Case Report

Isolated native Tricuspid Valve Endocarditis Presenting as PUO in a Young Adult Male Without Any Risk Factors

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Abstract

A 28-year-old male presented to our hospital with high-grade fever and weight loss for 4 months. Clinical examination was non-contributory and there was no history of any high-risk behavior or prolonged skin or dental infections. Native tricuspid-valve endocarditis may rarely present in these settings and high index of suspicion is essential for early diagnosis.

Keywords: Native-valve endocarditis, pyrexia of unknown origin, tricuspid-valve endocarditis

Introduction

Pyrexia of unknown origin (PUO) is a condition in which fever fails to resolve spontaneously and the cause remains elusive even after extensive diagnostic evaluation. The diagnosis of PUO is always challenging and despite best efforts the patient remains undiagnosed in 30–50% of the cases.[1,2] It is even more difficult when the underlying disease is uncommon and the presentation is atypical. Isolated native tricuspid valve endocarditis (TVE) is uncommon in an immunocompetent adult in absence of risk factors.[3] We present an interesting case of PUO secondary to native TVE in which the diagnosis was delayed because of the lack of risk factors and atypical presentation.

Case Report

A 28-year-old male with no prior co-morbidities presented to our hospital with the complaint of high-grade intermittent fever and significant weight loss for the last 4 months. He had been extensively evaluated in nearby hospital but no conclusive diagnosis could be made. During this period he had received multiple courses of antibiotics, to which fever responded initially but reappeared later. There were no complaints suggestive of other systems involvement. There was no history suggestive of congenital heart disease or rheumatic fever. The patient denied history of any high-risk behavior for sexually transmitted diseases, alcohol abuse, intravenous injections, intravenous drug abuse, recent dental procedures or persisting skin infections.

At the time of admission, he had moderate fever (38.3°C) with pallor. Rest of the physical examination was unremarkable. There were no veni-puncture marks or focus of skin infection at any site. Chest auscultation revealed normal vesicular breath sounds. Cardiac auscultation revealed normal S1 and S2 without any significant murmur.

Initial hematological investigations showed normocytic normochromic anemia (Hb-10.9 g/dl), neutrophilic leucocytosis (white blood cell count 33,500 cells/μl with 91% neutrophils), and high ESR (130 mm in the first hour) along with raised CRP (68.9 mg/l). Routine biochemical and microscopic examination of urine were unremarkable. Liver and kidney function tests along with chest X-ray and ECG showed no abnormalities. Serology for HIV, other viral markers (HBsAg and anti HCV antibodies) and autoimmune markers (ANA, RF, ANCA) which had been tested earlier were negative. Blood and urine culture were non-contributory.

CECT scan of chest and abdomen done previously were discussed with radiologists and revealed subtle nodular lesions in lower lobes of both the lungs with early cavitatory changes in few nodules [Figure 1a–c]. In view of persistent pyrexia with leukocytosis with normal immunological reports, a

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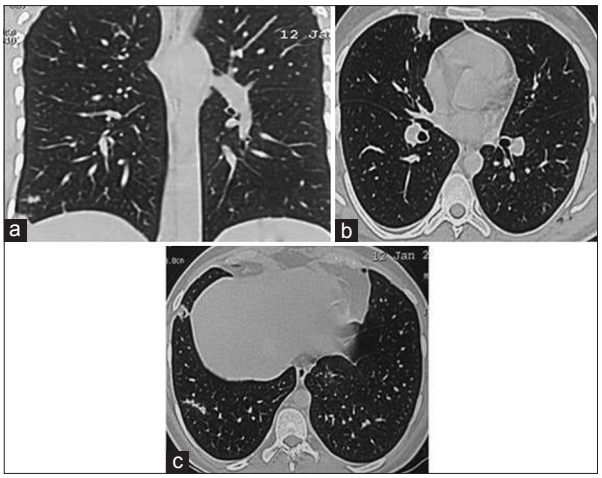

Figure 1: (a-c) CT axial images and coronal reconstruction show parenchymal nodular opacities in the right middle lobe and right lower lobe

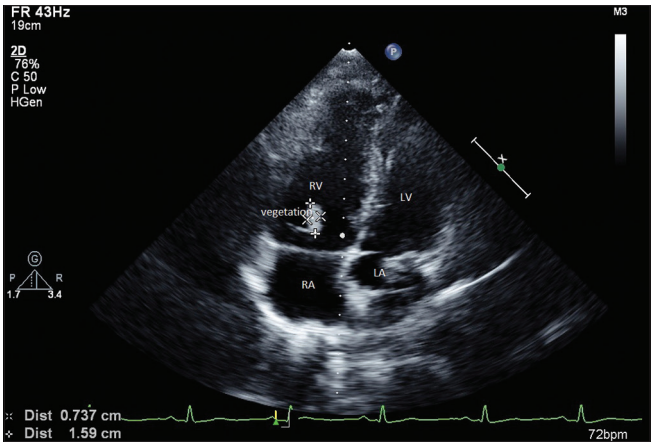

Figure 2: Apical chamber echocardiographic image showing vegetation on the tricuspid valve

possibility of septic pulmonary emboli was entertained and 2D echocardiography was performed to look for the evidence of infective endocarditis. A vegetation of 12 × 10 mm size was found on tricuspid valve with mild low pressure tricuspid regurgitation and LVEF 60% [Figure 2]. With definite evidence in echocardiography (major criteria) and other supportive evidences like high-grade pyrexia and pulmonary infarcts (as suggested by nodular lesions in lower lobes of the lung with early cavitatory changes in few nodules) found in CT scan (two minor criteria) diagnosis of 'Possible native tricuspid valve infective endocarditis (NTVIE)' was made (modified Dukes criteria). Fungal and anaerobic culture of blood were repeated that came sterile.

Pateint was started empirically on Ceftriaxone (2 gm i.v. BD), Vancomycin (1 gm i.v. BD) and Gentamicin (80 mg i.v. BD). As his repeated bacterial, anaerobic and fungal blood culture were reported as sterile, he was continued on empirical therapy. On day 4, he developed a soft III-grade pan-systolic murmur in tricuspid area. The patient became afebrile on the seventh day of the treatment. The antibiotics were continued for a total of six weeks and repeat 2 D Echocardiography showed significant decrease in the size of vegetation (2 × 3 mm). The patient was discharged in a stable condition with no fever and a weight gain of 3 kg.

Discussion

Infective endocarditis (IE) is an uncommon cause of PUO and constitutes less than 5% of the cases.[4] IE mostly involves left side of the heart and the right-sided valves are involved in only 5–10% of the cases.[5] Right-sided IE generally involves both tricuspid and pulmonary valves and the cases of isolated TVE are seen in only 2–3% cases of IE.[6] It occurs predominantly in patients with indwelling catheters, foreign medical device implants, immune-compromised states, congenital heart diseases, or history of frequent intravenous drug injections.[7] In febrile patients without any risk factors, TVE is rarely considered as one of the differentials. Case reports describing native TVE in a young adult without any risk factors or apparent signs and symptoms of endocarditis is extremely rare. A similar case report, in an old patient, was reported by Varona *et al.*[8]

In this case, fever was the sole presenting complaint without any pulmonary or cardiac signs or symptoms. The patient did not have any risk factors or peripheral signs suggestive of IE. Medical conditions that may predispose to IE like alcoholism, liver disease, immune deficiency, persistent catheters, dental, skin, or genital infections etc., were also absent in the patient. This made the task of diagnosis really challenging.

The clinical signs and symptoms in the right-sided endocarditis are less obvious than in left-sided endocarditis, thus, making the task of diagnosis even more difficult.[5] In approximately 10.5% of the cases, cardiac murmurs may be absent during physical examination and evaluation by 2D echocardiography is necessary for its early detection.[3] In our case also, cardiac auscultation was normal at the time of initial evaluation. About 80% of the patients of TVE have some form of pulmonary involvement at the time of diagnosis varying from minor atelectasis, to large infiltrates, pleural exudates, and cavitations involving the lower lobes.[6] In our patient too, lower lobes nodules with early cavitations was visible in the CT scan of lungs. The delay in the diagnosis in cases of isolated TVE is reported in the literature.[9] In the present case, it took more than 4 months from onset of symptoms to diagnose TVE.

Persistent fever associated with pulmonary events, anemia, and microscopic hematuria is known as 'tricuspid syndrome', and should alert for TVE.[9] Our patient had very mild anemia, subtle evidence of pulmonary embolism on CECT and no evidence of microscopic hematuria. The delay in appropriate therapeutic intervention for TVE can lead to serious consequences.

Conclusion

There should be high index of suspicion of TVE in cases of PUO who have components of 'Tricuspid syndrome'. It

may be present even in the absence of risk factors or obvious signs and symptoms. The diagnosis should be considered in all patients with PUO who have pulmonary infiltrates and anaemia even in the absence of other risk factors. Transthoracic echocardiography should be done to confirm the diagnosis at the earliest.

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