

## Recurrent Thrombosis in a Patient with Lesch-Nyhan Syndrome



To the Editor:

There are few reported cases suggesting an association between Lesch-Nyhan syndrome and hypercoagulability. We present a patient with Lesch-Nyhan syndrome with recurrent arterial and venous thrombosis while taking triple antithrombotic therapy.

### CLINICAL PRESENTATION

A 31-year-old man, with a known case of Lesch-Nyhan syndrome (variant) and severe gouty arthritis, end-stage renal disease requiring hemodialysis, coronary artery disease treated with balloon angioplasty, and chronic thromboembolic pulmonary hypertension, presented with sudden-onset chest pain and shortness of breath after hemodialysis. He was diagnosed with non-ST-segment elevation myocardial infarction on the basis of electrocardiography findings and elevated troponins. He was taken emergently to the catheterization laboratory. He developed cardiogenic shock during the procedure secondary to complete occlusion (100%) of the proximal left anterior descending artery. He was rapidly intubated, and balloon angioplasty of the left anterior descending artery, left circumflex artery, and second obtuse marginal branch artery was performed. He required artificial life support with an Impella left ventricular assist device (Abiomed, Danvers, Mass) and extracorporeal membrane oxygenation for 2 days. Multiple bronchoscopies were performed to remove blood clots that were obstructing the left main bronchus.

After extubation, the patient was transferred to a step-down unit. Later in the hospital course, he developed right lower-extremity pain. A deep venous thrombosis was considered a less likely differential diagnosis because the patient was already receiving triple antithrombotic therapy, including warfarin with a therapeutic international normalized ratio of 2.2. The duplex ultrasound of the lower

extremity showed an extensive new deep venous thrombosis in the right lower extremity that was not present 3 months ago. An extensive thrombophilia workup performed several times over the last year was unremarkable except for hyperuricemia (8.1–9.6 mg/dL) while the patient was receiving hemodialysis and allopurinol. Because of chronic thromboembolic pulmonary hypertension and complicating cardiac medical issues, the decision was made to place an inferior vena cava filter and keep the patient on warfarin with a target international normalized ratio of 3 to 4. The newer anticoagulants could not be used because of end-stage renal disease. He has now developed ischemic cardiomyopathy and is frequently readmitted for recurrent thrombotic episodes and bleeding complications from antithrombotic therapy.

### DISCUSSION

Hypoxanthine-guanine phosphoribosyl transferase deficiency is an X-linked defect of purine metabolism. Congenital deficiency of this enzyme results in a spectrum of clinical phenotypes known as Lesch-Nyhan disease. It results in marked overproduction of uric acid and consequent hyperuricemia, gout, urate nephropathy (nephrolithiasis), tophi, and neurologic symptoms. Imamura et al<sup>1</sup> reported the association between Lesch-Nyhan syndrome and hypercoagulability in 4 patients. Hyperuricemia has been associated with acute coronary syndrome and cardiovascular mortality<sup>2,3</sup> in several epidemiologic studies; however, we are the first to report extensive hypercoagulability in a patient with Lesch-Nyhan syndrome manifesting as recurrent myocardial infarctions, thromboembolic disease, and thrombus formation in bronchi despite triple anti-thrombotic therapy.

### CONCLUSIONS

Several mechanisms, such as high levels of fibrinopeptide A, beta-thromboglobulin, and platelet factor 4, and low levels of 6-keto prostaglandin F1 alpha have been implicated, but the exact pathogenesis is unclear.<sup>1,4</sup> Although the data are accumulating to link chronic hyperuricemia and hypercoagulability, there is no evidence that better control of the uric acid level prevents thrombotic episodes. In the absence of well-defined pathogenesis and limited experience in treating this evolving hypercoagulability phenomenon, the optimal choice of anticoagulation therapy remains unclear.

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