

### Tricuspid Valve Endocarditis in a 50 year male non-IV drug user.

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#### Background

Infective endocarditis is a challenging diagnosis having many presentations ranging from an indolent infection to septicemia with life-threatening systemic embolizations.

It is normal to have patients to present with agitation to the emergency department. The history could be suggestive of the diagnosis in most. When an apparently healthy young man comes to the hospital with only history of fever, it is not an easy one to diagnose.

#### Case Report

This 50 years Bangladeshi school teacher, hypertensive, non-diabetic and non-smoker, presented to the emergency of AHD with the complaints of high grade fever for 3 weeks, reddish urine for last few days and pain in different parts of the body with generalized weakness.

His past medical history is nothing significant. Patient denies any prior surgeries and has no known drug allergies. Social history is not significant for tobacco, alcohol, and intravenous drugs use. The physical exam was then conducted. Vital signs showed temperature 103 F, heart rate 130/min, respirations 30/min, blood pressure 138/80mmhg. There were creps in both lung fields but no murmur in the heart. Liver and

spleen was not palpable.

He was admitted in SSMC & MH on 7<sup>th</sup> Nov'11 with same complaints and was treated as enteric fever with IV ceftriaxone followed by oral cefixime. There was no improvement and patient developed haematuria and haemoptysis, he was diagnosed as having malaria and treated with quinine and tetracycline.

In Apollo Hospitals Dhaka he was found to have anaemia, leucocytosis, high ESR, macro and microscopic haematuria, gross renal impairment and pulmonary infiltrate in both lungs on chest x-ray. Dengue IgG and IgM antibody and ICT for malaria was negative. Transthoracic ECHO showed possible vegetations in tricuspid valve, which was confirmed by transoesophageal ECHO. Blood culture showed growth of coagulase negative staphylococcus. Initially he was treated with IV meropenem and flucloxacillin, later vancomycin in renal dose instead of meropenem. One unit of PRBC was transfused. Nephrology and cardiology consultation was taken. He was closely monitored in High Dependency Unit. He gradually improved and was shifted to the cabin. His renal function was monitored regularly. He was discharged in haemodynamically stable condition with home medication and advice.

#### Summary of the Laboratory and Radiology Results

Hb ( Haemoglobin )	: 8.4 Gm/dl
MCV	: 85.0 Fl
Platelet Count	: 150 10 <sup>9</sup> /l
TLC	: 13.8 10 <sup>9</sup> /l
Neutrophil	: 92 %
Creatinine-serum	: 3.03 Mg/dl
Na+	: 123 M Mol/l/k+ : 3.7 M Mol/l
Esr	: 61 Mm (1st Hr.)

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Tricuspid Valve Endocarditis

Urine Routine And Microscopy:

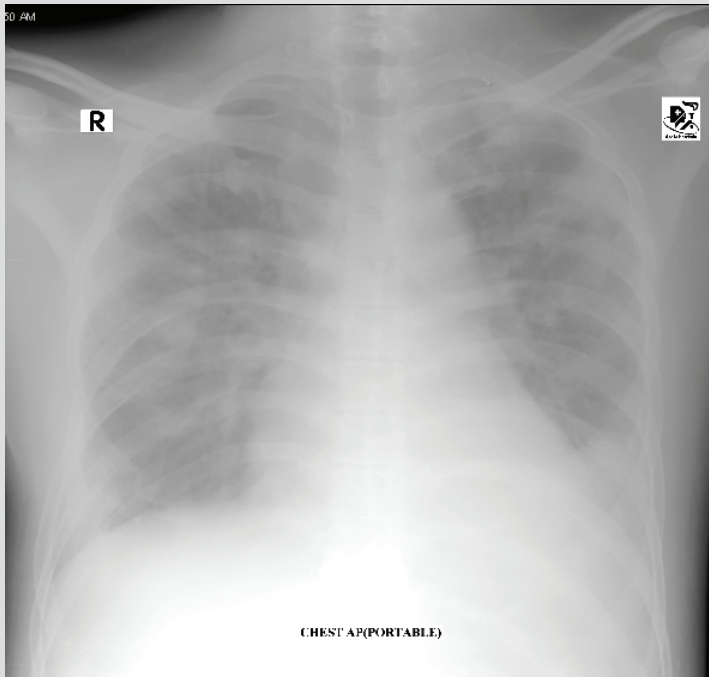
Pus Cells : 3-4 /hpf  
RBCs : Numerous /hpf  
Malaria Parasite In Blood Film ( Thick and Thin )

Malarial Parasite : Not Found

ICT For Malarial Parasite ( P. Vivax & P. Falciparum) : Negative  
Dengue Antibodies For IgG & IgM (Rapid Test) : Negative  
Complement Level-C3

Investigation	Result	Unit	Reference Range
Complement Level C3	0.91	G/l	0.9 to 2.1
Complement Level-C4			

Investigation	Result	Unit	Reference Range
Complement Level C4	0.11	G/l	0.1 to 0.4
Abdomen Whole (Male) Ultrasonogram (Ultra Sound)			

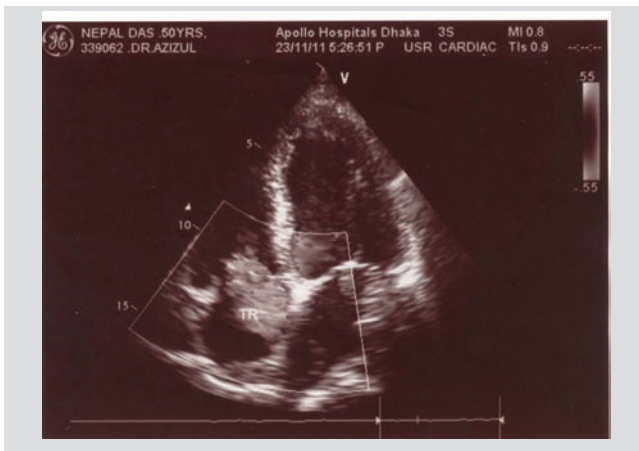


## CASE REPORT

Echo Screening :

Conclusion :

- Normal Chamber Dimension
- No RWMA
- Possible Tricuspid Valve Vegetation
- Mild Tr (Ppg-40 Mm Hg, Pasp- 50 MmHg)
- Good LV Systolic Function (Ef:60%)
- No Intracardiac Thrombus
- Pericardium - Normal.
- No Pericardial Effusion.



Echo-transesophageal :

Report Summary

Indication : Assessment of LA Thrombus.

Pre-procedure Medications: Xylocaine Spray.

Findings : Under full aseptic preparation transoesophageal echocardiogram was done. Vegetation Attached To Ventricular Surface Of Anterior Leaflet Of Tricuspid Valve With Severe TR.

Aerobic C&S Blood :

Organism Isolated : Coagulase Negative Staphylococcus.

Name Of Antibiotics :

Vancomycin	S
Cloxacillin	S
Ampicillin	S
Clindamycin	S
Chloramphenicol	S
Linezolid	S
Cefoxitin	S
Cefadroxil	S
Ceftriaxone	S
Oxacillin	S

## Tricuspid Valve Endocarditis

Meropenem	S
Norfloxacin	R
Erythromycin	R
Ciprofloxacin	R
Levofloxacin	R
Azithromycin	R

S - Sensitive, R - Resistant.

C-anca (Anti-PR3)	:	2.41 U/ml
P-anca (Anti-MPO)	:	1.60 U/ml
Gbm Antibodies	:	Negative

### Discussion

Infective endocarditis is an infection of the endocardial surface of the heart, classically having vegetations on heart valves and causing systemic manifestations. This disease has evolved throughout history with many new and varying causes. Prior to antibiotics, rheumatic fever was the main cause of endocarditis. With the advent of prosthetic heart valves and IV drug abuse; these have become more common causes.

The incidence of endocarditis in intravenous drug users is forty times that of the general

population. Damage to the valve is often caused mechanically by particulate matter such as talc that is mixed with the injected drug, as well as by drug-induced pulmonary hypertension, which causes turbulence. While the tricuspid valve has the highest percentage of vegetations (40-70%), mitral and aortic valves also account for a significant number of cases (20-30%). Bacterial load is also a significant risk factor in endocarditis. Cocaine has a shorter half-life than heroin and therefore requires more frequent dosing and increases the bacterial load and therefore incidence of endocarditis.

### Diagnosis of infective endocarditis (modified Duke criteria)

- - Positive blood culture
  - Typical organism from two cultures
- Persistent positive blood cultures taken > 12 hrs apart
  - Three or more positive cultures taken over > 1 hr
  - Endocardial involvement
- Positive echocardiographic findings of vegetations
- New valvular regurgitation

### Minor criteria

- Predisposing valvular or cardiac abnormality
- Intravenous drug misuse
- Pyrexia  $\geq 38^{\circ}\text{C}$
- Embolic phenomenon

## CASE REPORT

- Vasculitic phenomenon
- Blood cultures suggestive: organism grown but not achieving major criteria
- Suggestive echocardiographic findings

The case presented meets the above mentioned criteria. There was one blood culture positive for *Staphylococcus* as well as tricuspid valve vegetations, thus fulfilling two major criteria. This patient had no predisposition towards endocarditis since he was not an intravenous drug user. The documented vascular phenomena

of pulmonary infarcts from septic emboli further confirmed the diagnosis.

Right sided infective endocarditis is an important consideration in the differential diagnosis for any intravenous drug abuser presenting with fever as it causes significant morbidity and mortality.

### Microbiology of infective endocarditis

Pathogen	Of native valve (n=280)	In i.v. drug users (n= 87)	Of prosthetic valve Early(n=15 Late(n=2)
<b>Staphylococci</b>	124 (44%)	60 (69%)	10 (67%) 33 (46%)
Staph. aureus	106 (38%)	60 (69%)	3 (20%) 15 (21%)
Coagulase-negative	18 (6%)	0	7 (47%) 18 (25%)
<b>Streptococci</b>	86 (31%)	7 (8%)	0 25(35%)
Oral	59 (21%)	3 (3%)	0 19(26%)
Others (non-enterococcal)	27 (10%)	4 (5%)	0 6 (8%)
<b>Enterococcus spp.</b>	21 (8%)	2 (2%)	1 (7%) 5 (7%)
<b>HACEK group</b>	12 (4%)	0	0 1 (1%)
<b>Polymicrobial</b>	6 (2%)	8 (9%)	0 1 (1%)
<b>Other bacteria</b>	12 (4%)	4 (5%)	0 2 (3%)
<b>Fungi</b>	3 (1%)	2 (2%)	0 0
<b>Negative blood culture</b>	16 (6%)	4 (5%)	4 (27%) 5 (7%)

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