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Unusual Source of Thromboembolism In A Patient With Atrial Fibrillation: Pulmonary Vein Thrombus Due To Compressive Para-esophageal Hernia

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A 68-year-old male presented to the arrhythmia clinic for evaluation of symptomatic episodes of atrial fibrillation (AF) and typical atrial flutter. Episodes of palpitations were brief and were associated with shortness of breath. He had symptoms suggestive of *amarousis fugax* that resolved spontaneously one week prior to presentation. His past medical history included hypertension, hyperlipidemia, gastro-esophageal reflux disease and left inguinal hernia repair. As he was complaining of left lower quadrant pain a 64-slice contrast enhanced CT scan of the chest and abdomen was obtained. A large para-esophageal hernia (type III) was noted in the thoracic cavity (Figure 1A,B) compressing the blood vessels of the left lower lobe. Wedge shaped renal infarcts were noted in the right kidney (Figure 1C). A filling defect suggestive of thrombus was found in the left inferior pulmonary vein (Figure 1D). He was started on oral anticoagulation with Warfarin. Transthoracic echocardiogram suggested normal left ventricular function, normal left atrial size and an echo density near the pulmonary veins. Work up for thrombophilia turned out to be negative for inherited hypercoagulable disorders.

Stroke and peripheral thromboembolism from left atrial thrombus are common complications from AF. Rudolph Virchow described three broad categories of factors that are thought to contribute to thrombosis (stasis, hypercoagulability and endothelial injury). Most of the thrombi in atrial fibrillation are formed by stasis in the left atrial appendage (LAA). A paraesophageal hernia is an uncommon type of hiatal hernia. It is a true hernia with a peritoneal layer that forms a sac with a normal anatomically fixed gastro-esophageal junction. The gastric fundus and abdominal viscera protrude into the mediastinum the defect in the diaphragm. Pressure on the blood vessels of the lower lobe can lead to stasis and thrombus formation in the pulmonary venous system. To our knowledge this is the first reported case of pulmonary vein thrombus associated with para-esophageal hernia.

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Fig 1.