

NEGATIVE D-DIMER PULMONARY THROMBOEMBOLISM - A CASE REPORT

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Abstract

A 42 years old male diagnosed case of right lower limb DVT presented to emergency department with the h/o sudden onset of breathing difficulty since 4hrs. He was hemodynamically stable. Wells score for DVT was 4 (high risk) & for PE was 9 (high risk). ECG showed T3 & decreased R wave progression in V3-V6. CXR showed straightening of Left heart border. 2D ECHO showed RA, RV dilated, with PASP 50 mm Hg. D-DIMER NEGATIVE. CT PA angiogram showed thrombus in Right & peri-segmental bronchus on Left. Patient was thrombolized with Tenecteplase. Patient was hemodynamically stable before & after thrombolysis. As per the PESI (Pulmonary Embolism Severity Index) patient comes under class 1 with very low 30 day mortality risk (1-6%).

Key words: sudden onset of breathing difficulty, DVT, PE, D-dimer, CT PA angiogram, Thrombolysis

Introduction:

The patients without prior heart or lung disease begin to experience symptoms from PE when approximately 20% to 30% of lung vasculature becomes occluded. Most PEs originates as clots in large veins, as deep venous thrombosis (DVTs)¹. DVT represents a disease spectrum ranging from a minimally symptomatic isolated calf vein thrombosis to a limb-threatening iliofemoral venous obstruction. Because the left iliac vein is vulnerable for compression by the left iliac artery, leg DVT occurs with a

slightly higher frequency in the left leg compared with the right; bilateral leg DVT is found in fewer than 10% of ED patients diagnosed with DVT. Upper extremity DVT refers to a thrombosis in the axillary vein and causes arm swelling on the same side as an indwelling catheter or recent intravenous infusion site. In the absence of a catheter, the most frequent location of arm DVT is on the dominant hand side. Diagnosis of DVT and PE starts with an estimation of the pretest probability (PTP)²

Case report:

A 42 year old male presented to emergency department at 8:00 pm with the h/o sudden onset of breathing difficulty since 4:00pm.

On arrival patient was anxious

Vitals: BP-137/90mmHg; PR- 108bpm RR- 22 cpmSPO2-95%RA Temp-98.9 F CBG- 110mg/dl

- Airway- patent, speaking full sentence
- Breathing- B/l adequate chest rise present, no respiratory distress
- Circulation- Peripheries warm & All peripheral pulses felt, CRT<2 sec

H/o Right LL pain from ankle upto mid-thigh since 3 months on walking, swelling at Right ankle & calf since 1 wk, diagnosed as DVT Rt LL & on Inj Fondaparinux 7.5mg s/c od for 2 days. He was on rest but not completely immobilized

H/o fever for 2 wks, moderate, continuous, was on treatment, no other associated complaints

No comorbidities

No known allergies

H/o Sx for renal calculi 2yrs ago

Nonsmoker/ occasionally alcoholic

F/H - nothing significant

Actions:

- 18 G peripheral iv line secured & blood samples collected & sent for D-dimer, Trop I, S. creat
- ECG

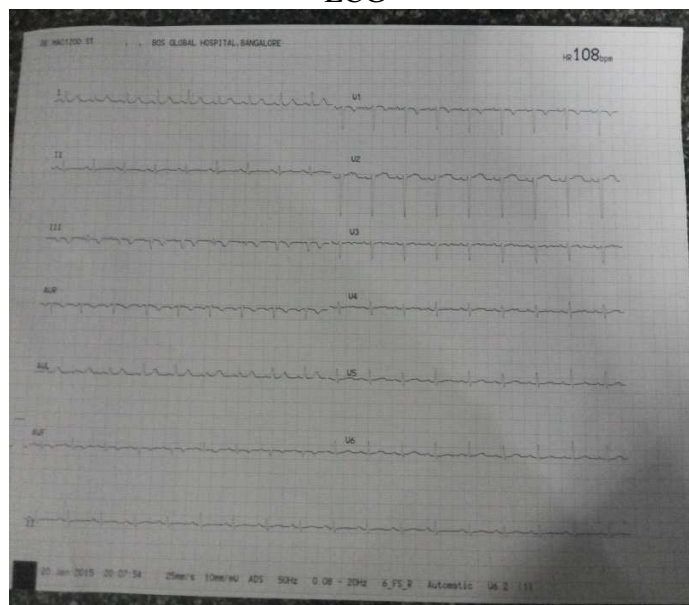
Secondary survey:

- General: alert and oriented, but anxious
- HEENT: normal
- Neck: normal, no JVD
- Chest: chest is non tender; breath sounds normal, no respiratory distress
- Heart: regular rate and rhythm, heart sounds normal.
- Abdomen: non tender, bowel sounds normal, no distension, no masses
- Skin: Swelling, warmth, redness and tenderness over the right heel and near ankle
- Extremities – pitting edema over ankle, circumference at Right calf muscle 3.0cm > Left calf

Actions:

- CT PA angiogram
- 2D ECHO
- Chest X ray

ECG

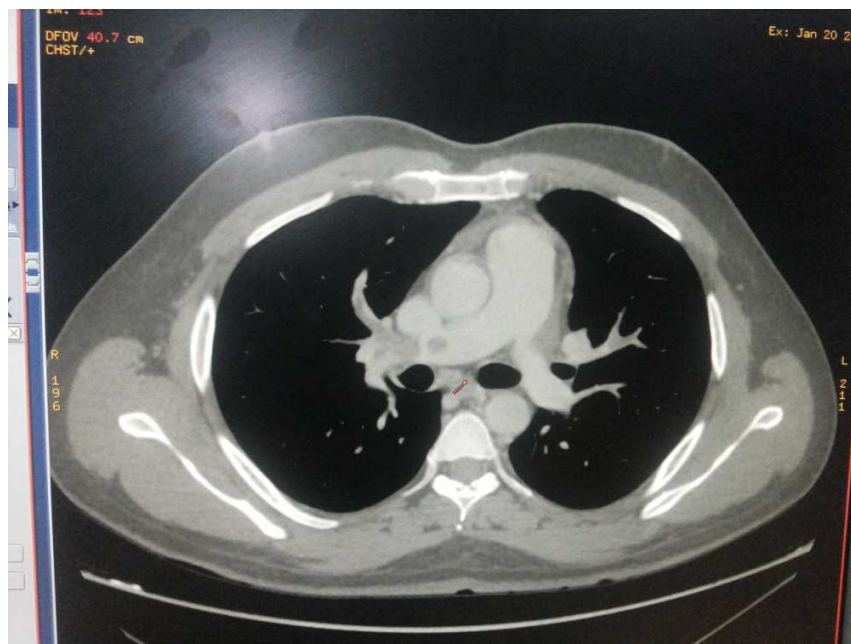


T wave inversion in lead 3 & aVL
Poor R wave progression V3-V6

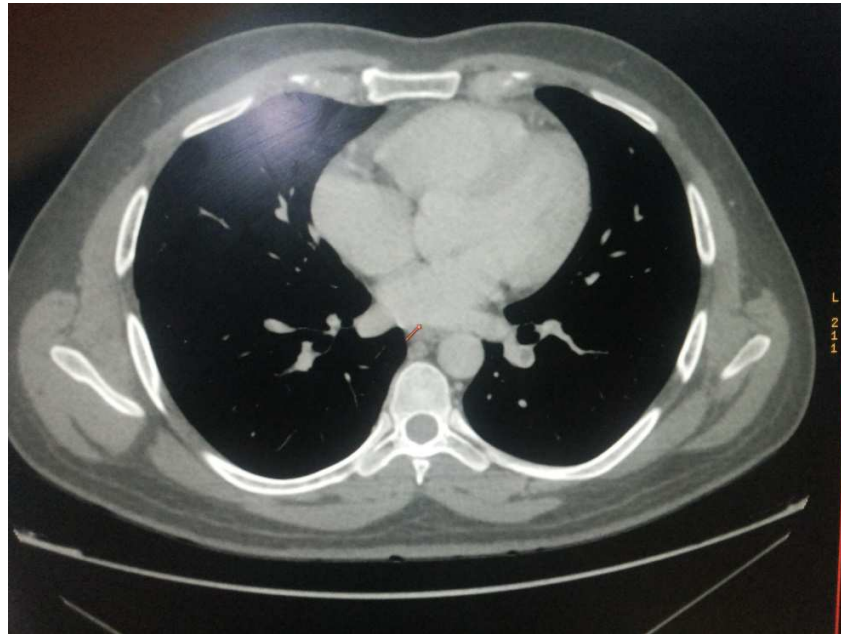
CXR



Straightening of Left heart border
CT PA Angiogram



Right PA Thrombus



Left Perisegmental Thrombus

Discussion:

The D-dimer is a protein derived from enzymatic breakdown of cross-linked fibrin, and an elevated plasma concentration indicates the presence of a clot formed somewhere in the body within the previous 72 hours². The D-dimer has a half-life of approximately 8 hours, and extrapolating from humans and animal models of autologous Perth D-dimer level probably remains abnormally high for at least 3 days after symptomatic VTE^{1, 6}. Symptoms of DVT lasting for more than 5 days can be D-dimer negative¹.

Estimating the patient's pretest probability for VTE is the first step in selecting a diagnostic pathway. Qualitative tests generally have lower diagnostic sensitivity but higher specificity compared with quantitative tests. The diagnostic sensitivity of automated quantitative D-dimer assays ranges from 94% to 98% and the specificity from 50% to 60% for PE and DVT. False negative test results can lead to death from PE^{1, 7, 8}.

Here a 42 yr old male, with h/o Right LL pain from ankle to mid-thigh on walking

since past 3 months, h/o swelling, redness, pain over ankle & engorged superficial veins, pain over Rt calf muscles since 1 week, during then Venous Doppler was done which showed gross thrombus in deep veins of Rt leg, ant & posteriortibial veins, extension of thrombus in sapheno-femoral & sapheno- popliteal junction, diagnosed as Rt LL DVT & put on Inj. Fondaparinux 7.5mg. He was on rest but not completely immobilized. He was treated on OPD basis. Pt. came to our ED with h/o sudden onset of breathing difficulty. Well score for DVT is 4 (high risk, 75%) & well score for PE is 9 (high RISK, 78.4 %). D-dimer was done which was negative. CT PA angiogram showed thrombus in Rt PA & perisegmental thrombus in Lt PA. Symptoms of DVT lasting for 1 week may be a factor for D-dimer negative

Conclusion:

D DIMER NEGATIVE Pulmonary Embolism in a high risk patient is a reality especially if the patient presents after 3-5 days of symptoms of DVT

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