ISSN 2515-8260 Volume 10, Issue 1, 2023

Cardiac Swinging Calcified Amorphous Tumour Presenting as Pulmonary Embolism: A rare case.

Dr.Vijay Ghule[1*], Dr.Tushar Kambale[2], Dr. Padmakar Bardapurkar[3], Dr Charusheela, Gore[4]

[1*] Resident, Department of Pathology, Dr D. Y. Patil Medical College, Hospital and Research centre, Dr D Y Patil Vidyapeeth, Pune, Maharashtra, India.

[2.] Professor, Department of Pathology, Dr D. Y. Patil Medical College, Hospital and Research centre, Dr D Y Patil Vidyapeeth, Pune, Maharashtra, India.

[3.] Assistant Professor, Department of Pathology, Dr D. Y. Patil Medical College, Hospital and Research centre, Dr D Y Patil Vidyapeeth, Pune, Maharashtra, India.

[4.] Professor and HOD, Department of Pathology, Dr D. Y. Patil Medical College, Hospital and Research centre, Dr D Y Patil Vidyapeeth, Pune, Maharashtra, India.

Abstract

A cardiac calcified amorphous tumour (CAT) is an extremely rare nonneoplastic tumour affecting heart chambers and valves. It may mimic other cardiac tumours and can present with systemic embolization. There are very few cases reported regarding CAT in the literature due to its erratic presentation. Here we report a case of a 32-year-old male with a cardiac CAT, who presented with exertional dyspnoea and pulmonary Embolism. After 2 D-ECHO and colour Doppler revealing normal valvular function, a pre-operative clinical diagnosis of right atrial myxoma. Cardiopulmonary bypass was done, mass was completely resected and on histopathological examination diagnosis of the calcified amorphous tumour was done. A pulmonary thrombo-embolectomy was done. Postoperative and follow-up care lead to full recovery of the patient.

Keywords: Calcified amorphous tumour (CAT), myxoma, pulmonary embolism,

INTRODUCTION

Calcified Amorphous Tumour (CAT) is a rare, non-neoplastic lesion with uncertain histogenesis affecting heart chambers and valves and characterised by amorphous deposits, clotted blood and calcification.[1] This mass-forming lesion is liable for misdiagnosis with other cardiac tumours and relied on surgical excision and histopathological examination for accurate diagnosis.[2] The incidence and best surgical approach to this tumour are unclear with a few cases in the literature. This is a rare case of CAT in the right atrium inferior to the opening of superior vena cava in 32 years old male who was diagnosed on histopathological examination after surgical removal.

CASE REPORT

Case Details: A 32 years old normotensive male presented with exertional dyspnoea for the past 20 days and palpitation, on auscultation murmur was heard. For which patient was advised 2 D-Echocardiography and colour Doppler which revealed normal valvular function with swinging tumour mass in the right atrium, further patient evaluated with Computed Tomography Scan [CT] of the thorax (Plain and Contrast) and pulmonary angiography, which reported a 3.5x2 cm tumour mass showing coarse calcification in the right atrium with no enhancement and ground glass opacities in lung tissue in the right upper lobe, left lower lobe and lingula lobe represented pulmonary infarct. Concluding all clinical presentations and imaging studies, a pre-operative clinical diagnosis of right atrial myxoma with pulmonary embolism was made [Figure1,2]. The patient was well conscious and oriented to time, place and person and no other abnormalities were detected on examination. Pre-operative laboratory investigations like complete blood count, liver, renal function tests, serology tests and electrolytes were within normal limits. Serum calcium and phosphorus levels are also within normal limits. After preoperative medical fitness, the patient underwent a surgical procedure of cardiopulmonary bypass and the mass was completely resected and pulmonary thrombo-embolectomy was done. Resected mass was sent to the pathology department for histopathological examination.

The gross specimen revealed a large greyish, firm mass with a yellowish area and multiple small fragmented tissue bits [Figure 3]. On the cut section, the surface is greyish-white with adjacent yellowish-looking soft areas [Figure 3]. On microscopic examination, the tumour shows a large area of amorphous hyalinized eosinophilic

ISSN 2515-8260 Volume 10, Issue 1, 2023

material, fibrin deposits and calcified foci [Figure 4,5]. Postoperative and follow-up care lead to full recovery of the patient.

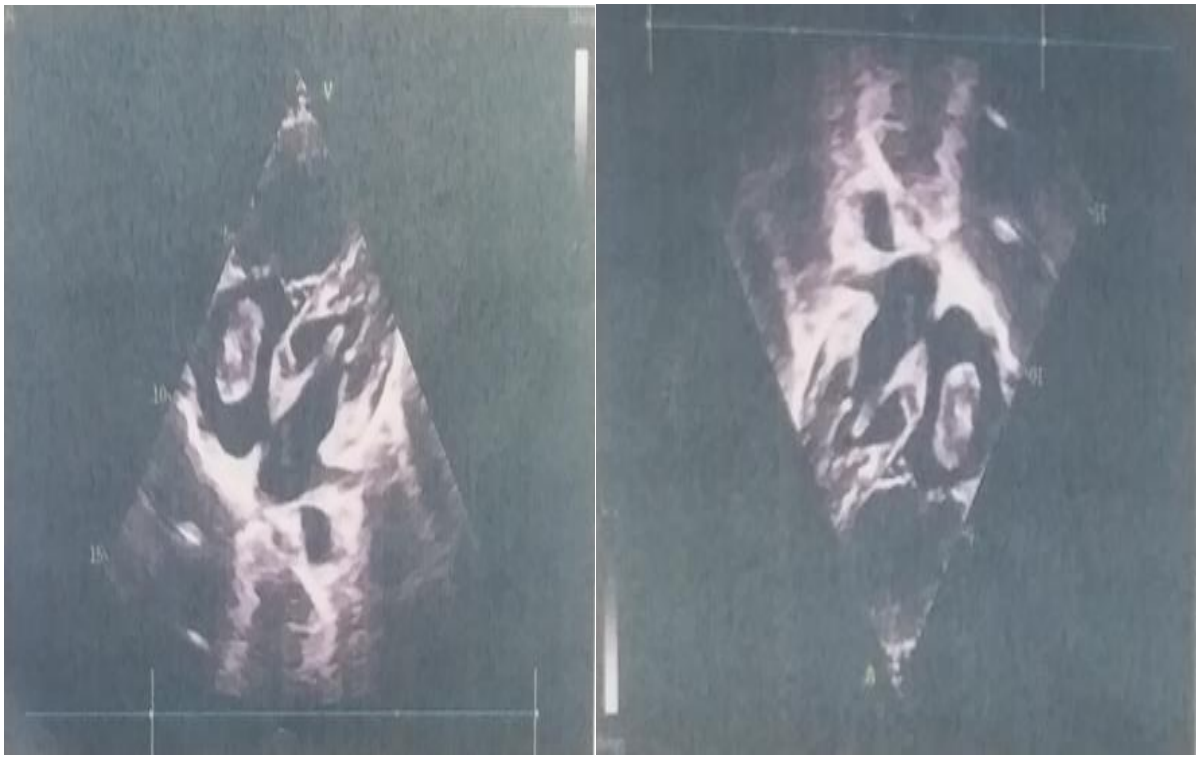

Figure1. Transthoracic Echocardiogram shows 3.5x3x2 cm hyperechoic mass in right atrium inferior to opening of superior ven cava.

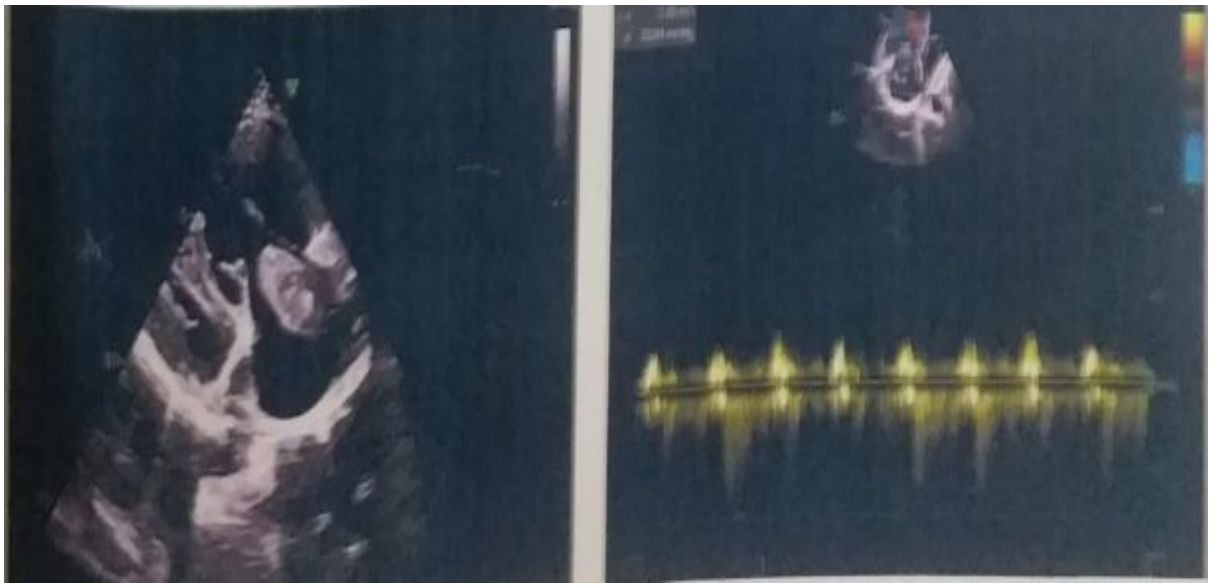

Figure2. Two-dimensional echocardiography and colour doppler showing 3.5x3x2 cm attached mass in right atrium 14 mm away from tricuspid valve.

ISSN 2515-8260 Volume 10, Issue 1, 2023

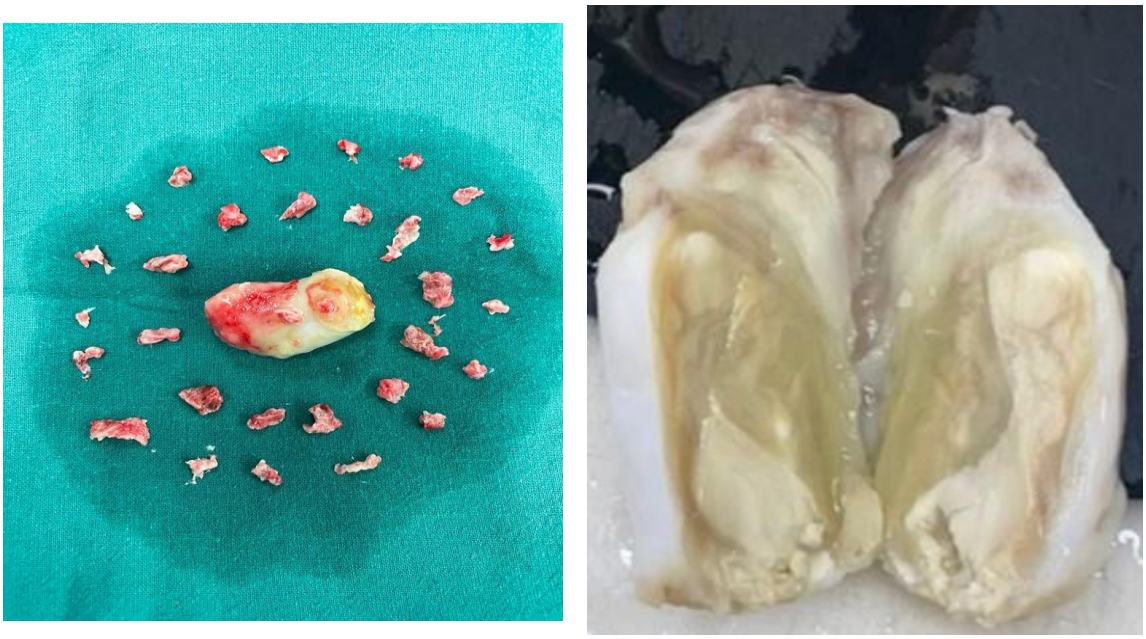

Figure3. Gross appearance shows large greyish, firm mass with yellowish area and fragmented muscular tissue bits. Cut surface is firm greyish-white and adjacent yellowish looking soft area.

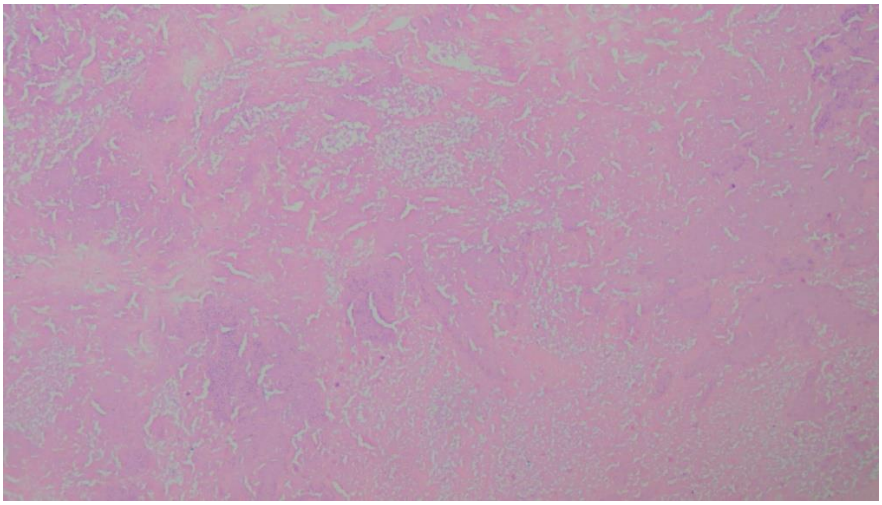

Figure4. Microphotograph showing amorphous eosinophilic material, fibrin deposits and calcified foci.

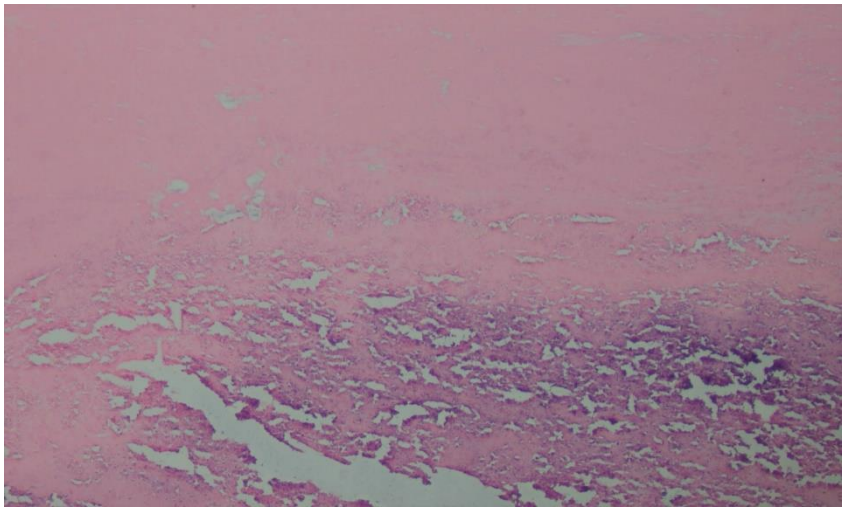

Figure5. Microphotograph showing amorphous eosinophilic material at upper side and dense (shredded) calcification at lower side.

DISCUSSION

First introduced by Reynolds et al. 1997. [6]Cardiac calcified tumour (CAT) is an exceedingly rare entity found in a wide range of ages from 16 to 85 years with a slight female predilection.[6] However, there can be a bias. As the condition may not be reported, since suspected but unoperated cases were present and were most of the time not reported. Though altered calcium-phosphorous metabolism or end-stage renal failure is commonly put forward for it, no definite factor or pathophysiology is evident as is in the present case.[4] It is commonly found in the mitral valve or annulus (36%), followed by the right atrium (21%)[7]. and also, Choi EK et al. 2014, reported a case of mass of size 2 x 1.7 cm right atrial mass as in our case.[3]

The most common presenting symptom is dyspnoea, shortness of breath and syncope. [3] Less frequently, atypical chest pain or palpitation may occur. In mobile lesions, the risk of embolic events is always in higher proportion. However, traditional cardiovascular risk factors may contribute to the high prevalence of cerebrovascular events at presentation, but the etiological role of the CAT is not clear.[7] Our case is presented as dyspnoea, palpitation as well as embolic event.

Kubota Et Al, also reported a case of swinging CAT in 2010, in the mitral valve region, presented with pneumonia. [8] As lesions are mobile, due to turbulence of blood flow, wear and tear of mass leads to deposition of platelets and fibrin, these fragile portions may form emboli, and cause episodes of thromboembolism.

The overall outcome of most of the patients was uneventful after resection of the mass.[3] There is always some procedural risk, very few patients died during the perioperative period and recurrence after surgery is noted in one patient who presented recurrent disease after 2 years of surgical resection. [7]

CONCLUSION

CAT is a very rare tumour of the heart. Despite its benign nature, it can be highly mobile and consequently lead to systemic embolization-like complications. This tumour is often confused with cardiac myxoma clinically and on imaging. To confirm diagnosis histopathology examination is must by an experienced and expert histopathologist.

FUNDING

This work did not receive any grant from funding agencies.

CONFLICTS OF INTEREST-

The authors declare that there are no conflicts of interest regarding the publication of this paper

REFERENCES

1. 1.Reynolds C, Tazelaar HD, Edwards WD. Calcified amorphous tumour of the heart (cardiac CAT). Human Pathology. 1997; 28: 601-606
2. 2.Hussain N, Rahman N, Rehman A. Calcified amorphous tumour of the heart. Cardiovascular pathology. 2014;23: 369-371
3. 3.Choi EK, Ro JY, Ayala AG. Calcified amorphous tumour of the heart: case report and review of the literature. Methodist DeBakey Cardiovascular Journal. 2014;10: 38-40
4. 4.Kawata T, Konishi H, Amano A, Daida H. Wavering calcified amorphous tumour of the heart in a haemodialysis patient. Interactive Cardiovascular and Thoracic Surgery. 2013;16: 219-220
5. 5.Katuski S, Ito K, Tadokoro T, Sasaguri T, Hisahara M, Mohri M. Mitral annulus calcification-related calcified amorphous tumour trapped and extended by closing the mitral valve. European Heart Journal-Cardiovascular Imaging. 2016; 17: 585
6. Kyaw K, Latt H, Aung SSM, Roongsritong C. A Case of Cardiac Calcified Amorphous Tumor Presenting with Concomitant ST-Elevation Myocardial Infarction and Occipital Stroke and a Brief Review of the Literature. Case Rep Cardiol. 2017;2017:8578031. doi: 10.1155/2017/8578031. Epub 2017 24. PMID: 29387492; PMCID: PMC5757095.
7. De Hemptinne Q, De Cannière D, Vandenbossche JL, Unger P. Cardiac calcified amorphous tumour: a systematic review of the literature. IJC Heart & Vasculature. 2015 1;7:1-5.
8. Kubota H, Fujioka Y, Yoshino H, Koji H, Yoshihara K, Tonari K, Endo H, Tsuchiya H, Mera H, Soga Y, Taniai S, Sakata K, Sudo K. Cardiac swinging calcified amorphous tumors in end-stage renal failure patients. Ann Thorac Surg. 2010 Nov;90:1692-4. doi: 10.1016/j.athoracsur.2010.04.097. PMID: 20971294.