ORIGINAL ARTICLE

Metastatic Heart Tumor under the guise of Hemorrhagic Pericarditis

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ABSTRACT

Tumors of the heart are rare diseases. Diagnosis of these diseases poses great difficulties to clinicians. Amongst those who died of malignant tumors, the frequency of heart metastasis is 5%. Out of these, most entities are diagnosed with autopsy. This is due to the erased clinical picture which is mostly represented by non-specific symptoms. Even the use of the latest instrumental research methods does not accurately diagnose this pathology. Tumors of the heart can be primary and secondary. Primary are extremely rare, whereas secondary (metastatic) are 40 times more common. Heart metastasis can be carried out in several ways: from neighbouring organs, through the inferior vena cava or pulmonary veins, in a lymphogenous and haematogenous manner. This article provides a clinical example of a metastatic tumor of the heart. The patient was referred to the thoracic department with diagnosis of haemorrhagic pericarditis. During pericardioscopy, a dense formation was detected on the anterior surface of the myocardium. The patient needed further evaluation at the oncological dispensary / diagnostics Centre. This clinical case outlines the absence of specific symptoms of cardiovascular system and a rare pathway of metastasis.

Keywords: Heart tumors, metastatic heart tumor, secondary malignant heart tumor

INTRODUCTION

Tumors of the heart are considered rare cases in clinical practice. They are divided into primary and secondary[1]. Primary heart tumors are quite rare and, according to some authors, their frequency is 0.001-0.28%, most of them (70-80%) are benign (myxoma, lipoma, fibroma, hamartoma, etc.)[4].

Compared to primary heart tumors, secondary tumors are 40 times more common[3]. In most cases, the primary lesion is in the bronchi and mammary gland, and metastasis in the heart is often observed with leukaemia[2]. With cutaneous form of melanoma, heart metastases account for 4.4%[8]. Very rarely, the primary tumor is located in the colon, stomach, kidneys, and ovaries[6]. In the diagnosis of heart tumors there are great difficulties. The clinical picture is more dependent on the size and location of the tumor than on the histological type. Most patients present nonspecific complaints, such as general weakness, weight loss, shortness of breath, and fever. Complaints from the cardiovascular system are most often absent.

An objective examination is not informative enough. Depending on the location of the tumor, different variants of the cause of the disease are possible, manifesting as mitral stenosis, ventricular failure, various cardiac arrhythmias, and thromboembolism of the branches of the pulmonary artery. An objective investigation may not reveal any changes. In a general blood test, normocytic, normochromic or haemolytic anaemia, polycythemia, thrombocytosis, leukocytosis and increased ESR are possible[6]. Echocardiography is one of the best methods for diagnosing heart tumors; it is the most sensitive to neoplasms of the endocardium and pericardium. Computed and magnetic resonance imaging makes it possible to characterize the size and structure of the tumor, the state of neighbouring organs and soft tissues[6]. Angiocardiography is associated with a risk of thromboembolic syndrome[6]. For the diagnosis of the primary tumor, it is possible to determine special tumor markers (BCA225, CEA, CA125, CA19-9). With their help, you can detect cancer of the colon, breast, lung and ovaries. However, the sensitivity of these phenotypes is about 32-39%[8]. With autopsy, secondary heart tumors are detected in 0.001-0.28%[6].

However, these data cannot be considered fully reliable, since in some cases of fatal outcomes autopsy is not performed. The objective of the study was to demonstrate a rare clinical case of metastatic myocardial damage in a patient with kidney cancer.

MATERIAL

A 63-year-old patient was admitted to the pulmonology department of GBU RO OKB with complaints of severe shortness of breath with slight physical exertion, tachycardia, and general weakness. He has a history of chronic obstructive pulmonary disease (COPD) for a long time. The present exacerbation was about 7 days when the above complaints were observed. Upon admission to the hospital, the general condition of the patient was moderate/ satisfactory. Objectively: in the lungs, weakened vesicular breathing, wheezing on both sides, Respiratory Rate (RR) 22 per min, and SpO_2 of 92%. Heart sounds were muffled, the rhythm was regular with a heart rate of

120 beats per minutes, and B.P of 140/80 mm Hg. An X-ray computed tomography of the chest organs (CT) was performed. On the right at the apex of the lung a lesion of 4mm was seen, on the left in the lower lobe in S9 there was a lesion of 7 mm, in other parts of the lung no additional formations were detected. Pulmonary pattern rebuilt as a result of pneumosclerosis, pulmonary tissue of conventional pneumatisation. The trachea, the main, lobar segmental and sub segmental bronchi are traceable of normal diameter and passable. The intrathoracic lymph nodes are moderately enlarged, pretracheal, in the upper floor of the anterior mediastinum, up to 8 mm along the short axis, in the area of the tracheal bifurcation up to 12 mm thick. Additional formations in the mediastinum were not identified. There is no fluid in the pleural cavity. A large amount of fluid up to 23 mm was noticed in the pericardial cavity. There are no bone destructive changes.

RESULTS

The hearth on the right at the apex and on the left in the lower lobe in S9 shows diffused pneumosclerosis, exudative pericarditis, and quantitative lymphadenopathy. When examining external respiratory function for lung disorders, lung ventilation disabilities of the restrictive type, moderately severe obstructive disorders were revealed. An ECG recorded a decrease in voltage, severe sinus tachycardia, and an enlargement (dilatation) of the left atrium (LA).

Ultrasound of the abdominal cavity - right kidney 102x48mm, TSP17 mm, CSF is not expanded. The left kidney is 114x55mm, the TSP is 1 mm, and CSF is not expanded in the projection of the middle segment with prolapse into the renal sinus. A volumetric solid formation was determined with 55x76x73 mm contouring. No metastatic lesions of other abdominal organs were detected.

ECHO - signs of a volumetric formation of the left kidney.

MRI of the retroperitoneal space: in the posterior region of the middle third of the left kidney was a prolapse into the renal sinus with formations of tuberous contours of heterogeneous nature which increased and decreased at signal T"-I and lowered at T1-VI, measuring 5.9x5, 5x6.0 cm.

Examined by a urologist, the Conclusion was; Cancer of the left kidney T2NxM0. Surgical treatment was indicated in a planned manner with prior consultation of a cardiologist.

Fibroesophagogastroduodenoscopy: Superficial gastritis, Cardia insufficiency and reflux – esophagitis were observed. During echocardiography, a significant amount of a homogeneous fluid (800 ml) was determined in the pericardial cavity. The sizes of the chambers of the heart were not increased. Minor regurgitation of the mitral (MV) and tricuspid valves (TV), compaction of the ascending aorta and signs of pulmonary hypertension were observed. Ejection fraction was 58% with signs of cardiac tamponade.

A complex conservative therapy was carried out at the pulmonology department: intravenous administration of perdnisolone, aminophylline, ceftriaxone 2.0g per day, azithromycin 500 mg per day; lazolvan (mucolytic), berodual (beta-2 adrenomimetic) through a nebulizer, then spiriva (m-cholinolytic) 18 µg per day, per os prednisone with 20 mg according to the scheme up to 5 mg, omez(omeprazol) 40 mg per day, verapamil 160 mg per day, losap(angiotension II inhibitor) 25 mg per day, libexin(bronchodilator) 100mg 2 times daily.

The thoracic surgeons performed pericardial puncture by Larry and about 700 ml of serous-hemorrhagic discharge was drained. The patient's condition improved, shortness of breath decreased.

Control echocardiography: Slight myocardial hypertrophy of the right ventricle, slight increase of the left atrium and minor regurgitation of mitral valve (MV). Signs of pulmonary hypertension compared with the previous ECOCG show positive dynamics, a decrease in pericardial fluid to 500 ml, and an increase in ejection fraction to 63%.

In the analysis, the pericardial fluid was red, turbid, 18.8% protein, and a positive Rivalta test.

Precipitate microscopy: erythrocytes - completely, white blood cells 15 in s / sp, 11% segmented, lymphocytes 885, plasma cells - 10%, mesothelial cells 2-4 in s / sp, APTT 26.4, INR 1.01, prothrombin index 0.99.

The patient was discussed at a multidisciplinary commission, for surgery (video thoracoscopy, pericardial fenestration) was transferred to the surgical thoracic department of GBU RO OKB. Upon admission to the department, the diagnosis: Acute exudative hemorrhagic pericarditis was indicated. Chronic obstructive pulmonary disease, mixed form, moderate (II art., GOLD), clinical group B with exacerbation. DN 0. C-r of the left kidney. T2NxM0. Hypertension II st. 2nd group. 3rd risk with Herpes zoster. During control ultrasound of the heart, tachycardia of 113 beats per min was revealed. In the pericardial cavity, about 700 ml of fluid was also seen. The deformed wall of the right ventricle is regarded as possible pericardial thrombi.

Ultrasound of the pleural cavities - On the left is the accumulation of a homogeneous fluid V-110-150 ml. On the right, the same contents of V - 1000-1300 ml. In the pericardial cavity, up to 1 litre of fluid was revealed.

General clinical laboratory tests are within normal limits.

Under general anaesthesia with intubation of the trachea with a double-lumen tube under conditions of one-lung ventilation, video thoracoscopy was performed on the right.

The port for the camera is installed in the 7th intercostal space on the posterior axillary line. Two 5mm ports for working tools are placed in the 8th and 6th intercostal spaces along the anterior axillary line.

When revising the organs of the chest cavity, a strained pericardium is revealed. Pericardiotomy was performed in the projection of the right ventricle; about 600 ml of serous hemorrhagic fluid was evacuated from the pericardial cavity. A section of the pericardium was excised and a fenestration opening of a triangular shape with a base of about 4 cm was formed. When examining the metastatic lesion of the pleura, no pericardium was revealed. However, with pericardioscopy, an additional dense formation originating from the myocardium, immobilized, extending to the orifice of the superior vena cava, was visualized, and not connected with the parietal pericardium **(Fig. 2, Fig.3)**. It was decided to refrain from a biopsy due to severe contact bleeding.

The pleural cavity is drained by one drainage tube through the lower thoracoport. The postoperative period

was uneventful. Symptoms of exudative pleurisy stopped. The patient was discharged in a satisfactory condition 10 days after surgery and was referred to an oncologist to resolve the issue of surgery on the left kidney.

Fig. 1: Ultrasound of the heart

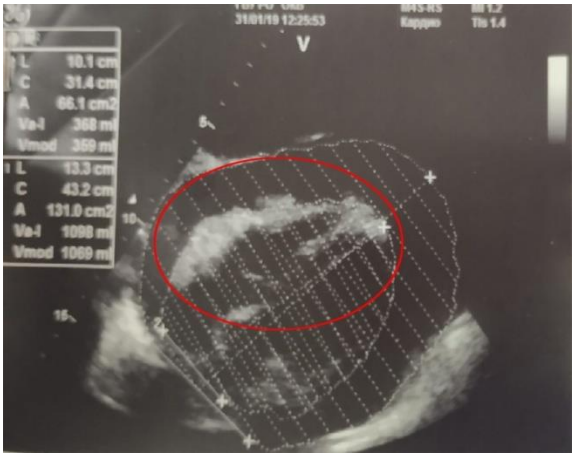


Fig 2**:** Intraoperative photo

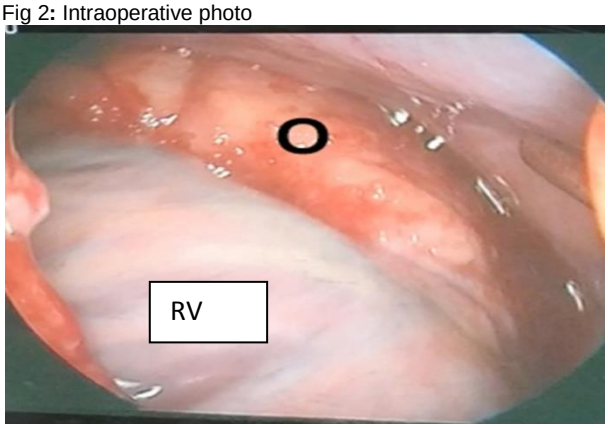
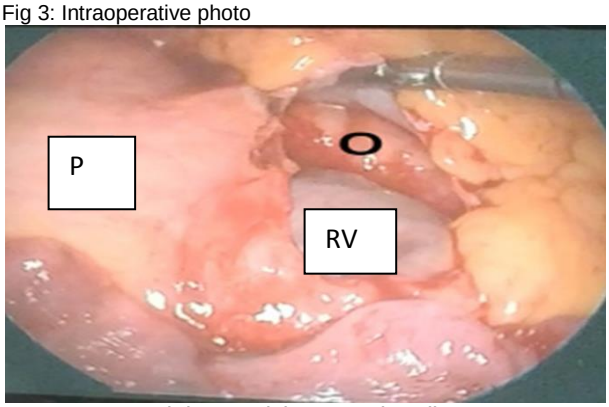


Fig 3: Intraoperative photo



O:Tumor, **RV:** right ventricle, **P:** pericardium

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DISCUSSION

When initially seeking medical help in patients with malignant tumors of the kidney, distant metastases are diagnosed in 25-30% [9]. Metastases of malignant tumors in the heart are quite rare, and often diagnosed only with autopsy (up to 20%) [8]. According to the American Anti-Cancer Community, the 5-year survival rate for patients with heart tumors is about 16% [5]. Unfortunately, surgical treatment of these neoplasms is extremely difficult and is associated with high mortality [7].

CONCLUSION

The given clinical observation demonstrates a rare case of metastatic myocardial damage in primary cancer of the left kidney, manifested by nonspecific clinical symptoms of acute exudative pericarditis.

Conflict of Interest: The authors declare no conflicts of interest.

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