INTRODUCTION

Any type of abnormal growth in the body is called a tumor, whether it is determined to be cancerous (malignant) or non cancerous (benign). Primary tumors are tumors that originate in the heart and are rare, occurring in one out of 2,000 people. Tumors that originate in another part of the body and then spread to the heart are called secondary tumors. The most common primary tumors, in descending order of frequency (overall, including adults and children), are myxomas, fibromas, lipomas, papillary fibroelastomas, rhabdomyomas, angiosarcomas, and other sarcomas. The five most common tumors are all benign and collectively account for 80% to 90% of primary tumors of the heart.

Myxomas are the most common primary tumor of the heart in adults. Although they may arise in any of the four chambers or rarely on the heart valves, about 90% are located in the atria, with a left-to-right ratio of approximately 4:1 (atrial myxomas). Myxomas range from small (less than 1 cm) to large (up to 10 cm), sessile or pedunculated masses (Polyps).

In the present case series, I reported 2 cases of cardiac polyps diagnosed during autopsy. Both were male. One 29 year old male had a pedunculated polyp between pulmonary trunk and left auricle which was diagnosed as fibro-fatty polyp. Another 34 year old male was also having a polypoidal growth on posterior surface of left atrium which was diagnosed as granulomatous polyp. Both cases had associated atherosclerotic coronary artery disease and died suddenly due to myocardial infarction.

Key Words:
Cardiac polyps, Tumors of heart, Benign tumors of heart, Myxoma, Atrial myxoma, Pedunculated polyp, Fibro-fatty polyp, Granulomatous polyp, Sudden death, Autopsy.

ABSTRACT

Any type of abnormal growth in the body is called a tumor, whether it is determined to be cancerous (malignant) or non cancerous (benign). Primary tumors are tumors that originate in the heart and are rare, occurring in one out of 2,000 people. Tumors that originate in another part of the body and then spread to the heart are called secondary tumors. The most common primary tumors, in descending order of frequency (overall, including adults and children), are myxomas, fibromas, lipomas, papillary fibroelastomas, rhabdomyomas, angiosarcomas, and other sarcomas. The five most common tumors are all benign and collectively account for 80% to 90% of primary tumors of the heart.

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INTRODUCTION

Any type of abnormal growth in the body is called a tumor, whether it is determined to be cancerous (malignant) or non cancerous (benign). Malignant tumors are fast growing and likely to spread to other parts of the body quickly, while benign tumors are slow growing and often harmless depending on where in the body they are located.

Primary tumors are tumors that originate in the heart and are rare, occurring in one out of 2,000 people. Tumors that originate in another part of the body and then spread to the heart are called secondary tumors.1

Metastatic (secondary) tumors to the heart occur in about 5% of patients dying of cancer. The most common primary tumors, in descending order of frequency (overall, including adults and children), are myxomas, fibromas, lipomas, papillary fibroelastomas, rhabdomyomas, angiosarcomas, and other sarcomas. The five most common tumors are all benign and collectively account for 80% to 90% of primary tumors of the heart.

Myxomas are the most common primary tumor of the heart in adults. Although they may arise in any of the four chambers or rarely on the heart valves, about 90% are located in the atria, with a left-to-right ratio of approximately 4:1 (atrial myxomas).

Myxomas range from small (less than 1 cm) to large (up to 10 cm), sessile or pedunculated masses (Polyps).2,3 Patients with cardiac tumors present nonspecific symptoms depending on tumor site and infiltration, regardless of tumor type. Urgent surgical treatment is indicated for all cardiac tumors, malignant or benign, because of the high risk of secondary complications.4,6 Tumors in the region of the atria or atrioventricular valves may restrict the blood flow into the heart, mimicking stenosis of the mitral or tricuspid valve. Mobile, pedunculated neoplasms

*Corresponding author: Dr. Vedant Kulshrestha
Assistant Professor, Department of Forensic Medicine & Toxicology, Lady Hardinge Medical College & Smt. S. K. Hospital, New Delhi
generally lead to paroxysmal heart failure or dyspnea, depending on posture.2,3 Tumor infiltration into the wall of the heart may produce the symptoms of hypertrophic or restrictive cardiomyopathy. The clinical presentation is dominated by heart failure.4 Expansion into the superior vena cava may result in superior vena cava syndrome. Tumor infiltration of the neural pathways or the myocardium can cause irregular heartbeat and especially AV block. This is particularly true for fibromas. In some cases the first manifestation of a cardiac tumor is sudden cardiac death.4 Cardiac tumors are often first diagnosed after the patient has suffered a stroke, an embolism of the peripheral vasculature, or a pulmonary artery embolism, caused by detached tumor tissue or mobilization of thrombotic deposits.4 In live patients, after history-taking, echocardiography is the first diagnostic procedure.10 If a cardiac tumor cannot be confirmed by echocardiography, further imaging procedures such as computed tomography or magnetic resonance imaging are employed.2,11

Case series

Case 1

A 29 years old male who was an accountant had chest pain and breathlessness at home. He was taken to a hospital where he was declared brought dead. He was chronic alcoholic, smoker and tobacco chewer. He used to do workout daily at Gym. Family history of Diabetes mellitus and Hypertension was present. Previous history of chest pain was also present. Autopsy was conducted at the mortuary of Victoria hospital, Bangalore Medical College and Research Institute, Bangalore. On external examination the dead body measured 172 cm in length, moderately built and nourished. Rigor mortis was present all over the body. Post mortem staining was seen over the back of the body. There were no external injuries on the body. On internal examination, Heart weighed 350 grams. Surface of the heart showed hyperemic area of size 3 cm x 0.4 cm over anterior surface in the interventricular septal region. There was increased epicardial pad of fat over heart surface. A pedunculated polyp of size 1.5 cm x 1.3 cm was situated between pulmonary trunk and left auricle of heart. Right ventricle wall thickness measured 0.5 cm. Left ventricle wall thickness measured 1.7 cm. Interventricular septum thickness measured 1.8 cm. Left anterior descending artery was atherosclerosed and lumen was completely blocked by thrombus. Left coronary artery was also atherosclerosed and lumen was 7 cm, Pulmonary valve was 6 cm and Aortic valve was 4 cm, which is smaller than normal circumferenc of heart valves. Left anterior descending artery was atherosclerosed and lumen was completely blocked. Left coronary artery and Left circumflex artery were also atherosclerosed and lumen

Case 2

A 34 years old male who was a barber by occupation suddenly had chest pain and breathlessness at work place. After sometime he collapsed. He was taken to a hospital where he was declared brought dead. He was chronic alcoholic, smoker and tobacco chewer. Family history of Hypertension was present. Previous history of chest pain was also present. Autopsy was conducted at the mortuary of Victoria hospital, Bangalore Medical College and Research Institute, Bangalore. On external examination the dead body measured 179 cm in length, well built and nourished. Rigor mortis was present all over the body. Post mortem staining was seen over the back of the body. There were no external injuries on the body. On internal examination, Heart weighed 390 grams. Surface of the heart showed hemorrhagic patches and grayish-white patches of pericarditis at places over antero-lateral aspect. A polypoidal growth of size 1 cm x 0.8 cm was present over posterior surface of left atrium. Right ventricle wall thickness measured 0.6 cm. Left ventricle wall thickness measured 1.8 cm. Interventricular septum thickness measured 1 cm. Circumference of Tricuspid valve was 10 cm, Mitral valve was 7 cm, Pulmonary valve was 6 cm and Aortic valve was 4 cm, which is smaller than normal circumference of heart valves. Left anterior descending artery was atherosclerosed and lumen was completely blocked. Left coronary artery and Left circumflex artery were also atherosclerosed and lumen

Fig 1 The photograph of the heart showing Cardiac Polyp situated between Pulmonary trunk and Left Auricle diagnosed as Fibro-fatty polyp.

Fig 2 The photomicrograph of Cardiac Polyp diagnosed as Fibro-fatty polyp. (H & E, 10X).
was about 50% narrowed. Right coronary artery was atherosclerosed and lumen was completely blocked by thrombus. Grey-white fibrosed and calcified areas were present in the myocardium of Left ventricle and interventricular septum towards the apex of heart. Ascending aorta showed fatty streaks at places. Lungs showed congestion and edema. Other internal organs were congested. On histopathological examination of heart, polypoidal growth present over posterior surface of left atrium was diagnosed as Granulomatous polyp. Grayish-white patches present over surface of heart were diagnosed as patches of granulomatous pericarditis. Atherosclerosis was seen in coronaries. Right coronary artery and Left anterior descending artery were completely blocked. Recent and old changes of myocardial infarction along with calcification were also observed in myocardium of Left ventricle and interventricular septum.

Each of four heart valves were affected with approximately equal frequency. All but 4 tumors were benign. The most common histological type was papillary fibroelastoma (41), followed by myxomas (5), fibromas (4), sarcomas (2), hamartoma (1), hemangioma (1), histiocyтома (1), and undifferentiated (1). Average tumor size was 1.15 cm (range, 3 mm to 7 cm). Mitral valve tumors were more likely than aortic valve tumors to produce serious neurological symptoms or sudden death.\textsuperscript{16}

McAllister HA in a series of 407 patients with solid nonvalvular cardiac tumors at Armed Forces Institute of Pathology, Washington, DC found that 14.3% of patients were asymptomatic and 9.6 % patients had sudden death.\textsuperscript{17}

In the present case series, I reported 2 cases of cardiac polyps. Both were male. One 29 year old male had a pedunculated polyp between pulmonary trunk and left auricle which was diagnosed as fibro-fatty polyp. Another 34 year old male was also having a polypoidal growth over posterior surface of left atrium which was diagnosed as granulomatous polyp. Both cases had associated atherosclerotic coronary artery disease and died suddenly due to myocardial infarction. History of chronic alcoholism, smoking and tobacco consumption present in both cases.

CONCLUSION

In this case series 2 young individuals died suddenly. During autopsy and on histopathological examination of heart, 2 cardiac polyps were discovered in the heart. One was diagnosed as fibro-fatty polyp while other was granulomatous polyp. This case series emphasises the requirement of essential investigations to diagnose cardiac polyps and urgent surgical treatment to prevent secondary complications like sudden cardiac death in young individuals. This case series also highlights the role of meticulous autopsy and histopathological examination to detect them.

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