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Миксома створки митрального клапана

М.В. Вишнякова (мл.), А.С. Абраменко, М.В. Вишнякова, Д.В. Шумаков

Московский областной научно-исследовательский клинический институт имени М.Ф. Владимирского, Москва, Российская Федерация

АННОТАЦИЯ

Первичные опухоли сердца являются крайне редким заболеванием, распространённость их в популяции, по разным данным, составляет 0,0017–0,03%.

В большинстве случаев опухоли сердца имеют доброкачественный характер, более половины подобных образований представлены миксомами сердца. Миксома, поражающая створки клапанов сердца, является редчайшей патологией. Впервые подобный вариант изменений был описан в 1934 году. Наиболее часто миксомы сердца локализуются на уровне межпредсердной перегородки в непосредственной близости от овальной ямки. Одним из типичных признаков миксом является узкая ножка и неровная поверхность, что обуславливает риск эмболии. Эхокардиографическое исследование и магнитно-резонансная томография на настоящий момент являются методами выбора при подозрении на объёмное образование сердца. При подобной нетипичной локализации опухоли обязательна дифференциальная диагностика с вегетациями на клапанах сердца и папиллярной фиброэластомой.

Представлен случай пожилой пациентки с жалобами на одышку, колющие боли в левой половине грудной клетки, аритмии, в анамнезе которой имелась аспирационная пневмония, экстирпация пищевода с эзофагогастропластикой желудка. При обследовании у пациентки выявлены пароксизмальная форма фибрилляции предсердий (вне пароксизма), хроническая сердечная недостаточность, артериальная гипертензия. Клинические данные больной были нехарактерны для инфекционного эндокардита с вегетациями на клапанах. Благодаря эхокардиографическому исследованию и мультиспиральной компьютерной томографии с болюсным контрастным усилением на атриальной поверхности задней створки митрального клапана обнаружено дополнительное объёмное образование размерами 5–9 мм, округлой формы, с чёткими неровными контурами, смещаемое вместе со створкой клапана в полость левого желудочка в систолу предсердий. Оптимальная визуализация образования получена в режиме Fiesta-CINE в модифицированных двух- и четырёхкамерных проекциях. Пациентке выполнено удаление образования с шовной пластикой митрального клапана в условиях искусственного кровообращения. При гистологическом исследовании образования получена характерная морфологическая картина миксомы. Послеоперационный период протекал без осложнений.

Ключевые слова: миксома; митральный клапан; компьютерная томография; магнитно-резонансная томография.

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Cardiac myxoma originating from mitral valve leaflet

Marina V. Vishniakova, Alexander S. Abramenko, Maria V. Vishnyakova, Dmitry V. Shumakov

Moscow Regional Research and Clinical Institute, Moscow, Russian Federation

ABSTRACT

Primary heart tumors are an extremely rare disease, with a prevalence of 0.0017%–0.03% in the population according to various data.

Heart tumors are benign in most cases, and more than half of such formations are represented by cardiac myxomas. Myxoma is the most common primary cardiac tumor; however, its number is extremely small among the general population. Myxoma that affects the cardiac valves is a rare pathology. For the first time, such variance of changes was described in 1934. Most often, cardiac myxomas are localized at the atrial septum level near the oval fossa. One of the typical signs of myxoma is a narrow leg and an uneven surface, which causes the risk of embolism. Echocardiographic examination and magnetic resonance imaging are currently the methods of choice when suspecting the presence of volumetric heart formation. With such atypical tumor localization, conducting a mandatory differential diagnosis with heart valve vegetations and papillary fibroelastoma is necessary.

Herein, presented an elderly patient with complaints of shortness of breath, stabbing pains in the left half of the chest, and arrhythmias with a history of aspiration pneumonia and esophageal extirpation with stomach esophagogastroplasty. During the examination, the patient revealed a paroxysmal form of atrial fibrillation (outside of paroxysm), chronic heart failure, and arterial hypertension. The clinical data of the patient were not characteristic enough for the possibility of infectious endocarditis with valvular vegetations. The echocardiographic examination and multispiral computed tomography with bolus contrast enhancement on the atrial surface of the posterior flap of the mitral valve revealed an additional volume formation of 5–9 mm in size, rounded shape, with clear uneven contours, together with the valve flap into the left ventricular cavity into the atrial systole. The formation was optimally visualized using the Fiesta-CINE mode in modified two- and four-chamber projections. The formation was removed with suture plasty of the mitral valve in artificial blood circulation conditions. The histological examination of the formation revealed a morphological characteristic of myxoma. The postoperative period proceeded without complications.

Keywords: case report; myxoma; mitral valve; computed tomography; magnetic resonance imaging.

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二尖瓣粘液瘤

Marina V. Vishniakova, Alexander S. Abramenko, Maria V. Vishnyakova,
Dmitry V. Shumakov

Moscow Regional Research and Clinical Institute, Moscow, Russian Federation

简评

原发性心脏肿瘤是一种极为罕见的疾病，根据各种来源，其在人群中的患病率为0.0017 - 0.03%。

在大多数情况下，心脏肿瘤为良性，其中一半以上为心脏粘液瘤。影响瓣叶的粘液瘤是一种非常罕见的病理现象。1934年首次描述了这种类型的变化。大多数情况下，心脏粘液瘤位于卵圆窝附近的房间隔水平。粘液瘤的典型症状之一是狭窄的腿和不平整的表面，这会导致栓塞的风险。超声心动图和磁共振成像目前是疑似心脏肿块的选择法。在此类非典型的肿瘤定位的情况下，必须与心脏瓣膜上的赘生物和乳头状弹力纤维瘤进行鉴别诊断。

介绍了一名老年患者的病例，主诉喘息，左胸刺痛，心律失常，此患的病史包括吸引力肺炎，食管胃吻合术，食道摘除术。患者检查发现阵发性心房颤动（阵发外）、慢性心力衰竭、动脉高血压。患者的临床资料不具感染性心内膜炎特征，瓣膜上有赘生物。超声心动图和多螺旋计算机断层扫描在二尖瓣后叶的心房表面进行快速对比增强，显示额外的体积形成 5-9 mm，圆形，轮廓明显不均匀，与瓣叶一起移位进入心房收缩期左心室腔。在Fiesta-CINE模式下，在修改后的两室和四室投影中获得了肿块的最佳可视化。患者在体外循环下接受了肿块的切除，并进行了二尖瓣成形术。肿块的组织学检查揭示了粘液瘤的特征性形态情况。术后期间一切顺利。

关键词：粘液瘤； 二尖瓣； CT扫描； 磁共振成像。

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INTRODUCTION

Primary cardiac tumor is an extremely rare disease. According to different data, their prevalence in the population is 0.0017%–0.03% [1, 2]. Cardiac tumors are benign in most cases, of which more than half are represented by cardiac myxomas [3–7].

Myxomas are believed to originate from residual fragments of multipotent mesenchymal cells in the endocardium. Cardiac myxomas are most commonly located at the interatrial septum level near the oval fossa. One of the typical features of myxomas is a narrow pedicle and an irregular surface, which leads to the risk of embolism in this type of tumor.

CLINICAL CASE

Patient T, a 64-year-old female patient, was admitted with complaints of dyspnea, stabbing pain in the left side of the chest, and arrhythmia. Her medical history included aspiration pneumonia and esophageal extirpation with gastric esophagogastroplasty.

Physical, laboratory, and instrumental findings

The examination revealed a paroxysmal form of atrial fibrillation (in a paroxysm-free period), chronic IIA heart failure (functional class II), and grade 3 arterial hypertension.

The echocardiographic picture demonstrated mild mitral valve insufficiency and additional posterior mitral valve leaflet mass up to 9 mm in size located on the pedicle.

Multispiral computed tomography with bolus contrast enhancement on a Philips iCT 256-slice ECG-synchronized device and magnetic resonance imaging (MRI) of the heart on a General Electric Optima MR450w GEM 1.5 T machine were performed for a detailed mass, thoracic organs, and coronary artery assessments.

Computed tomography revealed no additional volumetric masses or areas of inflammatory infiltration in the pulmonary tissue. The stomach was visualized in the bed of the removed esophagus without pathological volumetric masses at this level. The examination revealed no pronounced coronary artery narrowings. An additional volumetric mass measuring 5–9 mm, round in shape, with clear irregular contours, and displaced together with the valve leaflet into the left ventricular cavity during atrial systole was visualized on the atrial surface of the posterior mitral valve leaflet (Fig. 1).

A series of Fiesta-CINE functional examinations in standard axes (two- and four-chamber long axis with 8 mm slice thickness and 0 mm inter-slice interval) was performed after a series of panoramic and axial chest scans in cardiac MRI. Tumor visualization in standard cardiac MRI views was difficult because of the small size of the mass. Optimal mass visualization was obtained in the modified Fiesta-CINE two- and four-chamber views (Fig. 2).

A small round-shaped mass (5 × 8 mm in size) on the posterior mitral valve leaflet on the left atrial side was confirmed. The examination was performed before and after early and delayed contrast enhancement using T2 SS, FSE, and FS pulse sequences—T2 WI with signal suppression from blood and adipose tissue—and PS MDE (PSIR), TI 250 ms

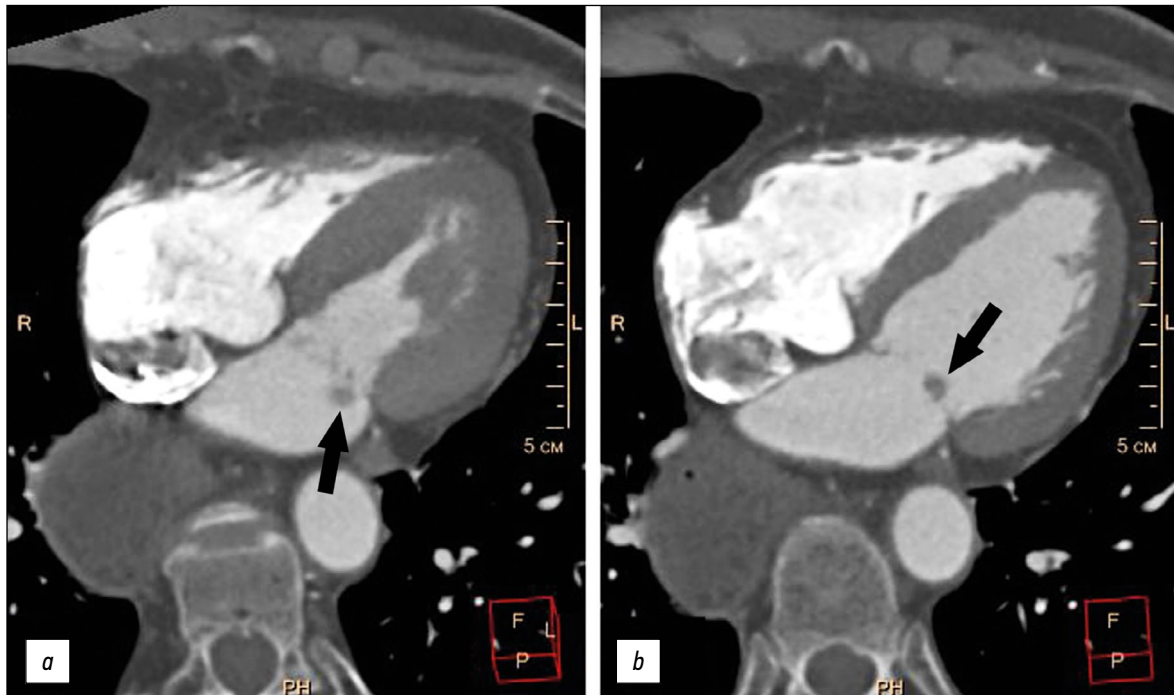


Fig. 1. Multispiral computed tomography of thoracic organs, four-chamber planar heart reconstruction, arterial contrast phase: *a*, left ventricular systolic phase; *b*, left ventricular diastolic phase. Additional rounded structure on the posterior mitral valve leaflet (black arrows).

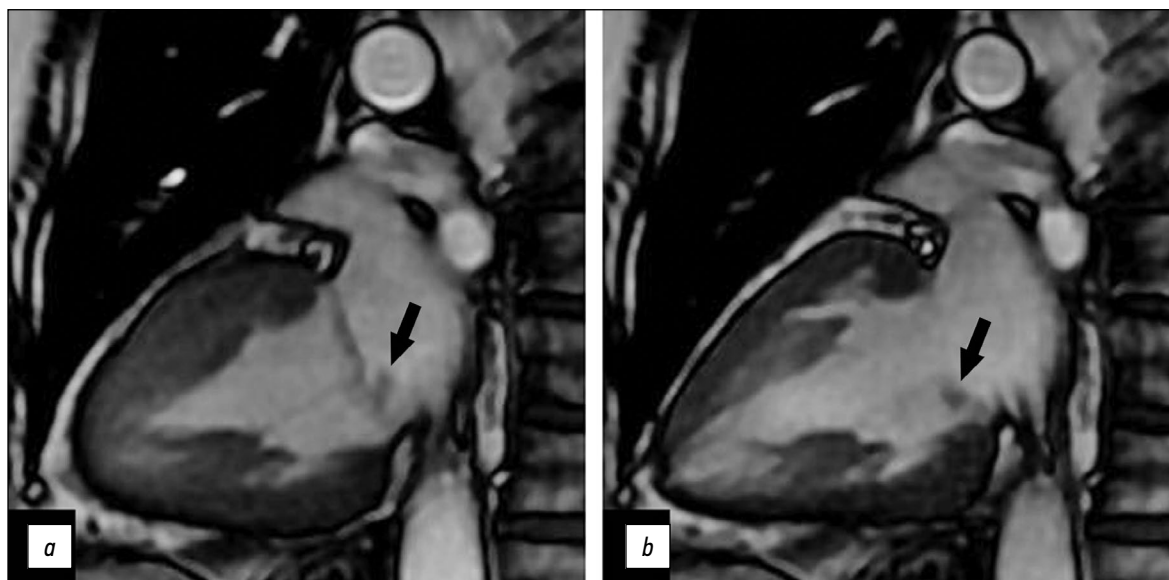


Fig. 2. Magnetic resonance imaging of the heart, two-chamber view: *a*, left ventricular systolic phase; *b*, left ventricular diastolic phase. Additional mass on the posterior mitral valve leaflet (black arrows).

postcontrast images to obtain tissue mass characteristics. A contrast agent (gadopentetic acid) was injected at 0.2 ml/kg body weight.

After delayed contrast enhancement, an increased signal was observed compared to the native T1-WI series (Fig. 3).

The patient underwent mass excision with mitral valve suture plasty under cardiopulmonary bypass. Moreover, the postoperative period proceeded without any complications.

The histological study of the mass showed a characteristic morphological picture of a myxoma.

DISCUSSION

Myxoma is the most common primary cardiac tumor; however, the number of cases in the general population is extremely small. Moreover, myxoma, which affects the heart

valve leaflets, is the rarest pathology. Such changed variants were first described in 1934 [8].

According to foreign literature, the number of described cases is precisely unknown; however, the approximate prevalence of this localization among myxomas is approximately 1.5% [9, 10].

Echocardiographic examination and MRI are the methods of choice for suspected cardiac masses. Differential diagnosis with vegetation on the heart valves and papillary fibroelastoma is necessary for an atypical tumor localization [5, 6].

The vegetations are more frequently located on the atrial surface of the mitral valve, as demonstrated in our clinical case; however, imaging techniques identified a pedicle that is more indicative of a mass. MRI with delayed contrast revealed vegetations with uneven accumulation of contrast agent,

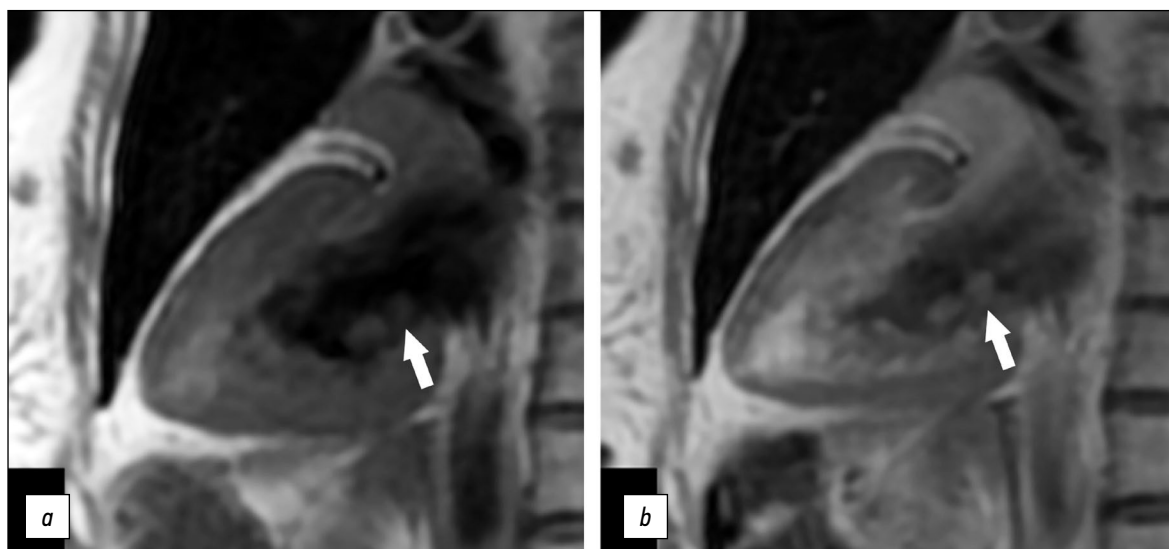


Fig. 3. Magnetic resonance imaging of the heart, two-chamber view: *a*, native T1-WI series, TSE; *b*, postcontrast T1-WI series, TSE. Additional mass on the posterior mitral valve leaflet (white arrows).

which complicated the differential diagnosis of vegetations and masses [11, 12], whereas no clinical data for infectious endocarditis with valves vegetations were available in the described case.

Papillary cardiac fibroelastoma is the second most common benign primary tumor. This mass is characterized by its small size (usually <15 mm), rounded shape, and short pedicle. Typical localization includes the atrial surface of the mitral valve or the aortic surface of the aortic valve [2, 13].

CONCLUSIONS

The reported clinical case did not reveal any specific characteristics of cardiac myxoma despite the use of modern imaging techniques. However, the presence of a mobile mass of tumorous nature required surgical treatment, after which

histological examination allowed a myxoma diagnosis of an extremely rare localization.

ADDITIONAL INFORMATION

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AUTHORS' INFO

* **Marina V. Vishniakova**, MD, Dr. Sci. (Med);
address: 61/2, Shepkina street, Moscow, 129110, Russia;
ORCID: <https://orcid.org/0000-0003-3838-636X>;
eLibrary SPIN: 1137-2991; e-mail: cherridra@mail.ru

Alexander S. Abramenko;
ORCID: <https://orcid.org/0000-0002-6286-2162>;
eLibrary SPIN: 9743-3001; e-mail: a.s.abramenko@gmail.com

Maria V. Vishnyakova, MD, Dr. Sci. (Med);
ORCID: <https://orcid.org/0000-0002-2649-4198>;
eLibrary SPIN: 7748-1831; e-mail: cherridra@list.ru

Dmitry V. Shumakov, MD, Dr. Sci. (Med), Corresponding Member
of the Russian Academy of Sciences;
ORCID: <https://orcid.org/0000-0003-4204-8865>;
eLibrary SPIN: 2545-2978

ОБ АВТОРАХ

* **Вишнякова Марина Валентиновна**, д.м.н.;
адрес: 129110, Москва, ул. Щепкина, д. 61/2;
ORCID: <https://orcid.org/0000-0003-3838-636X>;
eLibrary SPIN: 1137-2991; e-mail: cherridra@mail.ru

Абраменко Александр Сергеевич;
ORCID: <https://orcid.org/0000-0002-6286-2162>;
eLibrary SPIN: 9743-3001; e-mail: a.s.abramenko@gmail.com

Вишнякова Мария Валентиновна, д.м.н.;
ORCID: <https://orcid.org/0000-0002-2649-4198>;
eLibrary SPIN: 7748-1831; e-mail: cherridra@list.ru

Дмитрий Валерьевич Шумаков, д.м.н., чл.-корр. РАН;
ORCID: <https://orcid.org/0000-0003-4204-8865>;
eLibrary SPIN: 2545-2978

* Corresponding author / Автор, ответственный за переписку