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An article on common conditions atypically presenting as cardiac failure –imaging appearances

Dr.C.Nellaiappan MDRD

Associate professor of radiodiagnosis department,Tirunelveli medical college hospital,tirunelveli,Tamilnadu

ABSTRACT

Cardiac failure is a common medical condition. In this Article I discuss two common conditions presenting atypically as cardiac failure. Tuberculosis, tetralogy of fallot are discussed.

Key words : computerized tomography(CT),echocardiogram, cardiac failure, cardiomyopathy, tetrology

INTRODUCTION

Radiologic assessment of cardiac failure may be achieved with several imaging techniques. Chest xray,echocardiogram,ct scan are common techniques used. Mri may be used in selected situations.. The radiographic features of calcification are usually well demonstrated on CTscan. In this article, I discuss two common conditions atypically presenting as cardiac failure

Case 1:

25 year old male patient admitted in our hospital for difficulty in breathing. Chest xray(fig1)was taken. It shows cardiomegaly,bilateral pleural effusion more on right side and bilateral lower zones opacities. CT scan (fig2) was taken. It shows bilateral ground glass opacities and bilateral pleural effusion. CT scan (fig3) also shows right side loculated pleural effusion with calcifications and pericardial calcifications. CT abdomen(fig4)shows ascites. Echocardiogram shows dilatation of all chambers with feautures of cardiac failure. Imaging findings in this young patient suggest that tuberculous cardiomyopathy may be the cause for cardiac failure. Patient is having loculted effusion with calcifications,ascites,pericardial calcifications which favour tuberculous etiology.

Case 2:

55 year old male patient admitted in our hospital for pedal edema and difficulty in breathing. chest xray(fig5) was taken . it shows cardiomegaly with main pulmonary artery dilatation. echocardiogram was done . it shows large ventricular septal defect(fig6) .it also shows stenotic pulmonary arterial origin and overriding of aorta(fig7). the findings are consistant with tetralogy of fallot.

DISCUSSION

Tuberculosis (TB) is generally believed to spare these four organs-heart, thyroid, pancreas and skeletal muscle. Involvement of myocardium by TB is rare, and generally occurs in conjunction with pericardial involvement. Isolated myocardial TB is a rare finding. myocardial biopsy during life gives definitive diagnosis [1]. Tuberculosis myocarditis is extremely rare and may occur usually secondary to hematogenous or direct spread, as well as retrograde spread from the lymph nodes, of TB of another focus to the myocardium.The latest World Health Organization (WHO) figures indicate that there are 9.0 million (range, 8.6 million -9.4 million) incident cases of TB, equivalent to 126 cases per 100000 population. India has annual cases of about 2 million to 2.3 million ,about one quarter (24%) of global burden of TB [2]. TB mainly affects the pericardium and tuberculosis pericarditis is the commonest form of cardiovascular TB.

Involvement of myocardium is very rare and usually TB occurs elsewhere in the body.

Maurocordat in 1664 followed by Morgagni in 1761 described cardiac TB [3].

Clinically myocardial TB may remain asymptomatic. The patients may present with congestive heart failure[4]. appropriate and prompt diagnosis and treatment of Tuberculous myocarditis will improve the patient [5]. calcifications in loculated effusion and pericardial calcifications in our hospital young patient are suggestive of tuberculosis. So cardiomegaly may be possible sequlae to tuberculous myocarditis.

Without surgical correction ,only a few patients reach adulthood In tetralogy of Fallot (TOF), the most common form of cyanotic congenital heart disease [6]

The adult patients with uncorrected TOF have nowadays become a rarity, with only a few patients with TOF surviving into adulthood without operation., Hypoplastic pulmonary artery with moderately slow development of subpulmonary obstruction are related to longevity in these patients: [7]. Only Few patients live to 40years of age[8]. The life history and clinical manifestations of those patients with tetralogy of Fallot who reach adulthood without benefit of surgical palliation or total correction suggest that longevity in tetralogy of Fallot is determined predominantly by the progressive narrowing of the initially mild infundibular stenosis with age and early development of collateral circulation to the lungs [9]. The mortality rate in untreated patients reaches 50% by age 6 years, but children with simple forms of tetralogy of Fallot after corrective surgery enjoy good long-term survival with an excellent quality of life[10].The patient in our hospital presented with cardiac failure with TOF uncorrected at age of fifty five .

CONCLUSION

Involvement of myocardium by TB is rare. However it should be suspected as a cause of congestive heart failure in any patient with imaging features suggestive of TB. Increasing recognition of the entity and the use of endomyocardial biopsy may help us detect more cases of this "curable" form of cardiomyopathy.

Without surgery,TOF mortality rates gradually increase, ranging from 30% at age 2 years to 50% by age 6 years. few patients live upto adulthood. imaging with xray and echo are crucial in diagnosis and for further appropriate management.

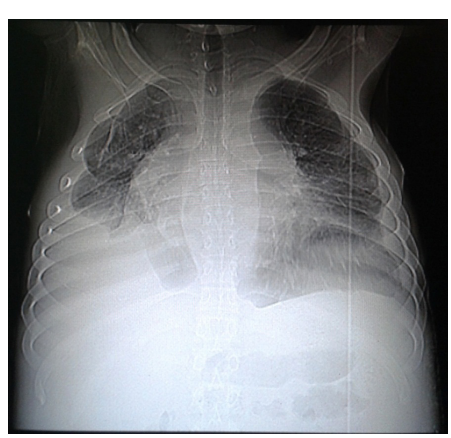

Fig1-chest xray - cardiomegaly,bilateral pleural effusion more on right side and bilateral lower zones opacities.

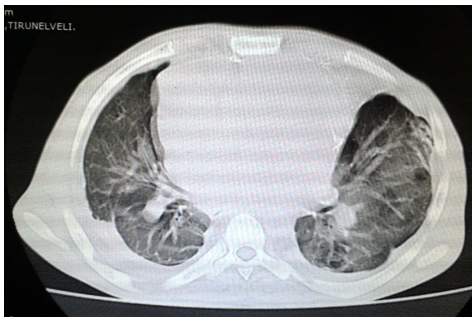

Fig2-CT shows bilateral ground glass opacities, bilateral pleural effusion.

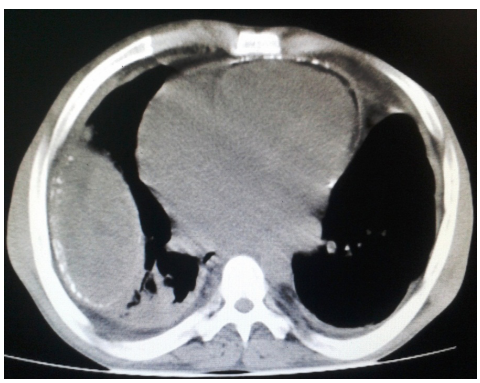

Fig3-CT shows right side loculated pleural effusion with calcifications , pericardial calcifications.

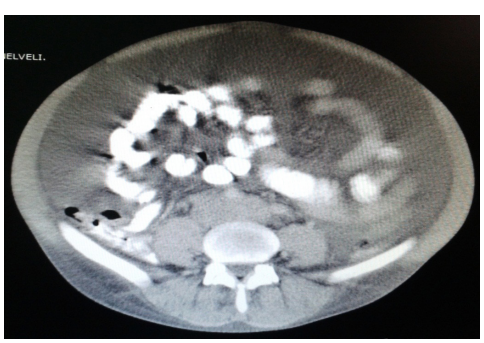

Fig4- CT abdomen shows ascites

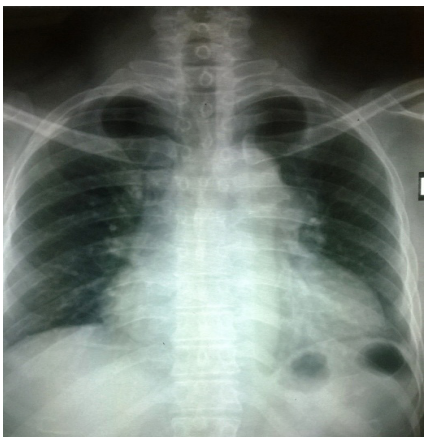

Fig5-chest xray- cardiomegaly with main pulmonary artery dilatation

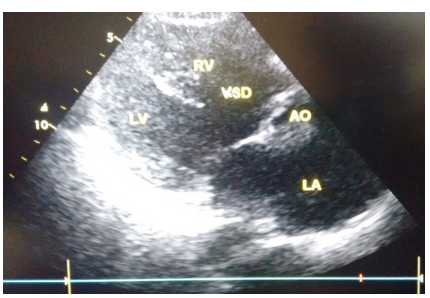

Fig6- ECHO shows large ventricular septal defect

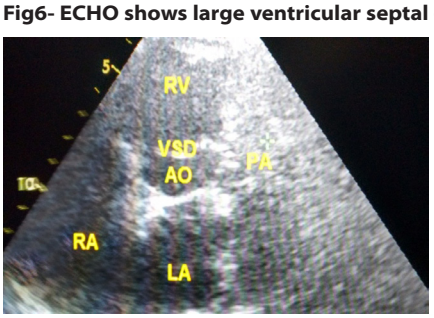

Fig7-ECHO shows stenotic pulmonary arterial origin and overriding of aorta

REFERENCES

1. Tuberculous dilated cardiomyopathy: an under-recognized entity? Ritesh Agarwal,corresponding author, Puneet Malhotra, Anshu Awasthi, Nandita Kakkar, and Dheeraj Gupta, BMC Infect Dis. 2005; 5: 29.Published online 2005 Apr 27. doi: 10.1186/1471- 2334-5-29 PMCID: PMC1090580 2.World Health Organization (WHO). Global Tuberculosis Report 2014. 3. Njovane X. Intramyocardial tuberculosis-a rare underdignosed entity. South African Medical Journal 2009; 99 (3): 152-153. 4. Wilbur EL. Myocardial tuberculosis: a case of congestive cardiac failure. Am Rev Tuberc 1938, 38: 769-776 5. Dilated cardiomyopathy due to miliary tuberculosis -Anadolu Kardiyol Derg 2013; 13: 495- 500 6. A case of 75-year-old survivor of unrepaired tetralogy of Fallot and quadricuspid aortic valve Cristina Maria Stanescu, Kyriaki Branidou euje.2007.06.009 167-170 First published online: 1 January 2008 7, Meindok H. Longevity in the tetralogy of Fallot. Thorax 1964;19:12-5. 8. Burch, G.E., DePasquale, N.P. & Phillips, J.H. Tetralogy of Fallot associated with well- developed left ventricular muscle mass and increased life span. Am J Med 1964, 36:54-61. 9. The American Journal of Cardiology Volume 29, Issue 6, June 1972, Pages 837–846 Tetralogy of Fallot in the adult .Charles B. Higgins, MD, Donald G. Mulder, MD, FACC 10. Tetralogy of Fallot Author: Shabir Bhimji, MD, PhD; Chief Editor: Park W Willis IV, MD- MEDSCAPE ARTICLE