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Case Report

ACUTE PULMONARY EMBOLISM IN A YOUNG MALE WITHOUT DEEP VEIN THROMBOSIS

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ABSTRACT
We describe a 20 year old male who presented to us with chest pain and dyspnea. Investigations revealed acute pulmonary embolism without deep vein thrombosis (DVT). Thrombophilia profile revealed hyperhomocysteinemia.

Keywords: *dyspnea, pulmonary embolism, deep vein thrombosis, hyperhomocysteinemia*

INTRODUCTION
Acute pulmonary embolism is a component of venous thromboembolism (VTE), which may prove fatal if not suspected and subsequently treated . Incidence of pulmonary embolism is around 0.5–1 case per 1000 (Heit, 2008). Young patients are more likely to be mismanaged, as suspicion in healthier young patient is very low, and in spite of various diagnostic modalities high clinical suspicion remains the key for diagnosis (Rana, 2017). The normal blood levels of homocysteine range from 5-15 μmol/L Ueland *et al.,* (1993) Weiss *et al.,* (2003). An elevated level of homocysteine is a risk factor for arterial and venous thromboembolism (Ueland *et al.,* 2000; and Selhub, 1995). Hyperhomocyseinemia is a rare cause of pulmonary embolism and still rarer when it is not associated with DVT (Dani *et al.,* 2003; and Caldera *et al.,* 2002).

CASE REPORT
A 20 year old male patient presented to us with complaints of sudden onset breathlessness associated with chest pain since 2 days. There was no history of cough, hemoptysis, orthopnoea, PND, fever. There was no history of allergy, asthma in the past. On examination patient was restless, anxious. His blood pressure was 138/90 mm of Hg, pulse-138/min, regular. Respiratory rate was 28 cycles/min, oxygen saturation on room air was 82%. There were no signs of CCF. Examination of respiratory system revealed decrease air entry in the right base. CVS and CNS examination was normal.
On Investigations CBC, LFT, KFT, RBS, was normal. ECG was showed sinus tachyacardia . X-ray chest was normal. 2d Echocardiography was normal. In view of tachypnoea, tachycardia and decreased oxygen saturation, pulmonary embolism was suspected. Quantitative D-dimer was 536 micrograms/L (normal < 460micrograms/L). Serum Vit B12, Folic acid levels were normal. CT Pulmonary angiogram showed non enhancing hypodense thrombus in distal part of right and left pulmonary artery causing significant luminal occlusion. On right side the pulmonary embolism is extending upto right upper lobar pulmonary artery and on left side left lower lobar pulmonary artery (figure 1)There were multiple patchy subsegmental small pulmonary infarcts noted in right lower and and left lingual lobe. Doppler of upper and lower extremity was normal.
Patient was started on Inj. Enoxaparin 0.6ml S.C BD and was overlapped with Tab warfarin 5mg OD. Thrombophilia profile revealed Serum Homocysteine levels of 98.0 micromols/L (High Risk) (<15 normal). Breathlessness subsided over next 7 days patient was discharged on Tab Warfarin 5 mg od with an INR of 2.5 and he is awaiting follow up.

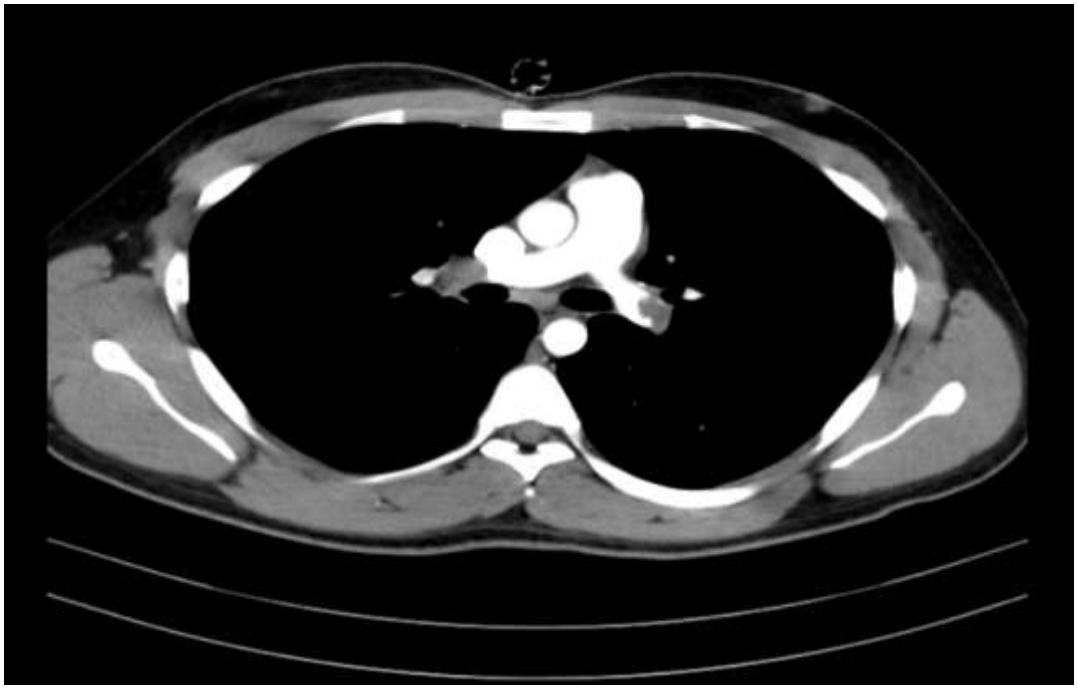

Figure 1

DISCUSSION

Hyperhomocysteinemia is a independent risk factor for thromboembolic phenomenon. Etiology of hyperhomocysteinemia are genetic alteration in the enzyme of homocysteine metabolism or it can be nutritional because of vitamin B12, folic acid and vitamin B6 deficiency. Other condition like chronic kidney disease, collagen vascular disorder and drugs like methotrexate can increase homocysteine levels. Increased homocysteine levels causes endothelial injury subsequently activating thrombogenesis. Our patient presented with pleuritic chest pain and acute breathlessness. Investigations revealed pulmonary embolism, hyperhomocysteinemia being the risk factor. Doppler studies of upper and lower limb are normal ruling out DVT. Vit B12 and folic acid levels were normal in our patient. Non visibility of thrombus in lower limbs may be attributed to dislodged and embolized thrombus (Riedel, 2001). Falcon et al in a case control study concluded that hyperhomocysteinemia is a potential risk factor for thrombosis in less than 40 years of age (Heijer, 1996).

Hyperhomocysteinemia was classified into moderate (15-30micromol/L), intermediate (30-100micromol/L) and severe risk (>100micromol/l) according to values (Yoelekar, 2002). Our patient was in the intermediate risk group according to kahns classification.

We treated our patient with low molecular weight heparin overlapping with oral anti coagulants for 6 months. Pulmonary embolism if diagnosed in young age group meticulous thrombophilia profile should be evaluated; especially homocysteine levels should be estimated and treated to prevent recurrent DVT and pulmonary embolisms.

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