SUMMARY

We present a case of a 47-year-old man who was admitted to the cardiac surgery department with a clinical picture of heart failure and multiple Tu-formations in three of the heart cavities. He underwent extraction of the tumor formations from the heart cavities with an excellent outcome.

Keywords: Cardiac masses, heart chambers, cardiac tumors, thrombus formation,

BACKGROUND

Tumor masses in the cardiac cavities can represent various lesions, both benign and malignant. In terms of differential diagnosis, benign, primary malignant, secondary - metastatic heart tumors, and thrombus formation should be considered. [1]. Intracavitary thrombi are the most common tumor masses. [2]. A number of conditions, which leads to dysfunction of the heart, expressed in atrial dilatation and akinesia of segments of the ventricular walls (ischemic cardiomyopathy, alcoholic cardiomyopathy, acute myocardial infarction, left ventricular aneurysm, atrial fibrillation, etc.), can secondarily lead to the formation of intracavitary thromboses. However, cases presented with multi-cavity thrombi are relatively rare.

CASE PRESENTATION

A 47-year-old patient was admitted from another surgical clinic where he was treated for chest trauma. One month after the trauma, fatigue and shortness of breath began to appear. On this occasion, he was admitted to thoracic surgery, where they found fractures of four ribs on the right. The patient was hospitalized twice in the specialized clinic, and thoracentesis was performed on the left side due to a large pleural effusion. Re-drainage of the left pleura was required due to the diagnosis of empyema. At a later stage, decortication of the pleura on the left and atypical resection of the left lung - 10th segment, due to the presence of a lung abscess, were performed. Three days before hospitalization in the cardiac surgery department, cyanosis of the toes was observed. On this occasion, CT - aortography was performed, which proved parietal thrombosis of the abdominal aorta but without significant narrowing of the aortic lumen.

Concomitant diseases: dilated cardiomyopathy of probable alcoholic origin, parietal thrombosis of the abdominal aorta, paroxysmal atrial fibrillation, acute arterial insufficiency of the lower extremities, chronic congestive heart failure, NYHA Class III.

Physical examination: asthenic habitus, subfebrile – 37.5°C, Emphysematous chest with evidence of subcutaneous emphysema on the left. Bilaterally weakened vesicular breathing without added wheeze. Blood pressure 105/60 mmHg. Diminished peripheral arterial pulsations pretilially and retromalleolarly, with the skin of the distal phalanges of the toes being cyanotic.


Preoperative Chest X-Ray: dilated heart shadow, inflammatory changes in the lung parenchyma bilaterally, a small pneumothorax on the left.

Preoperative computed tomography examination of the chest with contrast material, in which multiple tumor formations in the cardiac cavities are noted.

Dilated heart cavities, partial pneumothorax on the left. Inflammatory changes in the lung parenchyma bilaterally. Small pericardial effusion. Fig. 1.

The echocardiographic evaluation revealed significantly depressed left ventricular pumping function with EF – 35%, end-diastolic volume 190ml, end-systolic volume 120ml. No valvular dysfunctions were found. Multiple, well-rounded and fixed parietal tumor masses in the left ventricle, the right ventricle and the left atrium measuring up to 5.5/4.5cm. Fig 3.

The laboratory data shows leukocytosis – 17.4, decreased Hb values – 114, low platelet values – 45x10y , high CRP values – 87.7, high D-dimer values – 1206, high AST and ALT values, 246.1 and 423.2 respectively.

After consultations with a gastroenterologist, vascular surgeon and hematologist, it was concluded that liver failure underlies anemia and thrombocytopenia, as well as microembolization responsible for macroscopic changes in the skin of the fingers of the lower extremities.

Antibiotic treatment was started, infusion of platelet mass, fraxiparin subcutaneously, methylprednisolone in doses of 2x40 mg, hepatoprotectors. Subsequent echocardiography showed no change in the number and size of thrombomas located in the heart cavities.
For our patient, taking into consideration his high risk profile, the failed conservative therapy after a discussion between cardiology and cardio surgery teams, open cardiac surgery approach was considered most appropriate.

**Surgery:**

Median sternotomy and pericardiotomy were performed. The ascending aorta and right atrium were typically cannulated. In the conditions of extracorporeal circulation and cardioplegic cardiac arrest, access to the left heart cavities was made through the left atrium. A 6/4 mm tumor was found in the left atrium, which was excised. Three other similar formations of the same consistency were found in the left ventricle, which were excised. Access to the right heart cavities was made through the right atrium. A right ventricle was observed through the tricuspid valve, in which a mass similar to that found in the left ventricle was also found and excised. The dilatation of the tricuspid valve annulus was corrected by a Key annuloplasty.

From the examined histological material, thrombus mixtus is diagnosed. Fig. 4.
Fig. 4. Tumor formations of the left atrium, left and right ventricle.

Fig. 5. Postoperative Echocardiography, which shows the heart cavities free of thrombotic masses.

In the early postoperative period, the patient was hemodynamically stable. Early postoperative rehabilitation to the level of self-care. No increased enzyme markers of myocardial necrosis and significant ECG dynamics were registered. Also wound complications and recruitment of pleural and pericardial effusions requiring surgical treatment were not observed. The echocardiographic examination at discharge did not detect tumor formations in the cardiac cavities, but the dilated left ventricle remained with depressed pumping function - EF 35%, end-diastolic volume/end-systolic volume - 190/123ml.

DISCUSSION:
Thrombotic masses in cardiac cavities carry a risk of high mortality, most often with embolization. [1].

The reasons for this can be diverse, such as acute myocardial infarction, chronic left ventricular aneurysm, infective endocarditis, atrial fibrillation, dilated cardiomyopathy, delayed cardiac blood flow, or varicose veins of the lower extremities. Thrombi diagnosed in the right heart chambers can be divided into two groups. The first is transit, highly mobile thrombi in the presence of deep venous thrombosis, and the second group represents mobile thrombi fixed to the wall of the respective cavity [2]. Left
Ventricular thrombi usually form in the early phase of myocardial infarction. They are located most often in the cardiac apex after extensive anterior infarction, with a frequency of 10% to 40% [3]. In the presented clinical case, no preconditions, such as deep vein thrombosis, were found to explain the presence of right ventricular thrombi. The shape of the thrombotic substances, as well as their strong connection to the wall of the corresponding heart cavity, give us reason to believe that these mixed thrombi were formed primarily in the left atrium, left ventricle, and right ventricle. We consider the main reason for this to be dilated cardiomyopathy with the most likely alcoholic genesis with a pathophysiological mechanism - stagnation of blood flow in the heart cavities in the presence of biventricular hypokinesia. Different mechanisms have been suggested for the development of alcoholic cardiomyopathy, from mitochondrial damage and oxidative stress to significant nutritional deficiency, concomitant with tobacco abuse and existing comorbidities leading to ventricular dysfunction [4]. Regardless of the cause, this rare multicavity thrombus formation requires prompt diagnosis and appropriate treatment. Timely performed imaging diagnostics, echocardiography and computed tomography of the chest and abdomen lead to the diagnosis of primary thrombosis of the heart cavities. If there is uncertainty in the interpretation of the Echocardiographic and CT data regarding the degree of involvement of the myocardial wall, it is appropriate to perform an MRI [5]. MRI is considered more reliable in the determination of thrombi in the left ventricle compared to the picture given by the Echocardiographic evaluation [6].

CONCLUSION

This is a rare case of dilated cardiomyopathy, complicated with a multichamber thrombi detected with contrast-enhanced CT and TEE. The administration of anticoagulants without any result make us believe that the optimal choice of treatment, in this case, was surgery, with the extirpation of tumor formations and subsequent drug therapy.

REFERENCES:


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Address for correspondence:
Vladimir Kornovski MD
Cardiac surgery department, Heart and Brain Hospital, Burgas, 29, Health Str., Burgas, Bulgaria.
E-mail: kornovski@hotmail.com