Surgical treatment of 2 cases of primary cardiac malignant tumor

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Abstract

Cardiac tumors are a rare disease in clinical practice. Two patients with primary cardiac malignancies were admitted to our hospital from May 2020 to July 2020. The first patient's heart tumor is non-Hodgkin's lymphoma, which originated in the right atrium and invaded part of the right atrium and superior vena cava. The tumor was completely removed and the right atrium and superior vena cava were reconstructed after surgery. The prognosis of the patients after chemotherapy is fair. The second patient's tumor also originated in the right atrium, which was an epithelioid hemangioendothelioma, it was highly malignant and had a wide range of tumor invasion. The right atrium, left atrium, right ventricle, aortic root, and superior and inferior vena cava were all involved and could not be completely surgically removed, so the patient's prognosis is poor.

Surgical treatment of 2 cases of primary cardiac malignant tumor

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【**Keywords**】 cardiac malignancy; surgical treatment; prognosis

Introduction

Cardiac tumors are a rare disease in clinical practice. Generally, they can be divided into primary cardiac tumors and secondary cardiac tumors according to their sources; benign and malignant according to their degree of differentiation. According to statistics, the clinical incidence of primary cardiac tumors is about 0.02%, of which 25% are primary malignant cardiac tumors [1-2]. Primary malignant cardiac tumors have poor clinical manifestations and high misdiagnosis rates. Some patients have tumors that are difficult to surgically remove and have poor clinical prognosis[3].

Method

Two patients with primary cardiac malignancies were admitted to our hospital from May 2020 to July 2020.,Both patients were treated with surgery,but one of the patients was difficult to remove due to extensive tumor invasion. The reports are as follows(We have obtained the patient's verbal informed consent):

Case 1 , the patient, male, 67 years old, was admitted to the hospital for " Chest pain for 1 week". Physical examination: T 37.5, BP 128/76mmHg, P 89 times/min. The heart circle is slightly enlarged, the heart rate is 89 beats/min, the rhythm is uniform, and the 2/6 diastolic murmur can be heard in the precordial area. Videography examination: Echocardiogram (Figure 1-1) indicates: the right atrium occupies space, consider myxoma. Chest CT (Figure 1-2) suggests that the right atrium occupies a large space, and myxoma

should be considered. Laboratory examination: Ferritin SF (tumor marker) 745.7ng/ml (reference range 30-4007ng/ml). Clinical diagnosis: right atrium space-occupying lesions. After perfecting the preoperative preparation, surgical treatment under general anesthesia and low-temperature cardiopulmonary bypass (conventional median thoracotomy, ascending aorta, superior and inferior vena cava to establish cardiopulmonary bypass. Block the ascending aorta, induction of cardiac arrest, and a right atrial incision, a size of about 55mm×50mm×45mm tumors, irregular in shape, lobulated, tough in texture, tightly adhered to part of the right atrium wall and involved in part of the superior vena cava, surrounded by thrombosis, the tumor is infiltrating growth, suspected of cardiac malignancy. Carefully explore the surrounding tissues of the tumor, complete removal of the tumor together with part of the right atrium and superior vena cava tissue, remove the thrombus around the superior vena cava, and send the tumor tissue for pathological examination. Take the calf pericardial patch to reconstruct the right atrium and superior vena cava. Open circulation, heart automatically resumes, routine hemostasis and chest shut). The final tumor histopathological examination results (1-3) suggest that: morphology and immunohistochemistry support non-Hodgkin's lymphoma, diffuse large B-cell lymphoma (from non-germinal centers), excluding double-hit lymphoma. After the operation, targeted chemotherapy was given to the patient's pathological and immunohistochemical results. After the operation, the results of Echocardiogram showed normaly (Figure 1-4). At present, follow-up to 3 months after surgery, the patient's general condition is fair, and no recurrence is seen.

Case 2 , the patient, male, 28 years old, was admitted to the hospital mainly because of "chest tightness and shortness of breath for 3 days". Physical examination: T 37.8, BP 120/78mmHg, P 85 times/min. Enlarged heart circle, heart rate 92 beats/min, regular rhythm, and 2/6 diastolic murmurs can be heard in the tricuspid auscultation area. Videography examination: Echocardiogram (Figure 2-1) indicates that the right atrium occupies space, the tumor is closely related to the right atrium wall, and part of the tumor reciprocates to the right ventricle through the tricuspid valve with the cardiac cycle; the tricuspid valve is refluxed in a moderate amount. Chest CT (Figure 2-2) suggests: the right atrium is enlarged and mixed with high-density shadows, consider tumorous lesions; right pleural effusion. Cardiac MRI (Figure 2-3) indicates: the right atrium is large, the right atrium wall is locally broken, the pericardium and the ascending aorta are locally invaded, and malignant tumors are considered (the possibility of angiosarcoma is high); Indoor blood flow is stagnant; right pleural effusion. Laboratory examination: Ferritin SF (tumor marker) 1032ng/ml (reference range 30-4007ng/ml). No obvious abnormalities were found in other inspections and inspections. Clinical diagnosis: right atrium space-occupying disease, tricuspid regurgitation, pericardial effusion, pleural effusion. After perfecting the preoperative preparations, he would like to undergo surgical treatment. During the operation, a large amount of bloody pericardial effusion was seen when the pericardium was opened. The right atrium, the root of the aorta of the left atrium, and part of the surface of the right ventricle showed protruding cauliflower masses (Figure 2-4). Hard masses can be seen in the ventricle and aortic roots. The tumor has a wide range of invasion and cannot be surgically removed. A small amount of specimens were taken for pathological examination. Than we gave up the operation, closed the chest. The histopathological results (Figure 2-5) show: angiogenic malignant tumor, consider epithelioid hemangioendothelioma.

Discussion

Primary cardiac malignancies are clinically rare, and histological sources mainly include sarcoma, malignant mesothelioma, malignant mesenchymal tumor, lymphoma, etc., among which sarcoma is the most common. The atrium is the most common site for tumors, and 89% of primary cardiac malignancies originate in the right atrium[4]. The clinical manifestations of patients mainly depend on the location, size, local infiltration and distant metastasis of the tumor. Dyspnea is the most common clinical symptom. In addition, pericardial effusion, chest tightness, arrhythmia, refractory heart failure, and tumor may also occur Embolism caused by shedding[5], clinical manifestations lack specificity, easy to misdiagnose. At present, the main examination methods include cardiac ultrasound, CT, MRI, digital subtraction angiography (DSA), cardiovascular tomography, pericardiocentesis, and surgical exploration. Generally, cardiac malignant tumors often appear as tumors and normal hearts on imaging examinations. The boundaries of the atrioventricular cavity are unclear, the base of the tumor is wide, and the activity is small [6]. At present, for the treatment of cardiac malignant tumors, most scholars believe that when the malignant cardiac tumor is diagnosed clearly and

there is no distant metastasis, in principle, the tumor should be removed as soon as possible[7]. However, some primary cardiac malignant tumors have a large invasion range, severe adhesion to surrounding tissues, difficult operation, and many postoperative complications. These patients often have a short long-term survival time and a poor prognosis. Therefore, we need to combine other treatments, including adjuvant chemotherapy and radiotherapy, in order to improve the prognosis of patients.

Conclusion

The first patient in this article, his heart tumor is non-Hodgkin's lymphoma, which originated in the right atrium and invaded part of the right atrium and superior vena cava. The tumor was completely removed and the right atrium and superior vena cava were reconstructed after surgery. The prognosis of the patients after chemotherapy is fair, and there is no recurrence in the short-term follow-up, and the results of the medium- and long-term follow-up are expected. The second patient in this article, his tumor also originated in the right atrium, which was an epithelioid hemangioendothelioma, it was highly malignant and had a wide range of tumor invasion. The right atrium, left atrium, right ventricle, aortic root, and superior and inferior vena cava were all involved and could not be completely surgically removed, so the patient's prognosis is poor. For such patients, we need to perform careful imaging evaluation before surgery, perform cardiac angiography if necessary, and be cautious in surgical operations.

References:

[1] Zhu Xiaodong, Zhang Baoren. Cardiac Surgery. Beijing: People's Medical Publishing House, 2007:1195-1202. [2] Liu Kaiyu, Tian Hai, Jiang Shulin. Diagnosis and surgical treatment of cardiac malignancies. Chinese Journal of Clinical Thoracic and Cardiovascular Surgery, 2014, 8, 21(4): 461-464. [3] Reardon MJ, Walkes JC, BenjaminR. Therapy insight: malignant primary cardiac tumors[J]. Nat Clin Pract Cardiovasc Med, 2006, 3(10):548-553. [4] Bouma W, Lexis CP, Willems TP, et al. Successful surgical excision of primary right atrial angiosarcoma[J]. Cardiothorac Surg, 2011, 6(9): 47-58. [5] Zhang Li, Wang Hong, Wan Yixin. Two cases of cardiac malignant tumors treated with lung shadows and literature review. Journal of Practical Oncology, 2019, 5: 457-460. [6] Zhang Caihong, Zhang Wenhui, Li Quanliang, et al. Analysis of 34 cases of cardiac tumors diagnosed by color Doppler ultrasound. Chinese Journal of Ultrasound Diagnosis, 2001, 2(4): 23-24. [7] Chen Changcheng, Liu Shuo, Xu Lili, et al. Surgical efficacy of primary cardiac malignancies. Journal of Cardiopulmonary and Vascular Disease, 2015, 4:265-269. [8] Gan Ling, Wang Wei, Liu Shanjun, et al. Preliminary study on myocardial contrast-enhanced performance of cardiac malignant tumors. Journal of Clinical Ultrasound Medicine, 2018, 5: 302-305.

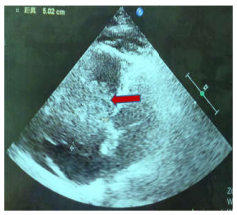

Figure 1-1

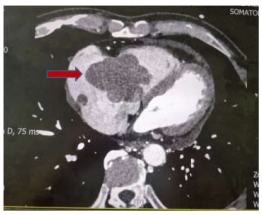

Figure 1-2

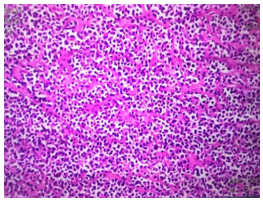

Figure 1-3

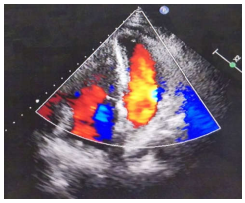

Figure 1-4

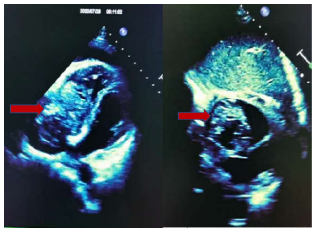

Figure 2-1

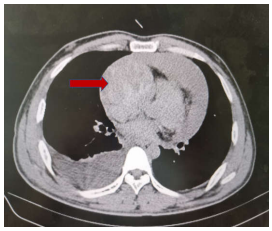

Figure 2-2