Journal of Case Reports in Practice (JCRP) 2014; 2(2): 57-59

CASE REPORT

Coronary embolism complicating an atrial myxoma

Cheniti G[1], Mahfoudhi H[1], Arous Y[2], Fehri W[1] and Haouala H[1]

[1]*Department of cardiology,*[2]*Department of radiology ,Military hospital of Tunis, Tunis.*

ABSTRACT

Myxoma is by far the most common type of primary cardiac tumor and accounts for about 40%. Symptoms are resumed in a typical clinical triad: systemic symptoms, signs of valvular or intracavity dysfunction and embolic episodes. Coronary arteries are a rare site for embolism. We present the case of left atrial myxoma presenting with chest discomfort and complicated by coronary embolism as assessed by normal coronary angiography and the presence of subendocardial late gadolinium enhancement at cardiac MRI due to apical myocardial infarction.

Key words: atrial myxoma, coronary embolism.

INTRODUCTION

Myxoma is by far the most common type of primary cardiac tumor and accounts for about 40%.1 It's a benign tumor but with potential serious complications. Patients present with a variety of non specific symptoms which are resumed in a typical clinical triad: systemic symptoms, signs of valvular or intracavity dysfunction and embolic episodes.[2] Those latter may virtually occur at any organ or tissue, nevertheless, coronary embolism is a rare complication of this tumor.[3, 4]

We present the case of left atrial myxoma potentially complicated by coronary embolism as assessed by cardiac magnetic resonance (CMR).

CASE REPORT

A 56-year-old woman was seen in the military hospital of Tunis in June 2012 complaining of non specific chest discomfort for about 1 year. Physical examination as well as EKG didn't reveal any abnormalities. Trans Thoracic Echocardiography (TTE) found a pedunculated intra left atrial mass attached to the fossa ovalis, the size of which was 23mm x 18mm. It was animated by free motion without prolapsing into the mitral valve orifice; the tumor was better studied by Trans Esophagus Echocardiography (TOE) (Fig. 1). TTE also showed a hypokinesis of the apex. As a coronary angiography was normal, CMR was performed and confirmed the hypokinesis of the apex, which is due to multiple apical subendocardial infarctions (Fig. 2).

Those latter showed a subendocardial late gadolininium enhancement confined to a coronary territory (segments 14, 16 and 17). It also allowed a thorough study of the tumor seen as a heterogeneous lobular lesion attached on the fossa ovalis (Fig. 3).

Correspondence:
Ghassen Cheniti
military hospital of Tunis, Tunisia.
Email: ghassen.chniti@gmail.com

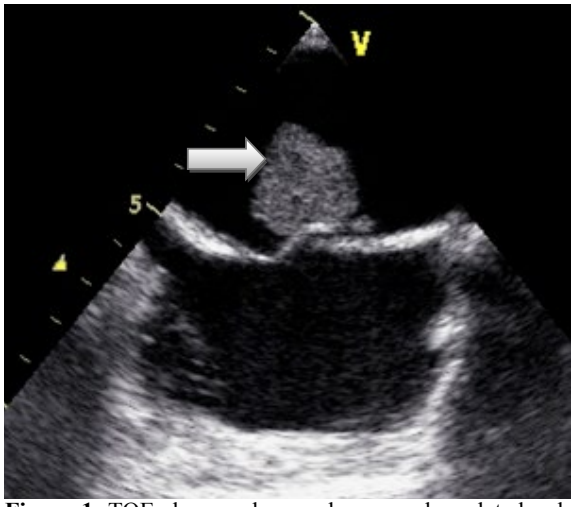

Figure 1, TOE shows a hyperechogen pedunculated polypoid tumor implanted on the fossa ovalis, the tumor was animated by free motions without prolapsing in the mitral valve orifice. Note a thickening of the interatrial septum

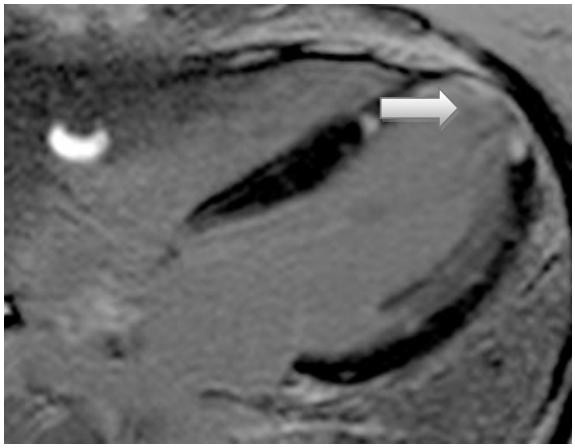

Figure 2, Late gadolinium enhancement (LGE) T1 weighted sequence on CMR shows multiple subendocardial LGE indicating subendocardial infarctions located mainly in the apex as well as the segments 14 and 16. The tumor is also enhanced by gadolinium which eliminates an eventual thrombus.

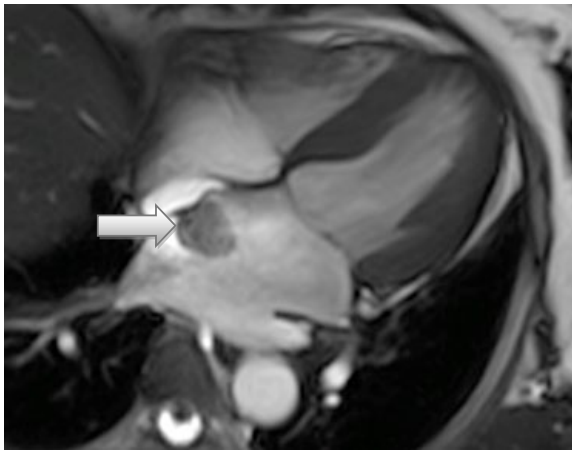

Figure 3, Cine MRI shows a hypointense pedunculated left atrial tumor implanted on the fossa ovalis animated by free motion without prolapsing in the mitral valve.

Cerebral magnetic imaging eliminated any cerebral embolism. The tumor was removed surgically. Pathologic examination confirmed the diagnosis of myxoma. The patient did well after the procedure and was discharged 10 days after surgery. The first echographic control didn't find any residual tumor or interatrial septal defect.

DISCUSSION

Myxoma is the most common primary tumor of the heart, with a wide range age (15-80 years).[6] Approximately, 75% of sporadic myxomas occur in females.[5,7] Some cases of familial myxomas are described with less female sex predominance.[5]

The majority of the myxoma are solitary (>90%) and located in the left atrium in about 85% of the cases.[5] It occurs exclusively on the endocardial surface.[8] Tumor cells arise likely from multipotent mesenchymal cells as shown by immunohistochemical studies.[9,10]

Clinically, patients may be asymptomatic in 20% of cases, or may show a variety of non specific symptoms ranging among a typical clinical triad: systemic symptoms, signs of valvular or intracavity dysfunction and embolic episodes.[2,6] Systemic symptoms are believed to be due to overproduction of interleukin[6,11,12] leading to fever, weight loss, arthralgias and Raynaud's phenomenon.[13] Those symptoms are seen in 50% of patients and were not encountered in our patient. Signs of valvular and intracavity dysfunction are due to interference between the tumor and valve's leaflet, which depends on the tumor's size, location and mobility. Patients present commonly with signs which mimic the clinical picture of mitral- or tricuspid-valve stenosis, rarely can it mimic an aortic or pulmonary valve stenosis because of the narrowing of the left or right ventricular outflow tract. Embolism occurs in 30-40% of patients.[21] It's due to the friable nature of the tumor. The risk of embolism is higher for polypoid or multilobular shaped tumors than round ones.[18] The site of the embolism depends mainly on 2 factors which are: tumor's location and the presence of intracardiac shunt. Since most myxomas are located in the left atrium, systemic embolism is particularly frequent. This may lead to infarction and hemorrhage in virtually any organ or tissue and to metastases which grow anywhere in the body. Other non specific complications may be encountered like the infection of the tumor[14, 15], hemolytic anemia[16], malignant transformation[17] and etc.

Echocardiography is the most reliable tool for the diagnosis of atrial myxoma; it provides all information needed for surgery like the location, shape, size, and relations of the tumor with intracardiac components.[19] Two different anatomic types of myxoma have been described by means of echocardiography: round, which is solid and round with a nonmobile surface; and polypoid, which is soft and irregular in shape with a mobile surface.[20] The risk of embolism is the highest with polypoid tumors.[18, 20] And also rises as the tumor size decreased. Our patient presented with a small polypoid tumor and was thus at high risk of embolism.

A cardiac magnetic resonance (CMR) is particularly useful when echocardiographic data are equivocal, when the lesion has an atypical location, or when there are doubts concerning diagnosis.[21] In our case, CMR presented two interests: first, it helped a precise anatomic approach to characterize the tumor, second, it showed scars of myocardial infarctions seen as subendocardial lesions enhanced by gadolinium on the late gadolinium enhancement (LGE) T1 weighted sequences and confined to a coronary territory. CMR provides accurate assessment of the size, location, and point of attachment of these lesions; it's thus a valuable tool in assisting surgery, mainly when the TTE remained suspicious.

Surgery for atrial myxoma is curative, with low rates of peri-operative complications.[21] Prompt surgical excision gives excellent early and long-term results. Residual tumor is responsible for recurrence of the tumor; such a complication must be regularly searched by TTE.

CONCLUSION

Atrial myxoma is a benign tumor that can rarely be complicated by a coronary embolism. TTE allows an accurate assessment of the tumor which is enough to assist surgery. In addition to this evaluation, CMR allows a better study of sequelae of myocardial infarction that is mainly due to coronary embolism, especially when coronary angiography is normal. Surgery for atrial myxoma is curative. Some late post operative complications may occur and require a regular follow up.

REFERENCES

1. Bast RC Jr, Kufe DW, Pollock RE, et al., editors; Holland-Frei Cancer Medicine. 5th edition ; Hamilton (ON): BC DEKER ; 2000, Disponible on: http://

www.ncbi.nlm.nih.gov/books/NBK20777/
2. Allard MF, Taylor GP, Wilson JE, McManus BM. Primary cardiac tumors. In: Braunwald E, editor. Atlas of heart diseases, Vol. III. Cardiopulmonary diseases and cardiac tumors. St. Louis, MO: Mosby; 1995. p. 15.1–16.5
3. Kuon E, Kreplin M, Weiss W, et al: The challenge presented by right atrial myxoma. Herz 2004; 29 (7):702- 709
4. Ozaydin M, Dogan A, Altinbas A. Left atrial myxoma presenting with acute myocardial infarction–a case report. Angiology 2005;56:767–9.
5. Reyaz A. Lone, Ahanger A G, Shyam Singh, et al. Atrial Myxoma: Trends in Management: Int J Health Sci. 2008 ; 2(2) : 141- 151
6. Grebenc ML, Rosado-de-Christenson ML, Green CE, et al: Cardiac myxoma: Imaging features in 83 patients. Radiogr Rev Publ Radiol Soc N Am Inc. 2002;22(3):673-689.
7. Hi D, Yoon A, Roberts WC. Sex distribution in cardiac myxomas. Am J Cardiol. 1 sept 2002;90(5):563-565
8. Burke A, Virmani R. Tumors of the heart and great vessels. In: Atlas of tumor pathology, 3rd Series, Fascicle 16. Washington, D.C.: Armed Forces Institute of Pathology; 1996
9. Terracciano LM, Mhawech P, Suess K, et al. Calretinin as a marker for cardiac myxoma. Diagnostic and histogenetic considerations. Am J Clin Pathol. 2000;114(5):754-759.
10. Pucci A, Gagliardotto P, Zanini C, et al. Histopathologic and clinical characterization of cardiac myxoma: review of 53 cases from a single institution. Am Heart J. 2000;140(1):134-138
11. Acebo E, Val-Bernal JF, Gómez-Román JJ, Revuelta JM. Clinicopathologic study and DNA analysis of 37 cardiac myxomas: a 28-year experience. Chest. 2003;123(5):1379-1385.
12. Mendoza CE, Rosado MF, Bernal L. The role of interleukin-6 in cases of cardiac myxoma. Clinical features, immunologic abnormalities, and a possible role in recurrence. Tex Heart Inst J. 2001;28(1):3-7
13. Pinede L, Duhaut P, Loire R. Clinical presentation of left atrial cardiac myxoma. A series of 112 consecutive cases. Medicine (Baltimore). 2001;80(3):159-172.
14. Leone S, dell' aquila G, Giglio S, et al. Infected atrial myxoma: case report and literature review. Infez Med Riv Period Eziologia Epidemiol Diagn Clin E Ter Delle Patol Infett. 2007;15(4):256-261.
15. 15- Furukawa A, Kishi S, Aoki J. Large infected atrial myxoma with vegetations. Rev Esp Cardiol. 2013;66(4):310
16. Burns ER, Schulman IC, Murphy MJ Jr. Hematologic manifestations and etiology of atrial myxoma. Am J Med Sci. 1982;284(2):17-22.
17. Miller DV, Tazelaar HD, Handy JR, Young DA, Hernandez JC. Thymoma arising within cardiac myxoma. Am J Surg Pathol. 2005;29(9):1208-1213.
18. Basso C, Valente M, Poletti A, Casarotto D, Thiene G. Surgical pathology of primary cardiac and pericardial tumors. Eur J Cardio-Thorac Surg Off J Eur Assoc Cardio-Thorac Surg. nov 1997;12(5):730-737
19. Lobo A, Lewis JF, Conti CR. Intracardiac masses detected by echocardiography: case presentations and review of the literature. Clin Cardiol. 2000;23(9):702-708.
20. Ha JW, Kang WC, Chung N, et al. Echocardiographic and morphologic characteristics of left atrial myxoma and their relation to systemic embolism. Am J Cardiol. 1999;83(11):1579-1582, A8
21. Garatti A, Nano G, Canziani A, et al. Surgical excision of cardiac myxomas: twenty years experience at a single institution. Ann Thorac Surg. 2012;93(3):825-831