

Repeated prosthetic heart valve thrombosis with idiopathic eosinophilia

Sir,

Prosthetic heart valve thrombosis (PHVT) and anticoagulation-related bleeding are the major complications following mechanical heart valve replacement.^[1] PHVT, despite adequate anticoagulation, is a difficult clinical problem. A few cases of eosinophilia-induced PHVT have been reported in the literature. We report a young boy who had recurrent PHVT of the aortic valve due to hypereosinophilia.

A 12-year-old boy, underwent aortic valve replacement (AVR) with #19 SJM Regent mechanical valve (St. Jude Medical, Minnesota, U.S.) and aneurysm of sinus of Valsalva (ASOV) repair for valvar aortic stenosis and a large (34 mm × 20 mm × 33 mm) ASOV.

Thirteen months later, he had the first episode of PHVT despite adequate anticoagulation (international normalized ratio [INR] 2.18). He underwent successful thrombolysis with 24 mg of recombinant tissue plasminogen activator given over 24 h.

He was noted to have marked eosinophilia (absolute eosinophil count [AEC] 7160/mm³). History was revisited for any possible etiology, first-line evaluation for high eosinophil counts (stool microscopy for helminthiasis and quantitative buffy coat for filariasis) were negative. He was managed with empirical antihelminthics and diethylcarbamazine, with a provisional diagnosis of tropical eosinophilia. Eosinophil count reduced to 1500/mm³ at discharge. Although eosinophilia was noted, PHVT in this episode was attributed to INR being toward the lower side of the therapeutic range, and eosinophilia had subsided.

Two months later, he had second episode of PHVT despite an INR of 3.2. Thrombolysis was attempted twice without success this time. Finally, surgical thrombectomy was done. The third episode of PHVT occurred a month later.

A re-do AVR was done this time, with #17 SJM flexicuff mechanical valve (St. Jude Medical, Minnesota, U.S.).

Hypereosinophilia recurred for the second and third time, in coincidence with PHVT [Figure 1] with AEC of 2800 and 3396/mm³, respectively. It was evaluated extensively this time with repeat first-line investigations, bone marrow aspiration biopsy, and genetic workup for the clonal proliferation of eosinophils. Marrow study showed myeloid preponderance with increased eosinophilic precursors (12%) 2% blasts. Fish for PDGFR A and B, FGFR1, JAK 2, PCR for BCR ABL fusion was negative. Upper and lower GI endoscopy with biopsy was negative for parasitic infestation and tissue eosinophilia. The fundus examination was normal.

His drug prescriptions were reviewed, and all potentially offending drugs (ACE inhibitors, angiotensin receptor blockers, nonsteroidal anti-inflammatory drugs) were withdrawn. Warfarin was changed to acitrom, but it did not help.

Recurrent eosinophilia during the second PHVT episode was managed with a short course of oral prednisolone. The third episode of PHVT occurred shortly after stopping prednisolone [Figure 1]. After the third episode and the re-do AVR, when even with extensive evaluation, no etiology could be found, he was diagnosed with idiopathic eosinophilia and started on low-dose oral prednisolone. There has been no recurrence of eosinophilia or PHVT on intermediate term follow-up.

Recurrent PHVT is a potentially lethal condition. Most cases are due to inadequate anticoagulation or dietary factors. When it occurs despite adequate anticoagulation, prothrombotic states should be ruled out. In our case, the probable cause of thrombosis was hypereosinophilia. In a developing country, most cases are due to parasitic infestation. Hypereosinophilia (AEC >1500/mm³), when associated with evidence of target organ damage,

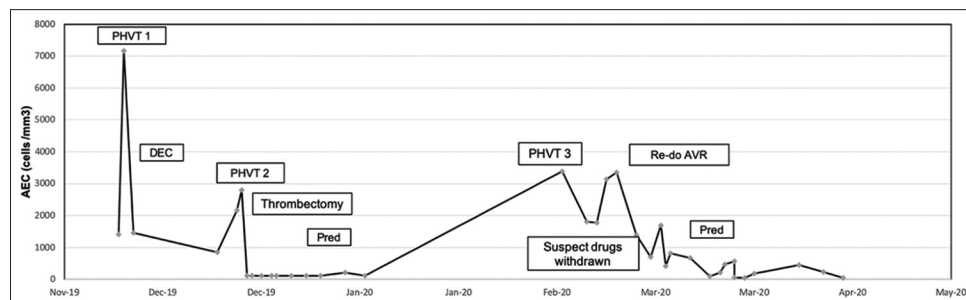


Figure 1: Trend of eosinophilia since the first surgery

is labeled as hypereosinophilic syndrome (HES).^[2] Thrombotic complications are a major cause of morbidity and mortality in HES^[3] and may involve up to 25% of patients in the setting of cardiac involvement. Activated eosinophils release several mediators and cytokines capable of thrombogenesis.^[4]

Our case illustrates the difficulties in investigations and management of persistent idiopathic eosinophilia in a patient with mechanical prosthetic valve. The recurrence risks of PHVT remain unknown, and the duration of steroid therapy is empirical. Whether a patient with idiopathic hypereosinophilia should have a different strategy for managing aortic valve disease other than a mechanical prosthetic valve remains speculative. Increased awareness of hypereosinophilia as a cause of PHVT seems warranted.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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