An unusual cardiac mass resolving with antitubercular treatment

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ABSTRACT

We present an interesting case of a 2½-year-old child with Tetrology of Fallot with a large intracardiac mass in the left ventricle presenting with fever and bilateral stroke, that resolving with antitubercular therapy alone.

Keywords: Intracardiac tuberculoma, left ventricle mass, Tetrology of Fallot

INTRODUCTION

A large intracardiac mass in a child with TOF can be a thrombus, vegetation, or rarely, tumor. Tuberculoma of heart is a rare entity evident in isolated cased reports world over. Here, we present an interesting case of a 2½-year-old child with Tetrology of Fallot with a large intracardiac mass in the left ventricle presenting with fever and bilateral stroke, and then resolving with antitubercular therapy only. The etiology of mass remains unsettled in the absence of histopathological diagnosis but resolution with anti-tubercular therapy raises the possibility of it being a tubercular mass.

CASE REPORT

A 2½-year-old male child presented with fever, recurrent seizures, and right-sided weakness progressing to bilateral weakness for past 1 month. He was well a month ago when he developed high-grade fever and irritability. A day later he threw a generalized tonic clonic seizure lasting 10 minutes followed by drowsiness for 5-6 hours. Being admitted in a nearby secondary care centre, he was found to have right hemiplegia with gaze deviation to the left. Intravenous (i.v.) antibiotics were started (received injection ceftriaxone intravenously for 7 days), antipyretics, and anticonvulsants were administered to which he initially responded. Baseline hematological (including TLC 9700, 68% polymorphs), biochemical, and pathological profile of blood and urine to localize the infection were unremarkable. C-reactive protein was positive. Chest X-ray was normal. Contrast enhanced computed tomography (CECT) [Figure 1] of the head revealed subacute infarct in the left high parietal lobe. Cerebrospinal fluid (CSF) analysis revealed lymphocytic pleocytosis with raised proteins. CSF culture was sterile for any bacterial growth. After a week, his fever recurred and had another episode of generalized tonic-clonic seizure (GTCS) with further deterioration in sensorium. He was referred to our tertiary centre for further management. The child was E2V2M4 HR was 118/min, RR 36/min, febrile (99.9 F), oxygen saturation on room air was 90%. The child was malnourished, weight 6.8 kg [<3 SD (12 kg)], height 75 cm [<3 SD (88 cm)]. He had quadripareisis with Babinsky's positive on both sides and decorticate posturing on painful stimuli. Pupils were normal with no evidence of meningeal irritation. A grade 4 ejection systolic murmur was heard in left...
upper parasternal area. No history of contact with active tuberculosis (TB). Tuberculin skin test was positive at 10/10 mm at 72 hours. Acid Fast Bacilli (AFB) smears were negative for 3 consecutive days on early morning gastric aspirate. Test for human immunodeficiency virus (HIV) was negative. He was vaccinated with BCG (scar present), DPT, OPV 1, 2, 3, MMR, and Hepatitis B. Blood cultures (3 sets) were sterile. Magnetic resonance imaging (MRI) brain [Figure 2] was done, revealing subacute infarcts with hemorrhagic transformation in right frontoparietal region and putamen. Similar areas of altered intensities with restricted diffusion were noted in left frontoparietal and putamen regions. There was no evidence of abnormal leptomeningeal enhancements. On performing magnetic resonance angiogram (MRA), there was absence of flow-related enhancements in right internal carotid and middle cerebral artery and A1 segment of anterior cerebral artery suggestive of embolic occlusion [Figure 3].

Echocardiography [Figure 4] revealed Tetralogy of Fallot’s with a large mobile globular mass attached with a small stalk to the posteromedial papillary muscle in left ventricle. The echotexture was similar to adjacent myocardium. In view of prolonged fever and lymphocytic CSF pleocytosis, antitubercular therapy was started (category I). The child responded to ATT with resolution of fever over next 7 days, CRP was negative. After a month of stabilization (during which he received antitubercular therapy only and showed no further neurologic deterioration), MRI [Figure 4] of the heart was done for further characterization of left ventricular (LV) mass. There was no evidence of mass on cardiac MRI. Repeat echocardiogram was done, which also confirmed the disappearance of LV mass [Figure 5]. The neurological status of the child improved over the course of 1½ month; he regained his consciousness, started accepting oral feeds, was afibrile, and had no episodes of seizure. His residual deficit at discharge was E4V3M4, spontaneous eye opening present, pupils

Figure 2: MRI Brain: Subacute infarcts with hemorrhagic transformation in right and left frontoparietal region and gangliothalamic complexes

Figure 3 (a,b): MRA: Absent flow-related enhancements in right internal carotid and middle cerebral artery suggestive of embolic occlusion

Figure 4: Tetralogy of Fallot’s with large subaortic VSD with aortic override with severe valvular PS and 3 cm × 2.5 cm mass in left ventricle attached to posteromedial papillary muscle, which disappeared in follow up echo after a month

Figure 5: Echo: No evidence of LV mass after one month of antitubercular therapy
normal size and reaction, upper motor neuron type VII cranial nerve palsy, spastic upper, and lower limbs (LL > UL), deep tendon reflexes brisk in both upper and lower limbs, Babinsky’s response positive, and power in upper and lower limb 2/5.

DISCUSSION

In a child with cyanotic heart disease, a left ventricle mass leading to embolic stroke is more likely to be a thrombus; rarely it can be due to vegetation or a tumor. In our case the child presented with history of fever. CSF analysis showed lymphocytic pleocytosis and raised protein; MRA showed embolic occlusion of the right internal carotid artery, echo [Video1 attached] showed a mass attached with a stalk to posteromedial papillary muscle, and clinical improvement as well as imaging (echo and MRI) disappearance of mass after 1½ months of antitubercular therapy makes the possibility of tuberculoma speculative in the absence of histopathological diagnosis. Published data for intracardiac tuberculosis is only in the form of isolated case reports, most of which as reviewed here have disseminated form of tuberculosis.[1]

To the best of our knowledge, this is the first case to possibly suggest unusual left ventricle mass in a patient with Tetrology of Fallot’s leading to bilateral embolic cerebrovascular events and then disappearing completely with antitubercular therapy only. Our patient did not have any evidence of coexisting foci in lungs, mediastinum, or abdomen further questioning the exact etiology. Tubercular involvement can occur by hematogenous spread; the most likely mechanisms of myocardial involvement, as reported till date, are direct retrograde spread from a contiguous mediastinal lymph node or extension from a pericardial focus.[3] Most clinical reports published have described various symptoms in adults due to cardiac tuberculosis, such as ventricular tachycardia,[3] aortic insufficiency,[2] and pulmonary vein obstruction caused by LA mass lesion,[4] right atrial outflow tract obstruction,[5] and superior vena cava obstruction.[6] Presentation with seizures and stroke due to embolism as seen in our case is not known.

Presentation with 1 month history of fever in a place endemic for tuberculosis supported by CSF evidence of central nervous system (CNS) tuberculosis prompted presumptive diagnosis of tuberculoma over other differentials to start antitubercular treatment. Clinical resolution supported this presumption.

An 8-year-old child with multiple intracardiac tuberculomas has been described by one of the authors of the present case[7] as has been by others.[8] Cantinotti et al., described an 11-month-old infant with pulmonary miliary TB associated with intracardiac left atrial tuberculoma successfully treated with surgery and anti-tuberculosis therapy.[9] Momtahen et al., reported a patient with a large mass in the right atrium with tricuspid valve involvement resulting in significant stenosis, which was a tuberculoma without active pulmonary disease.[10]

To conclude, the salient interesting features of this case of unusual LV mass in Tetrology of Fallot’s was presentation with fever, seizures, and bilateral cerebrovascular events from embolism, absence of any other obvious foci of TB except lymphocytic pleocytosis in CSF in 2½-year-old child with no obvious immunodeficiency state and complete resolution with antitubercular therapy with clinical recovery.

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