

Case Report

Isolated Native Tricuspid Valve Endocarditis with Pulmonary Septic Emboli Presenting as PUO in a Young Adult Female Managed Successfully with Surgical Intervention

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Right Sided Infective Endocarditis (RSIE) is rare in immunocompetent adults without any predisposing factors and represents 5%-10% of all IE in adults. Among all RSIE native Tricuspid valve endocarditis represents 90% of the cases. They always possess a diagnostic challenge because they mimic the symptoms of Lower Respiratory Tract Infection in this case report, a 27-year-old woman was diagnosed with native Tricuspid Valve Endocarditis after presenting for 1 month with high-grade intermittent fever, a productive cough and decreased appetite without a history of intravenous drug use or any indication of an underlying cardiac abnormality.

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Key words : Right Sided Infective Endocarditis, Native Tricuspid Valve Endocarditis, Pulmonary Septic Emboli.

Pyrexia of Unknown Origin (PUO) is a term used to describe a persistent febrile illness for which there is no known aetiology. To diagnose PUO is a big challenge and the patient remain undiagnosed in 30%-50% of the cases¹. Less than 5% of PUO cases are caused by Infectious Endocarditis (IE)². In immunocompetent, non-addicted adults, isolated native Tricuspid Valve Endocarditis (TVE) is uncommon. We are presenting an interesting case of native Tricuspid Valve Endocarditis with Septic Pulmonary Emboli causing Pyrexia of unknown origin in a young adult female, where the delayed diagnosis from time of presentation was due to lack of risk factors and atypical presentation.

CASE REPORT

A 23-year-old female who had never used intravenous drugs, engaged in high-risk behavior or had any prior symptoms of rheumatic fever or congenital heart disease walked into our hospital's medicine OPD. with complains of prolonged high grade intermittent fever, cough with expectoration, anorexia, loose stools on and off with intermittent blood in stool. She was in her early postpartum period after an uncomplicated vaginal delivery of her first child. At the time of her admission, she was conscious, alert and orientated on physical examination her heart rate was 120 beats/min, blood pressure was 124/70 mmHg, air room saturation was 95%, and body weight was 44 kg, she had a fever of 102° F and pallor. Two fingerbreadths

Editor's Comment :

- Isolated tricuspid valve endocarditis in a young adult, particularly without prior intravenous drug use or other typical risk factors, is a rare clinical scenario, highlighting the need for a high index of suspicion.
- Pyrexia of unknown origin (PUO) can be an atypical presentation of endocarditis, especially in cases involving the right side of the heart, where symptoms may be less classic.
- Septic emboli to the lungs are a significant complication of right-sided endocarditis and can present with respiratory symptoms or be silent on initial examination.
- Early and accurate diagnosis through echocardiography and other imaging techniques is crucial for timely multidisciplinary management, as delays can lead to complications.
- With timely surgical intervention and appropriate antimicrobial therapy, the prognosis for isolated tricuspid valve endocarditis with complications like pulmonary septic emboli can be favorable.

below the costal margin, her spleen was palpable and firm and nontender. Cardiovascular auscultation revealed normal S1 and S2 without any significant murmur and chest auscultation revealed bi-lateral bronchial breath sounds in the infra-scapular and infra-axillary area with end-inspiratory crepitations.

The remainder of the physical examination went without incident. Microcytic anaemia was the only finding in the initial laboratory analysis; the serology results for Enteric Fever, Dengue Fever, Malaria, Viral Infections, Hiv, and Autoimmune Diseases were all negative. Her ultrasonography for abdomen and pelvis reveals splenomegaly. Her HRCT thorax reveals multiple patchy areas of consolidation in bi-lateral lower lobes with few small thick-walled cavities in bi-lateral upper lobes. We suspected Health Care Associated Pneumonia (HCAP) and her blood culture was done which revealed Methicillin Sensitive Staphylococcus Aureus (MSSA) sensitive to flucloxacillin, Fosfomycin and Meropenem. She was given

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Flucloxacillin (12gm) for 40 days, Fosfomycin for 18 days and Meropenem for 10 days. Though her fever did not subside and sputum for AFB and Broncho-alveolar Lavage was negative for Pulmonary Tuberculosis, but she was diagnosed as PTB on the basis of HRCT thorax, she was treated conservatively in our hospital & discharged home on ATD.

She again got admitted in hospital after 1 month due to continuous fever with anorexia. In view of persistent pyrexia, a possibility of infective endocarditis was thought as differential diagnosis and ECHO was done. ECHO reveals normal LV function with 16x10 mm vegetation on ATL, 16x11 mm vegetation in STL. (Figs A, B, C, D) Subsequent ECHO shows increase in vegetation size with severe low pressure TR. Patient was treated with IV antibiotics for 40 days but during this period she was having intermittent fever and also on repeat ECHO her vegetation size increased with severe TR. Her repeat blood C/S showed STAPH HEMOLYTICUS sensitive to Teicoplanin. She was transferred to other hospital where on PET Scan she was diagnosed to have Pulmonary Embolism (likely septic emboli in view of Tricuspid valve endocarditis). She came to our hospital once again for further evaluation.

At the time of her second admission, she was febrile, tachypneic, had tachycardia. On clinical examination she had pansystolic murmur of grade-III/VI at LLSB (4th to 5th ICS) & B/L coarse crepitations at basal regions of Lungs. During the course in our hospital, she was having intermittent fever, SOB, persistent dry cough. On ECHO

Table 1 — Showing Laboratory Investigations and Results

LABORATORY INVESTIGATIONS	RESULTS
Haemoglobin	7.1
Total leucocyte count	10.6
Platelet count	138K
Liver function test	Normal
Kidney function test	Normal
Coagulation profile	Normal
Widal/Typhidot IgM/IgG	Normal
Malarial antigen	Normal
HIV	Normal
Viral markers(HBsAg/Anti HCV)	Normal
Erythrocyte sedimentation rate	93 mm/h
C reactive protein	276 mg/L
Procalcitonin	3 ng/ml
Antinuclear factor	Negative
Rheumatoid factor	Negative
Complement levels(C3/C4)	Normal
Urine routine microscopy	Normal
Urine culture	No growth
Blood culture(First time)	MSSA +ve
Blood culture(Second time)	STAPH HEMOLYTICUS

we re-confirmed the presence of vegetations on Tricuspid valve with endocarditis which did not even decrease in size with prolonged antibiotics treatment for last 2 months. In CT Pulmonary Angiography we found hypodense filling defect of Left Lower lobe pulmonary artery s/o Acute pulmonary thromboembolism (Fig E). In view of her worsening of symptoms, not responding to antibiotics, persistent vegetations & Acute pulmonary thrombo-

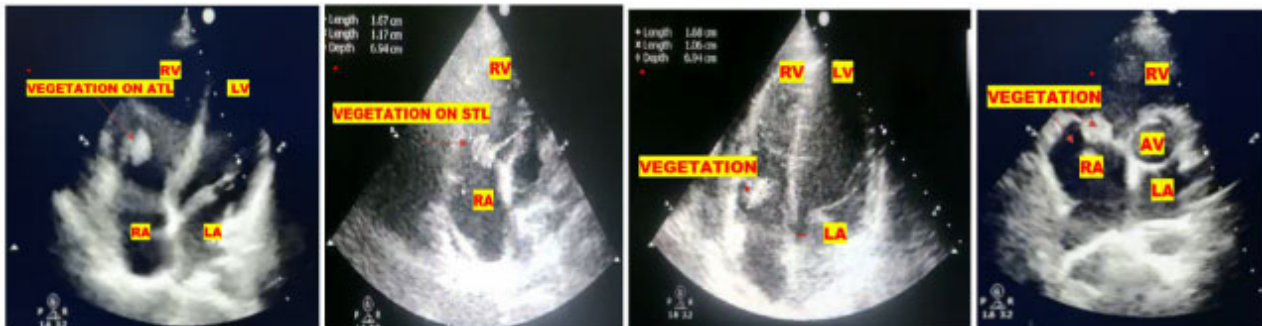


Fig A — Apical 4 Chamber View Showing Vegetation on ATL

Fig B — Apical 4 Chamber View Showing Vegetation on STL

Fig C — Apical 4 Chamber View Showing Vegetation on ATL

Fig D — Basal Short Axis View Showing Vegetations

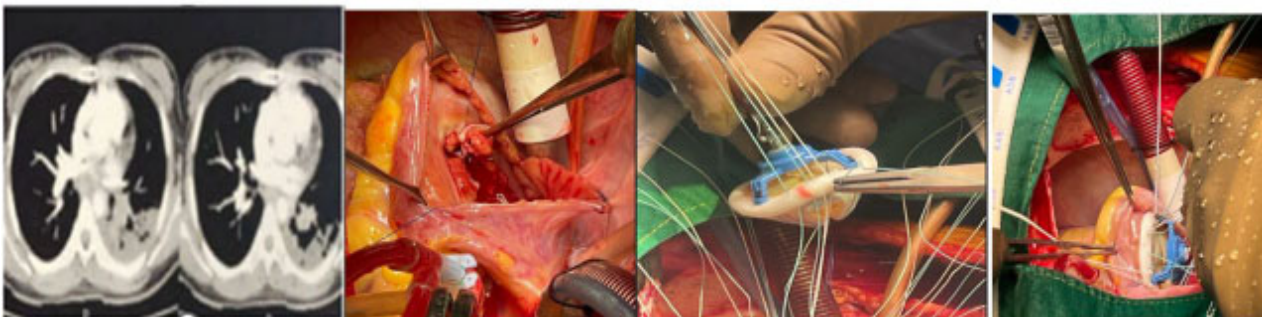


Fig E — Showing Left Lower Lobe Pulmonary Artery Hypodense Filling Defect

Fig F — Diseased Tricuspid Valve with Vegetation

Fig G & H — Tricuspid Valve Replacement

embolism we discussed the case with CVTS as Heart team approach & offered her surgical intervention.

She had undergone Tricuspid valve replacement (29 mm Hancock II Bioprosthesis) and Pulmonary Thromboendarterectomy (Figs F, G, H). Tricuspid valve tissue culture reveals gram negative *Klebsiella pneumoniae* sensitive to Tigecycline & hence antibiotics regimen was changed. Post operative course was uneventful with gradual & complete recovery.

DISCUSSION

A rare condition, Tricuspid or Pulmonic valve infection makes up 5% to 10% of all cases of infective endocarditis³. Most often the Right Sided Infective Endocarditis (RSIE)(90%) involve the tricuspid valve^{4,5}. RSIE is a rare phenomenon because there are fewer right-sided congenital heart diseases and rheumatic heart diseases than left-sided infective endocarditis, which is thought to be caused by low pressure and low oxygen saturation on the right chambers of the heart⁶. A right-sided cardiac anomaly, intravenous drug use, the presence of a Cardiac Implantable Electronic Device (CIED), and other intravascular devices are risk factors for RSIE⁷.

Native TVE in a young immunocompetent adult without risk factors or obvious endocarditis symptoms and signs is very unusual and rarely reported in case reports. RSIE usually presents with fever due to persistent bacteraemia, and septic emboli to the lungs. As a result of septic emboli to the lungs, the initial patient may complain of haemoptysis, coughing, or chest pains. In 80% of these cases, there are pulmonary events, which can range from small amounts of atelectasis in the basal pulmonary segments to large infiltrates, cavitations and exudative pleural effusion. When a patient has the "tricuspid syndrome," which includes recurrent pulmonary events, anaemia, and microscopic hematuria⁸, clinical suspicion of TVE should be raised.

The two most crucial TVE diagnostic indicators are septic embolic phenomena, which our patient had and vegetation evidence on echocardiography. Due to low pressure in the right sided chambers, which allows the vegetation to grow large, TVE is more frequently found on the anterior leaflet of the Tricuspid valve. This vegetation is typically large (>20 mm). Vegetation size correlates with mortality. The high mobility of TVE vegetations accounts for the higher incidence of pulmonary embolism associated with this entity^{8,9}. In between 5% and 16% of TVE cases, surgery is required, and the following circumstances should be taken into account : (1) incurable right-sided heart failure that does not improve with diuretics, (2) persistent bacteraemia in spite of receiving the proper

antimicrobial therapy, (3) large vegetation (>20 mm) that doesn't get smaller despite getting embolized repeatedly., (4) fungal endocarditis, (5) concomitant left-sided IE and (7) prosthetic valve endocarditis^{8,9}. Valvectomy, valve replacement, or valve repair are the common surgical procedures performed for Tricuspid Valve Endocarditis.

CONCLUSION

Native Tricuspid Valve Endocarditis is rare in immunocompetent patients. The symptoms of native Tricuspid Valve Endocarditis mimic the symptoms of Lower Respiratory Tract Infection (Fever, Dyspnoea And Pulmonary Infiltration) making the diagnosis challenging. Our patient belongs to the subset of individuals without any predisposing factors. Therefore, even in cases of PUO who do not have any risk factors for TVE, there should be a high index of suspicion of the condition and Echocardiography should be performed as soon as possible to confirm the diagnosis. Patients with native valve infective Endocarditis and not responding to aggressive medical management should be subjected to surgical intervention.

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