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Left Atrial Myxomas: Epidemiological Aspects and Surgical Outcomes at the Cuomo Pediatric Cardiology Center of Fann Hospital (DAKAR, SENEGAL)

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Abstract **Original Research Article**

Cardiac myxoma is a rare benign primary tumor, most frequently located in the left atrium. Its treatment is always surgical, and the long-term outcome is marked by the risk of recurrence. We collected data from 11 patients with an average age of 52 years (± 15.71). The sex ratio (M/F) was 0.2. The circumstances of discovery were an etiological workup for an ischemic stroke in 5 patients (45.45%). The most common symptom was exertional dyspnea (55%). The clinical examination revealed signs of mitral stenosis in 3 cases (27%). On cardiac ultrasound, an oval-shaped tumor was the most frequently found in the majority of cases (10 cases, 91%). The site of tumor attachment was the interatrial septum. Complete excision was performed in all patients (11 patients, 100%). The average duration of cardiopulmonary bypass was 67.64 minutes (±44.75) and the average aortic cross-clamp time was 33.1 minutes (±9.35).
Keywords: Cardiac myxoma, Left atrium, Embolic stroke, Echocardiography, Surgical excision, Cardiopulmonary bypass.

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Introduction

Cardiac myxoma is the most common primary cardiac tumor in adults, accounting for only 0.25% of all heart diseases [1]. It represents 50% of all cardiac neoplasms, with an estimated incidence of 0.5 cases per million habitants per year [2]. It is a histologically benign tumor, often discovered occasionally during echocardiography. Nevertheless, it remains serious due to its complications, particularly embolic. The aim of this study was to determine the epidemiological profile of patients and the outcomes of surgery.

Materials and Methods

This was a retrospective, descriptive study conducted from January 2005 to December 2024, a period of 20 years. All patients diagnosed and operated on for left atrial myxoma at the cardiovascular surgery center of the Fann National University Hospital were included in the study. Exclusion criteria were patients with unusable or unretrievable medical records. We studied the epidemiological aspects and surgical outcomes. Data were analyzed using SPSS (Statistical Package for Social Sciences) Statistics version 25.

Results

Eleven cases of cardiac myxomas were diagnosed and surgically treated between January 2005 and December 2024. The sex ratio was 0.2 (9 women to 2 men). The mean age was 52 years (range: 28 to 80 years). The myxomas were discovered during an etiological workup for a stroke in 5 patients, during an investigation for dyspnea in the other 5, and during evaluation for COVID-19 infection in one patient. All 11 patients presented with various associated symptoms: exertional dyspnea (55%), chest pain (3%), 2 patients with neurological signs, and one with palpitations. Nine patients had a regular sinus rhythm on electrocardiogram. Laboratory findings included anemia in five patients and C-reactive protein in six. In all patients, the diagnosis of myxoma was suggested based on data from transthoracic echocardiography **(Table 1)** and confirmed by the anatomopathological study of the surgical specimens. The myxomas were located in the left atrium in all patients, with dimensions ranging from 30 mm to 60 mm in their longest dimension. Four patients presented with valvular lesions: mitral regurgitation (three cases), tricuspid regurgitation (one case), and combined mitral and tricuspid regurgitation

(one case). Surgical treatment was performed via median sternotomy, with access to the heart via a left atriotomy under cardiopulmonary bypass. Complete resection was performed in all patientsm including excision of its base at the level of the interatrial septum, followed by direct suturing. In one patient with an accidental injury to the left ventricle, repair was performed. The mean cardiopulmonary bypass time was 67.64 min (±44.75), and the mean aortic cross clamping time was 33.1 min (±9.35).

Table 1: Preoperative echocardiographic data

Case	Diameter	Tumor prolabing into mitral valve
1	30/20	+
2	30/28	+
3	46/30	+
4	41/41	+
5	35/30	-
6	43/33	+
7	36/20	+
8	30/28	-
9	52/48	+
10	57/41	+
11	60/40	+

Table 2: Intraoperative findings and surgical procedures.

Case	Macroscopy	Valvular lesion	Procedures
1	Gelatinous	-	Resection+suture
2	Gelatinous	-	Resection+suture
3	Gelatinous	-	Resection+suture
4	Gelatinous, multilobed	-	Resection+suture+left ventricular wound repair
5	Gelatinous	-	Resection+suture
6	Crumbly	-	Resection+suture
7	Gelatinous, crumbly	-	Resection+suture
8	Gelatinous, crumbly	-	Resection+suture
9	Gelatinous, crumbly	-	Resection+suture
10	oval	-	Resection+suture
11	Crumbly	-	Resection+suture

The average length of stay in intensive care unit was 3.6 days, and the average length of hospital stay was 9 days. Postoperative recovery was uneventful, except for respiratory distress in one patient and anemia in two patients. One patient died following a pulmonary embolism. There were no recurrences, and all patients were asymptomatic.

DISCUSSION

Myxoma is the most common primary cardiac tumor in adults. However, it remains rare, representing only 0.25% of heart defects [1]. We collected 11 cases of cardiac myxoma over a 20-year period (2005-2024). The average age at diagnosis is generally between 30 and 60, which is consistent with the results of our series. However, myxomas have been described in patients aged three to 83 years [2,3]. The female predominance we observed in our study is consistent with what is reported in the literature (70% are women) [3]. The benign histological nature of myxoma is accepted by all authors. This is a tumor that develops from embryonic remnants sequestered mainly in the oval fossa of the interatrial septum [4,5], hence the clear predominance of the implantation site at the level of this septum with the left atrium (75%) followed by the right atrium (18%) as the preferred location [2]. In five patients, the discovery was made during an etiological workup for a stroke. Oldershaw *et al.,* [6] report three cases of patients with long symptom-free periods of 7, 11, and 16 years between the initial clinical manifestation and the onset of other symptoms leading to the diagnosis. Echocardiography has become the essential examination for diagnosing myxomas, determining their characteristics (location, base of implantation, size, calcification, etc.) as well as associated lesions [7,8]. The European multicenter study shows 100% reliability for transesophageal echocardiography and 95% for transthoracic echocardiography for left atrial myxomas [4]. However, magnetic resonance imaging with contrast injection can be useful, particularly in cases of atypical location, to differentiate between thrombus and myxoma. However, contrast enhancement is not a pathognomonic sign of myxoma and can be seen in cases of neovascularization of a chronic thrombus and in cases of other cardiac tumors (sarcomas) [9]. In our series, the diagnosis of myxoma was made in all cases using transthoracic echocardiography. Surgical resection most often provides a definitive treatment and must be performed quickly to prevent the risks of sudden death

and embolism. However, there is no real consensus regarding either the surgical approach or the management of the implantation site [10]. Thus, Craford, in 1953, advocated left atriotomy. In 1973, Kabbani and Cooley emphasized the biatrial approach, with the advantage of precise identification of the implantation base, its wide resection through healthy tissue, and inspection of all four cardiac chambers. The management of the implantation base varies among authors: ranging from simple laser photocoagulation of a one-centimeter diameter zone around the attachment site to excision with a scalpel. Our technique (left atriotomy approach) appears satisfactory, as it allows for the complete removal of the tumor and avoids its fragmentation, which is described as a source of recurrence. In the literature, the results of the surgery are excellent, with a hospital mortality rate of around 2% [11]. It remains largely influenced by other factors such as age and the performance of other surgical procedures [8]. In our series, we had one death following a pulmonary embolism. Recurrence of cardiac myxomas occurs in 4.75% of cases [12]. The occurrence of a second recurrence is rare: only seven cases have been reported in the literature [19]. According to McCarthy *et al.,* [13], the risk of recurrence is 1 to 3% in the case of sporadic myxoma, increases to 10% in the case of familial myxoma, rises to 21% in the case of Carney complex (combining cutaneous myxomas, recurrent cardiac myxoma, and Cushing's syndrome), and reaches 33% in the case of multiple myxomas. Recurrence may be related to incomplete resection, embolism of highly friable tumor fragments during extraction, or unidentified multifocal tumors. In our study, we observed no recurrence.

Conclusion

Cardiac myxoma is a rare tumor. Left atrial location is the most frequent, with a marked female predominance. Due to its polymorphic symptomatology, discovery can be delayed, as demonstrated by our study. Echocardiography remains the key diagnostic examination and allows for diagnosis on its own. Surgical management shows satisfactory results even in cases of late diagnosis. However, long-term echocardiographic and clinical follow-up is essential due to the risk of recurrence, which is not negligible.

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