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Intracardiac Masses: Epidemiological, Clinical, Therapeutic and Evolutionary Aspects in the Cardiology Department of Yalgado Ouédraogo Teaching Hospital

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Abstract

Context: Intracardiac masses (ICMs) are detected during the exploration of cardiovascular pathologies or discovered incidentally. They include intracardiac thrombi, cardiac tumors and valvular vegetations. **Method:** This was a descriptive study retrospectively collected within the cardiology department from January 1, 2011 to March 31, 2013. All the patients diagnosed and hospitalized for intracardiac masses and followed-up for at least three months were included in the study. **Outcomes:** Among the 1066 patients admitted in the period of study, 80 patients had intracardiac masses, corresponding to a hospital frequency of 7.5%. The average age was 48.4 ± 17.4 years. ICM was detected during a thromboembolic complication in 18 cases (22.5%) and during a cardiological check-up for heart disease in 62 cases (77.5%). Thromboembolic complications were dominated by strokes in 55.6% of cases. Cardiology check-up was done because of exertional dyspnea (62 patients) in 77.5% of cases. Among these intracardiac masses (ICMs), intracardiac thrombosis (ICT) was observed in 41 cases (50.6%), followed by intracardiac vegetations in 32 cases (39.5%). The curative treatment of intracardiac masses consisted of anticoagulants in 65% of cases, antibiotics in 58.8% of cases and instrumental treatments in 1.3% of cases. We didn't use cardiac surgery as a therapeutic means in our study. Twenty patients (25%) died during hospitalization, six of

whom (30%) died as a result of thromboembolic complications. **Conclusion:** Intracardiac masses visualized on ultrasound are most often due to thrombi, vegetations or myxomas. In our study, intracardiac thrombosis was the most common masses, accounting for 50.6% of cases.

Keywords

Intracardiac Masses, Clinical, Therapeutic, Evolution, Cardiology

1. Introduction

Intracardiac masses (ICMs) are often discovered while exploring a stroke, valvular heart disease, during a prolonged fever (infective endocarditis), or incidentally [1] [2]. They include intracardiac thrombi (ICT), cardiac tumors and valvular vegetations [3]. Their diagnosis has been improved by the advent of transthoracic DOPPLER (ETT), transesophageal (ETO) ultrasound and cardiac magnetic resonance imaging (MRI) [4] [5]. In the study by Yao *et al.* in 2014 [2], the prevalence of ICMs in the Asian general population was 1.5‰. However, to the best of our knowledge, no global studies on ICMs in Burkina Faso which takes into account all subgroups (intracardiac thrombus, cardiac tumors, valve vegetation) as well as their evolutionary aspects have been carried out. Hence, we propose to look at the epidemiological, clinical, therapeutic and evolutionary aspects of the IMCs while relying on the data collected within the Cardiology department of Dalgado Ouédraogo Teaching Hospital (CHU-YO).

2. Patients and Method

This was a descriptive study retrospectively collected in the cardiology department from January 1, 2011 to March 31, 2013. Any patients regardless of sex, diagnosed and hospitalized for intracardiac masses was included in the study. Each patient included in the study had been followed-up for at least three months. Patients with ICMs other than tumors, thrombi, and valvular vegetations (pacemaker leads, catheters, anatomical remains, valvular calcifications) were excluded from our study. The variables studied included:

- **Epidemiologic data:** sex, age, marital status, occupation, place of residence and socio-economic level.
- **Cardiovascular risk factors**: age, hypertension; smoking; diabetes; estrogen-progestogen contraception; **sedentary lifestyle, obesity etc**.
- **Clinical data studied:** dyspnea, headaches, precordialgia, palpitations, temperature, heart rate, blood pressure, and signs of heart failure and motor deficit.
- **Ultrasound data** included the dimensions of cardiac cavities, wall kinetics, shortening fraction, and the presence of tumor, thrombus, or valve vegetation.
- **Electrical data:** heart rhythm disorders; atrioventricular or intraventricular

conduction; hypertrophy; repolarization disorders.: ST segment elevation or depression, ischemia/lesion/necrosis.

- **Laboratory examinations**: blood count, azotemia, serum creatinine; blood sugar and lipid check-up.
- **The therapeutic aspects:** the nature of the treatment: medical (anticoagulant, antiplatelet agent, digitalo-diuretic, antiarrhythmic); the treatment duration; the existence or lack of anticoagulant or antiplatelet treatment before hospitalization within the cardiology department.
- **Evolutionary aspects**: the duration of hospitalization, follow-up and survival.

2.1. Data Processing and Analysis

Data processing and analysis were performed through the software EPI info version 3.5.1. Qualitative and quantitative variables were assessed in terms of frequency and average plus or minus, standard deviation. The Comparison of the averages and percentages was performed with the Pearson Chi2 test with a significance threshold $p = 0.05$.

2.2. Ethic Issues

The ethical considerations were:

- The confidentiality of the patients' data in the study;
- Explanation of the purpose of the study to patients and get their informed consent before including them.

3. Outcomes

3.1. Population General Characteristics

Out of the 1066 patients admitted during the study period, 80 had intracardiac masses, corresponding to a hospital frequency of 7.5%. The average age of the patients was 48.4 ± 17.4 years, with extremes of 17 and 84 years. Half the cases were male, corresponding to a sex ratio of as for cardiovascular risk factors, six patients were found to have diabetes in (7.6%) and hypertension was found in 57 (71.3%). A sedentary lifestyle was found in 59 patients (73.8%) and smoking habit in 19 (23.8%). ICM was identified in 18 cases (22.5%) during a thromboembolic complication, and 62 cases (77.5%) had theirs detected through a cardiological check-up for heart disease. Thromboembolic complications included stroke in 55.6% of cases, pulmonary embolism in 27.8%, syncope in 11.1% and acute ischemia of the lower limb in 5.6% of cases. The reasons for cardiology check-up were the following: exertional dyspnea (62 patients) found in 77.5% of cases, precordialgia in 45% (36 patients) and palpitations in 7.5% (six patients).

3.2. Characteristics of Intracardiac Masses

Among these intracardiac masses (ICMs), intracardiac thrombosis (ICT) was observed in 41 cases, representing 50.6% of ICMs and 3.84% of admissions. The other masses were intracardiac tumors and valvular vegetations. Table 1 presents

the distribution of the various types of ICMs.

Table 1. Distribution of the various types of intracardiac masses.

Type of mass	Number	Percentage (%)
Intracardiac tumor	08	09.9
Thrombosis	41	50.6
Valvular vegetation	32	39.5
Total	81	100

During the echocardiographic examination, we noted that the same ICM could have multiple intracardiac localizations in the same patient. Thus, we noted a bicavitary localization of intracardiac thrombi in four patients and the joint presence of vegetations on different valvular apparatuses in six patients. **Figure 1** shows the topographical distribution of each type of mass.

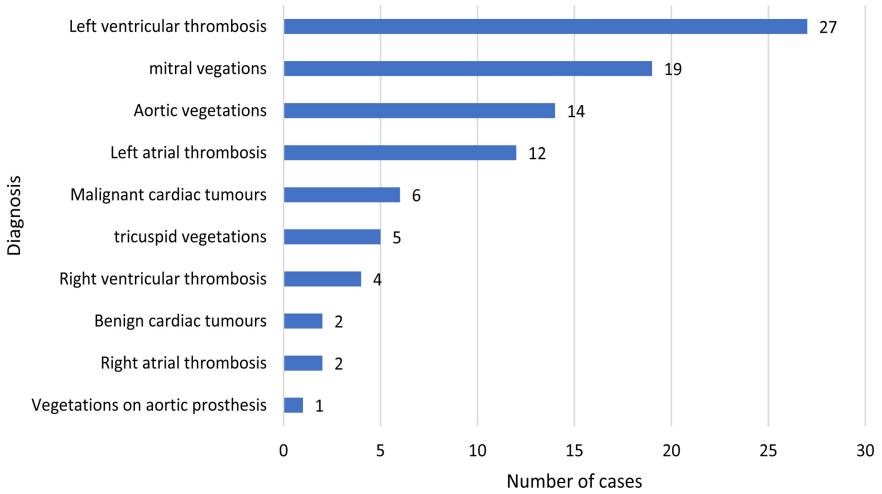

Figure 1. Topographical distribution of each type of mass.

3.3. Etiological Factors

In our study, heart failure was found in 65 patients (81.3% of cases), of whom 21.5%. Underlying cardiopathies were dilated cardiomyopathy found in 23 patients (28.8% of cases), ischemic heart disease in 8 patients (10%), and peripartum cardiomyopathy (PPMC) in 3 patients (3.8%). Infective endocarditis was found in 29 patients (36.3%), and decompensated rheumatic valvulopathy in 9 (11.3%).

3.4. Treatment and Evolution

Curative treatment of intracardiac masses consisted of anticoagulation in 65% of cases, antibiotics in 58.8% and instrumental therapy in 1.3%. Oral anticoagulation was used with antivitamin K. Cardiac surgery was not used as a therapeutic option in our study. Twenty patients (25%) died during hospitalization, among which six died (30%) from thromboembolic complications, five (25%) from uncontrolled

heart failure, five from cardiogenic shock and four (20%) from septic shock.

The total number of patients who died during our study was estimated at 108, thus bringing the specific mortality associated with intracardiac masses to 18.5%. The average death time was 14.3 ± 13.2 days, with extremes of one and 60 days. The average hospital stay was 17.4 ± 9.8 days, with extremes of 2 and 61 days. The average follow-up period was 12 ± 7.8 months, with extremes of 2 and 26 months. Indeed, one extreme case occurred when one of the patients died in the second month of his/her follow-up. Seven patients died as outpatients (*i.e.*, 8.8% of cases), with an average death time to post-hospital death of 4.6 ± 2.7 months, ranging from 2 to 10 months.

4. Discussion

Several difficulties were encountered in this prospective study. Indeed, the monocentric nature of the study, the frequent absence of anatomopathological examinations to confirm the nature of the mass, the non-compliance with follow-up appointments, and the difficulty of noting deaths occurring at home were the main constraints of the study.

The limited number of studies or scientific works dealing with thrombi, tumors and valve masses at the same time, and addressing epidemiological, clinical, therapeutic and evolutionary aspects, makes it inappropriate to compare some of our results. Indeed, most studies on ICMs are focused on a specific type of mass, specific diagnostic strategies and treatment methods.

Indeed, the prevalence of intracardiac masses has a hospital frequency of 7.5%. Intracardiac thrombi represent the most frequent group of intracardiac masses, as demonstrated in the literature [5] [6]. In our study, the identified intracardiac tumors accounted for 9.9% of all ICMs recorded, or 0.75% of admissions within the cardiology department. Our results are superior to those of Damourou *et al.* in Togo, who reported a rate of 0.2% for cardiac tumors in their ICM series [7]. This difference can be explained by the sample size (10 cases against 80 cases). We observed 32 cases of valvular vegetations, representing 39.5% of ICMs studied and 3% of admissions within the cardiology department during the period of our study. Elbey *et al.* in Turkey noted 89% of vegetations in their series, but their study only concerned patients followed-up for infective endocarditis [8]. In 2010, Ralamboson *et al.* found a sex ratio of 1.5 in their series of cardiac intracavitary thrombi [9]. Once described as rare in women, the high female prevalence could be explained by the increasingly frequent occurrence of cardiovascular pathologies in women, particularly the ones causing intracardiac thrombi (acute myocardial infarction, dilated cardiomyopathy, valvular diseases).

In our study, ICM was diagnosed when a thromboembolic complication occurred in 18 cases (22.5%), including stroke in 55.6%, pulmonary embolism in 27.8%, syncope in 11.1% and acute ischemia of the lower limb in 5.6%. Thomas C *et al.* reported 5.2% of strokes during a 31-month follow-up period in patients treated for left intraventricular thrombi [10]. Our higher value could be explained

by the fact that our study was carried out in a national referral hospital, which often receives immediately complicated cases of ICTs transferred from peripheral health facilities.

In our study, thrombus left intraventricular localization was found in 65.8% of ICT cases. This result is in line with those of Stefano and Davinder, who reported that left intraventricular thrombosis was the most frequent type of ICT, occurring most frequently in heart disease with LV dilatation and in cases of impaired LV systolic function (dilated cardiomyopathy, acute myocardial infarction) [11] [12]. In the literature, left atrial thrombosis is favored by atrial fibrillation and mitral valve disease [3] [13]. They accounted for 29.3% of ICT cases, of which 66.7% of patients had valvulopathy and 41.7% had atrial fibrillation in our series.

The location of the vegetations was predominantly mitral (23.8% of cases) and aortic (17.5% of cases). A predominance of mitral location was reported by Elbey *et al.* in Turkey (mitral in 43.1% of cases, aortic in 39.1% and tricuspid in 8.9%). The difference in the population size presenting valvular mass during endocarditis could explain the discrepancies in our rates [8].

Therapeutically, except in cases where surgery is indicated, the treatment of intracardiac thrombosis relied on the use of anticoagulants. In the literature, the choice of treatment is sometimes debated, ranging from thrombolysis to thrombectomy. In our study, anticoagulant treatment with low-molecular-weight heparin (LMWH) was initiated in 100% of patients. In 97.6% of cases, LMWH was used in conjunction with AVK. For some authors, the benefit of thrombectomy is comparable to anticoagulation in the case of ICT [14]. Intracardiac thrombosis accounted for 19.5% out of the 18.5% mortality rate for ICM. In-hospital and out-of-hospital mortality in intracardiac tumors was 37.5% and 40% respectively, reflecting their severity. Indeed, most authors agree that surgical removal remains the only therapeutic modality for benign cardiac tumors (myxoma and fibroelastoma) [15]-[17]. However, only symptomatic treatment was used in our patients, which would justify the very high mortality rate.

5. Conclusion

Intracardiac masses visualized on ultrasound are most often due to thrombi, vegetations or myxomas. However, many other benign or malignant tumors are also present. In our study, intracardiac thrombosis was the most frequent mass, accounting for 50.6% of cases. Intracardiac masses are serious because of their high mortality rate (intra-hospital and post-hospital) estimated at 33.7%. Their late diagnosis is a potential source of poor prognosis. They therefore require prolonged monitoring to preserve the patient's survival. A prospective study on a larger sample deserves to be carried out in order to gather significant data that is likely to help establish a management protocol adapted to our context.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Berg, P.V., Marcovitch, O., Ceulemans, A., Alkhori, M., Cytryn, R. *et al*. (2016) Masse cardiaque de découverte fortuite ... à quoi penser? *Journal de Cardiologie*, 99.

[2] Yao, H., N'Guetta, R., Ekou, A., Anzouan-Kacou, J.-B., Souaga, A. and Adoh, M. (2014) Les masses cardiaques: Caractéristiques cliniques, épidémiologiques et évolutives de 50 Cas. *Journal Africain du Thorax et des Vaisseaux*, **4**, 273-311.

[3] Maryam, E. (2008) Echocardiographic Evaluation of Intracardiac Masses. *The Journal of Tehran University Heart Center*, **3**, 59-75.

[4] Hoffmann, U. (1998) Cardiac and Paracardiac Masses. Current Opinion on Diagnostic Evaluation by Magnetic Resonance Imaging. *European Heart Journal*, **19**, 553-563. https://doi.org/10.1053/euhj.1997.0788

[5] Ejim, E., Anisiuba, B., Ike, S., Oguanobi, N., Ubani-Ukoma, C., Essien, I., *et al*. (2013) Intra-Cardiac Masses in Adults: A Review of Echocardiogram Records at Two Echocardiographic Laboratories in Enugu, South-East Nigeria. *Nigerian Journal of Clinical Practice*, **16**, 468-472. https://doi.org/10.4103/1119-3077.116891

[6] Lobo, A., Lewis, J.F. and Conti, C.R. (2009) Intracardiac Masses Detected by Echocardiography: Case Presentations and Review of the Literature. *Clinical Cardiology*, **23**, 702-708. https://doi.org/10.1002/clc.4960230914

[7] Damorou, F., Pessinaba, S., Yayehd, K. and Soussou, B. (2009) Les masses intracardiaques non infectieuses. Aspects diagnostique et thérapeutique à Lomé. *Journal de la Recherche Scientifique de l'Universite de Lome*, **11**. https://doi.org/10.4314/jrsul.v11i2.56997

[8] Elbey, M.A., Akdag, S., Kalkan, M.E., Kaya, M.G., Sayin, M.R., Karapinar, H., *et al*. (2013) A Multicenter Study on Experience of 13 Tertiary Hospitals in Turkey in Patients with Infective Endocarditis. *Anadolu Kardiyoloji Dergisi/The Anatolian Journal of Cardiology*, **13**, 523-527. https://doi.org/10.5152/akd.2013.172

[9] Ralamboson, S., Miandrisoa, R., Riel, A., Ravaoavy, H., Rakotomanga, D., Rajomarison, M., *et al*. (2011) Aspects épidemio-cliniques et échographiques des thrombi intracavitaires cardiaques vus au Centre Hospitalier de Soavianandriana. *La Revue Médicale de Madagascar*, **1**, 58-62. https://doi.org/10.62606/rmmao00021

[10] Crawford, T.C., Smith, W.T., Velazquez, E.J., Taylor, S.M., Jollis, J.G. and Kisslo, J. (2004) Prognostic Usefulness of Left Ventricular Thrombus by Echocardiography in Dilated Cardiomyopathy in Predicting Stroke, Transient Ischemic Attack, and Death. *The American Journal of Cardiology*, **93**, 500-503. https://doi.org/10.1016/j.amjcard.2003.10.056

[11] Jassal, D.S., Aminbakhsh, A., Fang, T., Shaikh, N., Embil, J.M., Mackenzie, G.S., *et al*. (2007) Diagnostic Value of Harmonic Transthoracic Echocardiography in Native Valve Infective Endocarditis: Comparison with Transesophageal Echocardiography. *Cardiovascular Ultrasound*, **5**, Article No. 20. https://doi.org/10.1186/1476-7120-5-20

[12] Domenicucci, S., Chiarella, F., Bellotti, P., Bellone, P., Lupi, G. and Vecchio, C. (1999) Long-Term Prospective Assessment of Left Ventricular Thrombus in Anterior Wall Acute Myocardial Infarction and Implications for a Rational Approach to Embolic Risk. *The American Journal of Cardiology*, **83**, 519-524. https://doi.org/10.1016/s0002-9149(98)00906-0

[13] Benyounes, N., Haddour, N. and Cohen, A. (2010) Echocardiographie et sources-cardiaques d'embolie. *Kardiovaskuläre Medizin*, **13**, 6-17.

[14] Hashash, J.G., Zeineh, N.S. and Crock, F.W. (2013) Multiple Intracardiac Thrombi.

Cleveland Clinic Journal of Medicine, **80**, 415-416.
https://doi.org/10.3949/ccjm.80a.11149

[15] Amad, H. and Leong-poi, H. (2006) Les Tumeurs cardiaques primaires. *Tumeurs cardiaques. Journal de Radiologie*, **11**, 6 p.

[16] Bakkali, A., Sedrati, M., Cheikhaoui, Y., Kacemi, R.D. and Maazouzi, W. (2009) Myxomes cardiaques (à propos de 23 cas opérés). *Annales de Cardiologie et d'Angéiologie*, **58**, 94-98. https://doi.org/10.1016/j.ancard.2008.07.013

[17] Cornily, J.-C., Pennec, P.-Y. and Blanc, J.-J. (2009) Tumeurs malignes du Cœur et du péricarde. *La lettre du cancérologue*, **18**, 272-275.