Give Me Another Sign: The Case of an Unreliable D-Dimer

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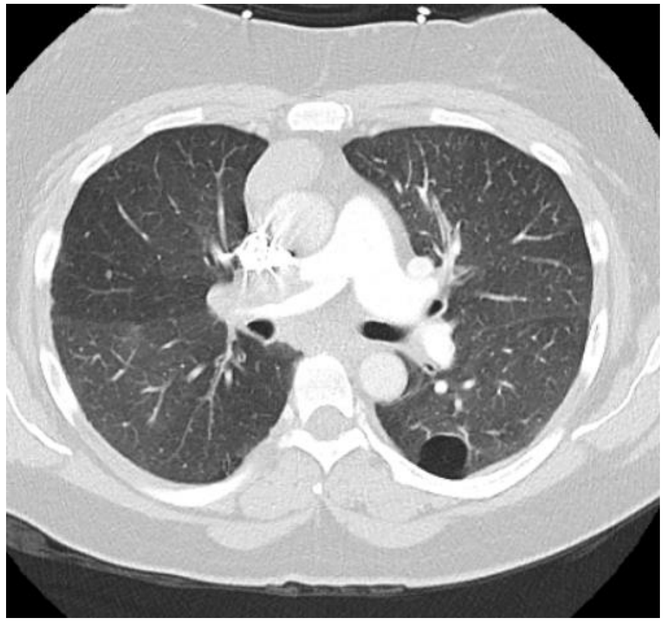
Introduction

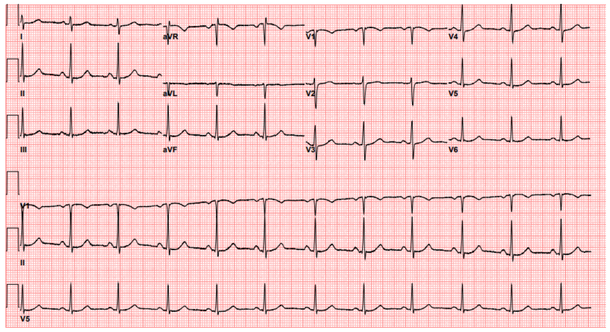
The Wells score assists with ruling out pulmonary embolism where pretest probability is low, and D-dimer is negative. This patient scored a score of 3, indicating risk of PE unlikely. False negative D-dimer occurs rarely, as low as 0.34% in low-risk populations.

Clinical Case

A 48-year-old female with no prior medical history presented to the emergency department after a witnessed syncopal event with chest pain. She is a smoker. D-dimer was within normal limits. Troponin was elevated 6-77. Computed tomography scan showed a submassive right pulmonary embolism. Anticoagulation was initiated and monitored inpatient.



Large right main pulmonary artery embolism with (not pictured) right lower lobe pulmonary embolism.



Electrocardiogram on admission: Normal sinus rhythm with a rightward axis.

Conclusion

D-dimer is sensitive but can have false negative results. Critical thinking is important when predictive scores are used in clinical decision making. Detailed imaging was ordered in this case due to clinical suspicion with critical thinking.

- The Wells score is useful in ruling out pulmonary embolism but should not outweigh clinical suspicion
- D-dimer is not always a perfect predictor to rule out pulmonary embolism

References

1. Sendama W, Musgrave KM. Decision-making with d-dimer in the diagnosis of pulmonary embolism. Am J Med 2018 Dec;131(12):1438-1443.

2. Wells PS, Anderson DR, Rodger M, et. al.: Derivation of a simple clinical model to categorize patients probability of pulmonary embolism: increasing the models utility with the SimpliRED D-dimer. Thromb Haemost 2000; 83: pp. 416-420.

3. Gibson NS, Sohne M, Gerdes VEA, Nijkeuter M, Buller HR: The importance of clinical probability assessment in interpreting a normal d-dimer in patients with suspected pulmonary embolism. Chest 2008; 134: pp. 789-793.

4. Sikora-Skrabaka M, Skrabaka D, Ruggeri P, Caramori G, Skoczyński S, Barczyk A. D-dimer value in the diagnosis of pulmonary embolism-may it exclude only? J Thorac Dis. 2019 Mar;11(3):664-672.