catatonia, as a neurogenic motor immobility, was first described in 1874 by Kahlbau as one of the important manifestations of schizophrenia but can be present in other diseases as well; injury to the central nervous system due to stroke, thyroid and adrenal gland diseases, trauma, vasculitis, cerebral tumor, anoxia during open-heart surgery [2]. A catatonic-like state may also be caused by epilepsy.

Seizures, following cardiopulmonary bypass, are an immediate and alarming indication for neurologic and CT/MRI investigation [3]. Drug or alcohol addiction, withdrawal from alcohol or from medications (such as benzodiazepines) can contribute to postoperative seizures. The age over 65 years, ascending aorta atherosclerosis and surgery, total circulatory arrest, tranexamic acid are independent factors for seizures. For cerebral stroke and ischemic injury, MRI is more sensitive than CT scanning [4].

Anxiety and depressive symptoms, which occurred in a significant percent 20-30%, had an adverse impact on patient quality of life, but were gradually improved with time [5].

One study shows a surprisingly high prevalence 22% of clinically silent epileptic seizures after open-heart cardiac surgery and epileptic 38% of patients with EEG monitoring, not clinically observed by doctors [6].

The clear diagnosis of the paroxysmal events, like seizures, as epileptic or non-epileptic is of major therapeutic importance, early and late postoperative. Preoperative anamnesis and discussion with relatives, can give us a neuro-psychic profile of the patient [6].

The trend in ICU for encephalopathy, seizures, catatonia is general sedation and psychoactive medications. But this could be worsening delirium in elderly patients. A commonly used drug, haloperidol, is associated with potential risk of ventricular arrhythmias and prolongs

recovery from stroke [7]. A better choice for resistant catatonia, is topiramate (carbon anhydrase inhibitor). Suspicious towards a subclinical or unrecognized epilepsy, you must refer the patient to a neurologist [8]. Seizure after cardiac surgery still remains an enigma.

Conclusion

Our patient did not have a cerebral stroke and was recovering well, postoperatively. She developed acute catatonic stupor, like hemiplegia on the right side and seizures which got relieved gradually in one week. Everything has an explanation, but sometimes despite sophisticated investigations, they remain unknown.

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