

Mycobacterium Endocarditis: A rare case

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Disclosures

- Dr. Md Abu Zahid
- MBBS; MD (Cardiology)
- Assistant Professor , Department of Cardiology , Rangpur Medical College & Hospital
- Life member , Bangladesh Medical Association (BMA)
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- Life member , Bangladesh Society of Cardiovascular & intervention (BSCI)
- Member of American College of Physician (MACP)
- International Associate member of American College of Cardiology
- Member of European society of Cardiology (MESC)
- Life member of Registered Graduates of the Senate of Dhaka University.
- I have over 20 National and International Publications, several book chapters; more than 50 conferences
- many Certificates of excellence in Reviewing various international Journals
- Large Research work on HF, HTN , Dyslipidaemia
- Field of Interest in Clinical and Interventional Cardiology

Abstract

Mycobacterium Endocarditis Is A Very Rare Case. Endocarditis Is Referred To As The Infection In The Endocardium, The Inner Lining Of The Heart Chambers And Heart Valves.

- In The United States Alone, Approximately 15,000 New Cases Of Infective Endocarditis Are Diagnosed Each Year.

Infective Endocarditis

- Infective endocarditis has an annual incidence of up to 10/100,000 of the general population and carries a mortality of up to 30% at 30 days.
- Healthcare related infections now account for 25–30% of newly reported cases of endocarditis.

- The modified Duke criteria are used to help establish a diagnosis of endocarditis. This introduces the use of molecular imaging techniques for implanted heart valves where conventional echocardiography has reduced sensitivity.
- Complicated cases of endocarditis that are accompanied by heart failure, valvular incompetence, structural destruction (abscess, perforation, fistula formation) should be managed at a reference centre by a dedicated endocarditis team.

- Antibiotic management of endocarditis, especially in culture negative cases, is complex; choice of regimens and ongoing input should be provided by an infection specialist.
- Antibiotic prophylaxis is recommended for those individuals at high risk of developing endocarditis (prosthetic heart valves or valve repair, prior endocarditis and unrepaired cyanotic congenital heart disease) who are scheduled for dental extractions, subgingival scaling or manipulation of the gingival tissue, teeth .

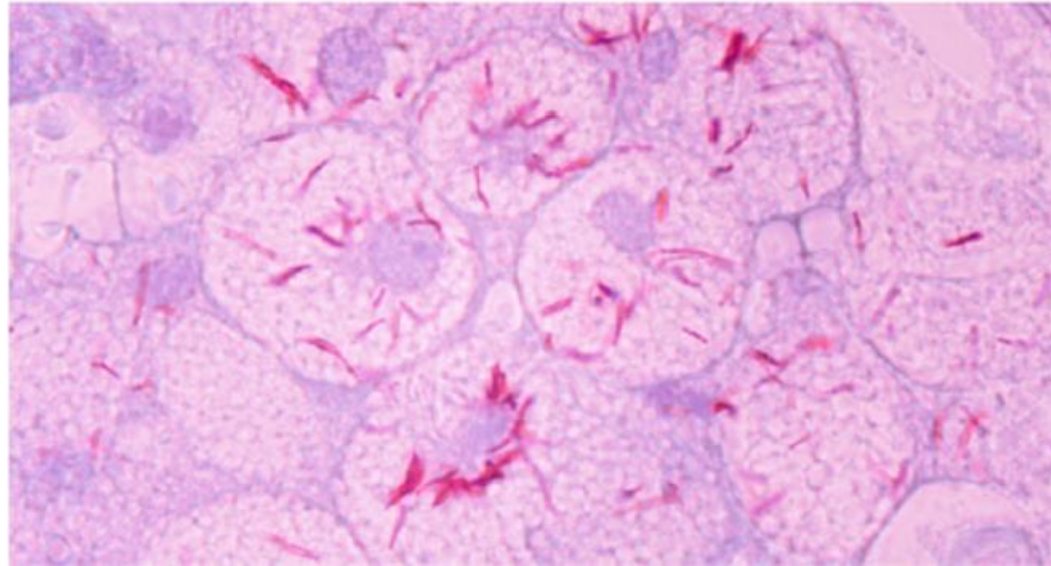
- The Organism Itself Is Exceptionally Resistant To Conventional Antibiotics, Requiring A Particular Combination Of Antibiotics (E.G., Isoniazid, Rifampin, Ethambutol, Pyrazinamide).
- The Treatment Duration Can Last For Months. Mycobacterium Tuberculosis Yet Remains A Global Threat Being A Major Cause Of Death.
- It Has The Potential To Infect Every Organ Of The Body Including Heart.

Can *Mycobacterium tuberculosis* cause endocarditis?

- *Mycobacterium tuberculosis* (TB) is a major cause of death globally.
- TB is capable of infecting every organ in the body, and the heart is no exception.
- Tuberculous endocarditis (TBE) was first reported in 1892 and subsequently many other cases have been described, highlighting the significant morbidity and mortality associated with this manifestation of TB.

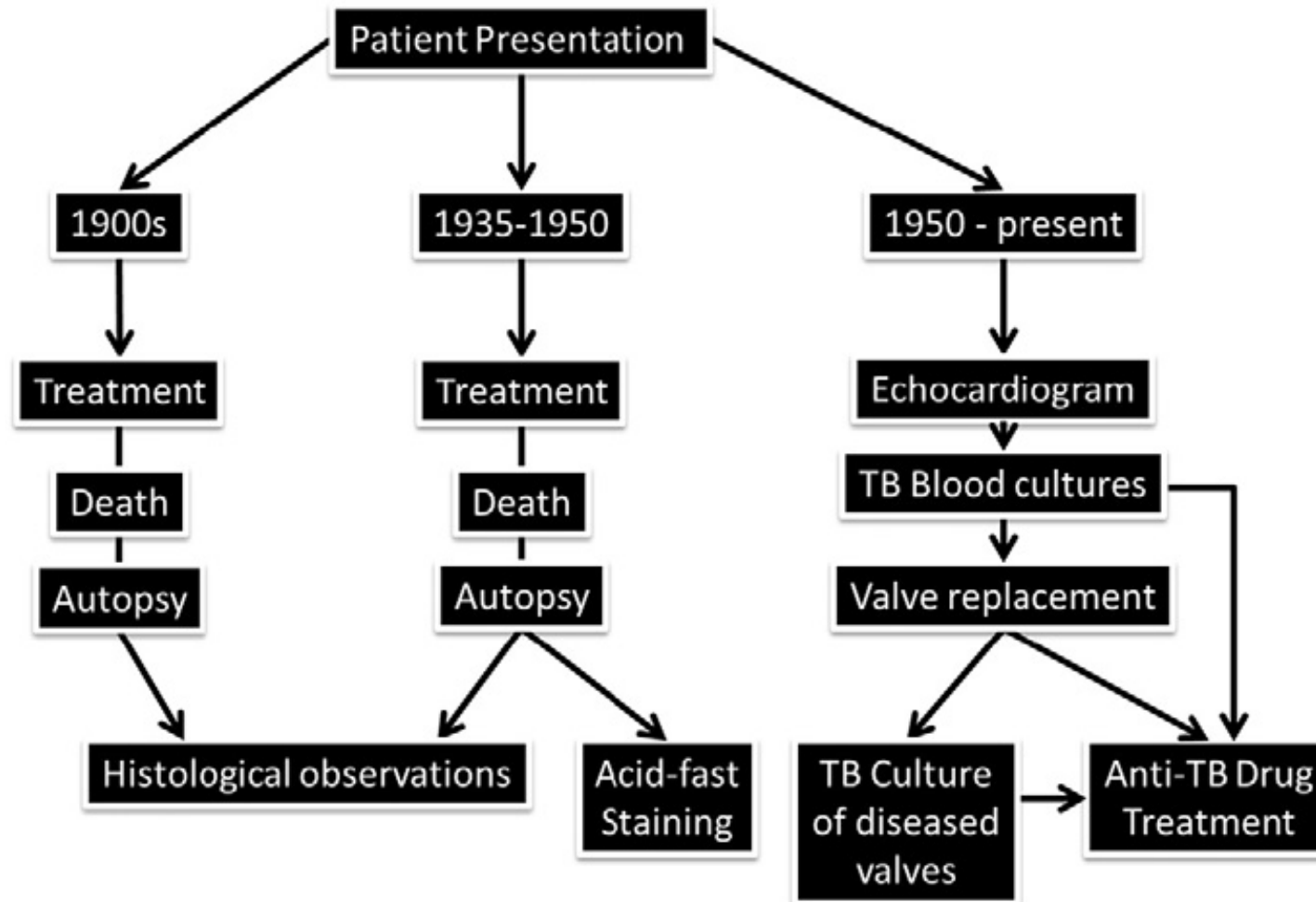
- TBE usually presents with miliary tuberculosis and most early cases were diagnosed on autopsy.
- With increasing application of prosthetic valve replacements in the treatment of infective endocarditis (IE), TB infections have begun to affect these as well as native valves.
- With the introduction of TB culture methods and drug therapy, the prognosis has improved.
- The rarity of this disease and the resistance of the bacteria and treatment duration makes it difficult to treat disease with a high mortality rate.

- Granulomas Caused By Mycobacterium Tuberculosis Have Been Observed At Autopsy In Heart, Predominantly In The Myocardium And Endocardium, But Rarely Involving The Coronary Vessels And Valvular Structures.



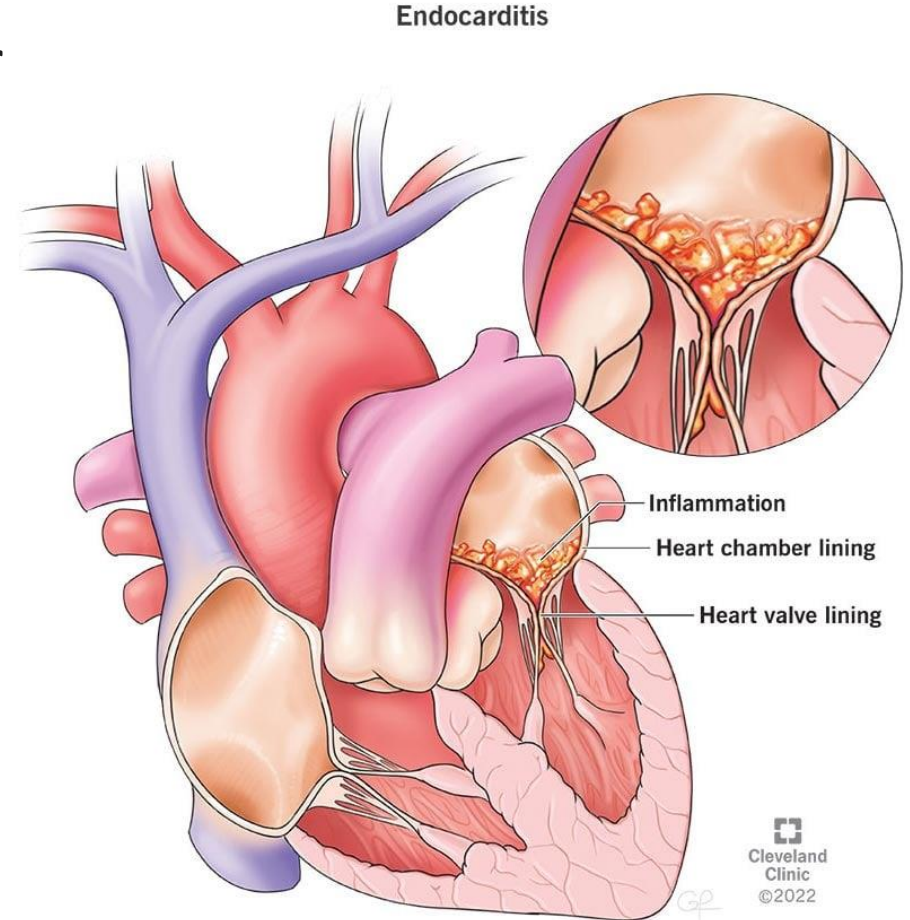
Ziehl-Neelsen (ZN) staining of tubercle bacilli. This image from laboratory demonstrates dark purple stained tuberculous bacilli on a background of pink stained macrophages.

Summary of the available management of tuberculous endocarditis through time



Features of Endocarditis

- Endocarditis is an inflammation of the inner lining of the heart, called the endocardium.
- It can be caused by bacteria, fungi, or viruses.
- Symptoms:
 - Fever
 - Fatigue
 - Joint pain
 - Night sweats
 - Unexplained weight loss
 - Shortness of breath
 - Small red spots on the skin



Case Report

- Mr. M a 5 years old boy presented to our cardiology Department, Rangpur medical college Hospital, Rangpur on 17th February 2020 with a history of fever for 20 days.
- He had also history of respiratory distress and malaise for 10 days, pain in the lower limb for 10 days.
- On examination:
 - Anaemia: +
 - Temperature: Raised and
 - Liver: Hepatomegaly.

Investigation Report:

- CBC:
 - Hb% → 9.8 gm/dl,
 - WBC → 11,000/cu mm.

Chest X-ray: Cardiomegaly



Fig.1: Chest X-Ray showing huge cardiomegaly with globular shaped heart

Echocardiogram

- Severe pericardial effusion (27mm posteriorly, 13mm anteriorly & 20mm laterally at LV site and 17 mm at RV site) features of early pericardial tamponade.
- Tentacles were also found in the pericardial fluid.
- There was also vegetation attached to the upstream site of the anterior and septal leaflets of tricuspid valve and vegetation also attached to the PML of Mitral valve.

Echocardiogram

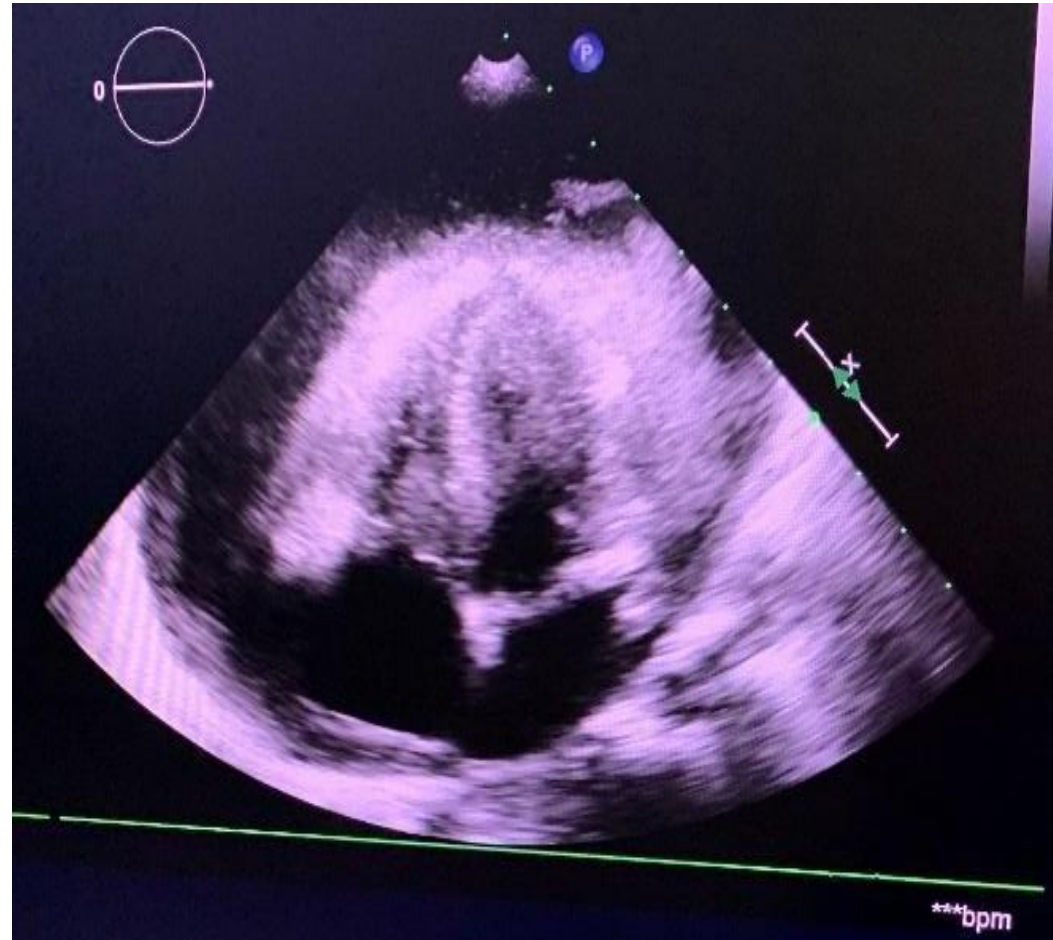


Fig. 2: Echo Showing Pericardial Effusion with Vegetation in tricuspid and mitral valve

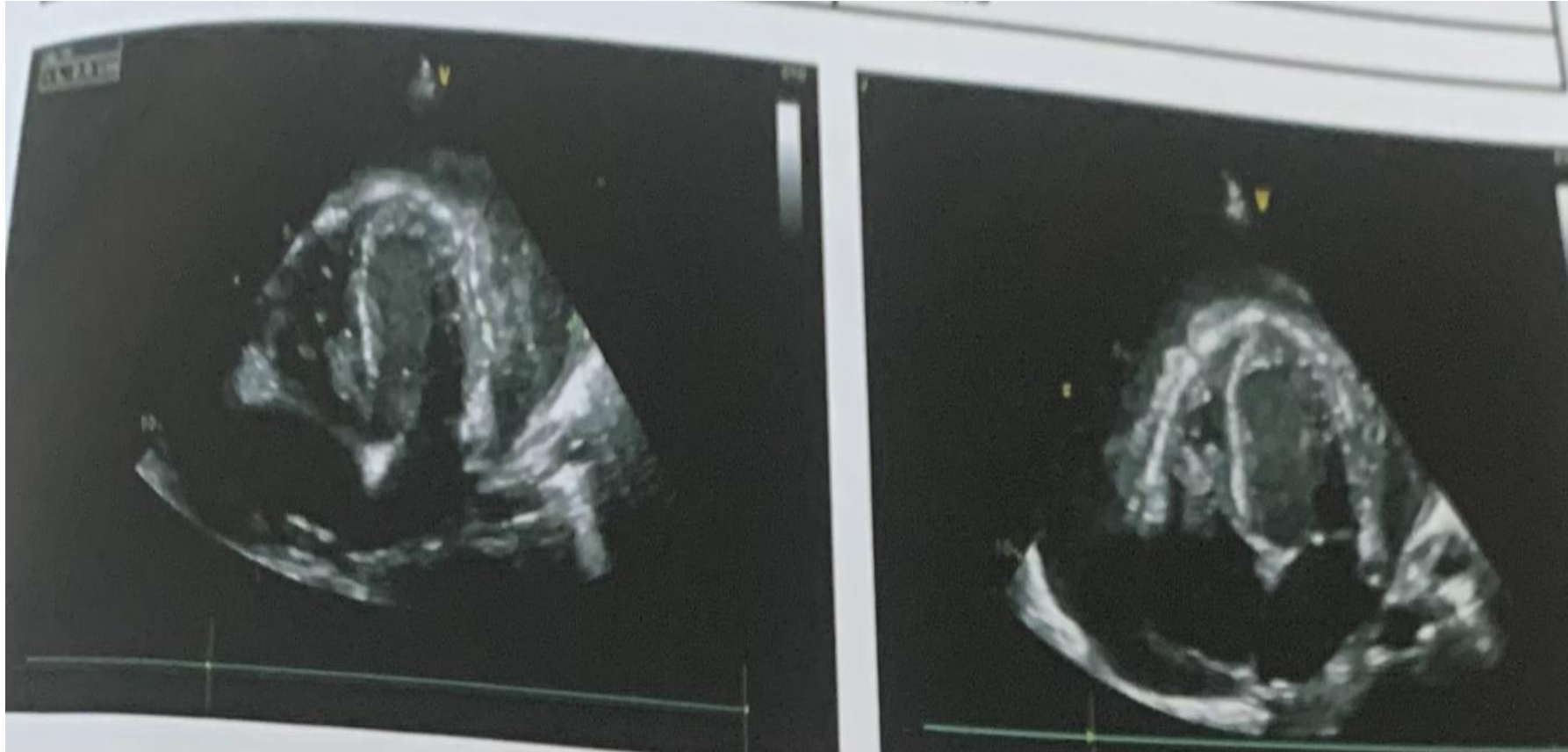


Fig 4: vegetation attached to the tricuspid and mitral valve with huge pericardial effusion



Fig 5: large vegetation in tricuspid valve with pericardial effusion

- Pericardiocentesis Was Done And 300 Ml Milky Coloured Pericardial Fluid Was Aspirated And Sent For Examination.

Pericardial fluid

- ADA → 195 U/L,
- Protein 9 gm/dl,
- Sugar 00 $\mu\text{g/dl}$,
- Pus cells - plenty



Fig. 3: Milky Coloured Pericardial Fluid.

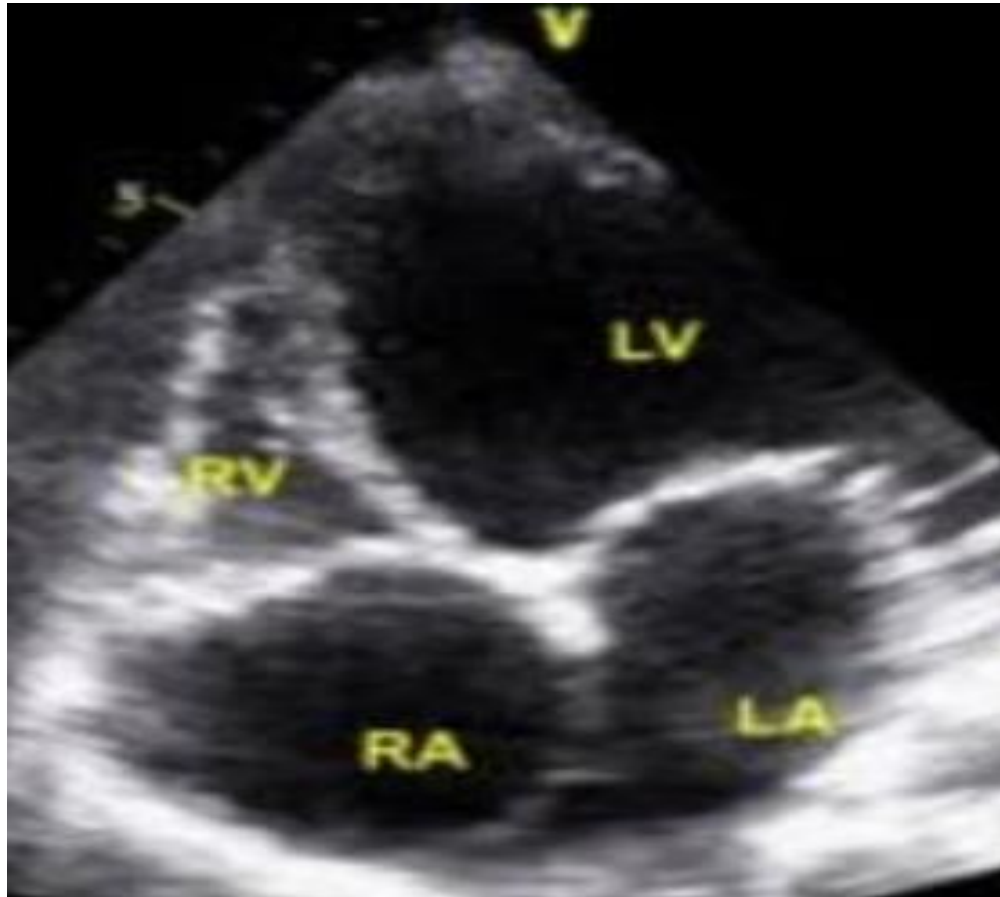
Diagnosis

Tuberculous pericardial effusion with mycobacterial
endocarditis

Treatment

- As soon as the pericardiocentesis was done the patient felt comfort and anti-tuberculosis drugs (four drug regimen) was given as per the regiment for a 5 years child weighing 14.5 kg. The patient was advised antituberculosis treatment
 - 3FDC Rimstar (R: 75, H: 50, Z:150) 3 tablet once daily and
 - Ethambutol 100 mg 3 tablet once daily.
- With the above regimen, the patient showed good result during follow up.

Echo Findings after treatment



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Thank You