

DVT Prophylaxis in Procedural and/or GI Bleed Candidates Case Report

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Abstract

Deep vein thrombosis (DVT) prophylaxis is critical to prevent hospital deaths and must be initiated in acute hospital stays and that it remains consistent with patients' acute presentation and chronic medical conditions, such as bleeding risks. This case report discusses the dilemma of providing DVT prophylaxis for patients who are suspected of having gastroenterology (GI) bleed and/or awaiting a GI procedure. Additionally, the importance of accurate and updated documentation in inpatient settings is discussed. The patient presented to the Emergency Department (ED) reporting abdominal pain, nausea, and vomiting since he had a left knee replacement, that became infected and failed outpatient antibiotics, one month prior to day of presentation. Pertinent findings were hemoglobin of 10.2 L (14.0-17.5) and Hematocrit 36.5L (42.0-52.0); left doppler venous ultrasound (US): no evidence of deep vein thrombosis; abdomen/pelvis computed tomography (CT) with contrast showed inflammatory change adjacent to the antrum of the stomach that could be related to ulceration and/or gastritis. DVT prophylaxis protocol included Lovenox 40mg/day subcutaneous injection, which was held for this patient since it was suspected he has a GI bleed and possibly will have an inpatient endoscopy during the same visit. A few days later, a Rapid Response was called on the patient and he was found to have bilateral pulmonary emboli. This was due to holding DVT prophylaxis, even after GI deferred the inpatient endoscopy, plus patient was at an increased risk. For inpatient patients who are at high venous thromboembolism (VTE) risk but acceptable bleeding risk, blood thinning medication is preferred and recommended.

Objectives

- Discuss the links between evidence-based knowledge and practice in the care of hospitalized patients with GI bleed and/or are procedural candidates
- Recommend DVT prophylaxis interventions based on the risk factors and status of hospitalized patients

Case Study Timeline and Events

- Hospital Day 1: 58-year-old male with past medical history of atrial fibrillation (on Xarelto), diabetes mellitus, congestive heart failure, obstructive sleep apnea, and hypertension presented to the emergency department reporting abdominal pain, nausea, and vomiting since he had a knee replacement one month ago. Abdominal pain is reported as generalized.
- Patient also reported that he has had constant knee pain, swelling, redness, warmth in the left knee. Patient denied additional injury/trauma to the left knee. He stated he had left lower extremity cellulitis and was discharged on oral Augmentin and Doxycycline. He stated he failed outpatient antibiotics due to inability to tolerate oral medications.
- He denied fever, shortness of breath, chest pain, headaches, diarrhea. He also denied any open wounds or drainage/pus, or trauma to the knee. Patient said his stool has appeared black (last bowel movement today) and his recent colonoscopy indicated he did not need another one for 10 years.

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Case Study Timeline and Events Continued

- Initial vitals: Pulse Ox 98 B/P 128/83 Temp 98.4 HR 78 Resp 18
- Physical Exam: **General:** awake, alert, no acute distress, well appearing, well developed, well hydrated. **Cardiovascular:** heart rate normal, regular rhythm, heart sounds normal, capillary refill not delayed, peripheral circulation normal. **Gastroenterology:** Abdominal tenderness present to the generalized abdomen, but abdominal tenderness most intense in the right upper abdominal quadrant, no obvious palpable mass or rigidity present. **Musculoskeletal:** skin to the left knee is erythematous and has increased temperature to touch.

Lab	Result	Reference Range
White Blood Cells	8.3 K/mcl	3.5-12.5
hemoglobin	10.2 L	14.0-17.5
Hematocrit	36.5L	42.0-52.0
ESR	82 mm/hr	0-15
Anion Gap	18	4.1-15
Creatinine	1.90 ng/dL	0.70-1.30
Estimated GFR	40L	>59
C-reactive Protein	4.5 MG/DL	0.2-0.8
NT-Pro-B-Type Natriuretic Peptide	762 pg/mL	0-450

- Left Knee X-ray: The patient status post total knee arthroplasty. There is no visible periprosthetic fracture or evidence of loosening. Questionable small joint effusion.
- Left US Doppler Venous: No evidence of deep vein thrombosis.
- Abdomen/Pelvis CT with contrast: Inflammatory change adjacent to the antrum of the stomach could be related to ulceration and/or gastritis. Consider follow-up with nonemergent endoscopy
- ED: IVFs and Rocephin 2g given. Blood drawn for culturing. Orthopedics and GI consulted.
- Admitted. DVT PPX: sequential compression devices. Xarelto was held due to suspicion of GI bleed and possibility of orthopedic procedure upon presentation. CODE: FULL.
- Hospital Day 4: A rapid response was called due to patient passing out while displaying hypotension and diaphoresis. Lungs sounded clear to auscultation bilaterally; abdomen was tender on left quadrant.
- **Stat Arterial Blood Gas** was within normal limits. **Stat chest x-ray** was negative. **Stat CTA showed:** Large volume of bilateral pulmonary embolism. **Echocardiogram:** Left ventricle: The cavity size is normal. Systolic function is moderately reduced. The calculated ejection fraction is 35-40% by visual assessment. Right ventricle: The cavity size is mildly increased. Wall thickness is normal. Systolic function is mildly reduced. Ventricular septum: Abnormal septal motion.

Case Study Timeline and Events Continued

- Patient was admitted to the progressive care unit and Lovenox was started at 1mg/kg (therapeutic dose)
- Hospital Day 6: GI recommended EGD would be appropriate in the outpatient setting. treat with PPI twice daily, sucralfate, and we will add dicyclomine for abdominal pain.
- Hospital Day 9: Patient's condition, vitals, and labs improved and continued to remain stable. He was discharged with outpatient primary care provider follow up and on oral Eliquis.

Discussion

- This case report highlights the importance of considering a patient's past medical history and current medical conditions to provide safe and effective care.
- In particular, appropriate selection of deep vein thrombosis prophylaxis is necessary to ensure patient management. Risk or suspicion of bleeding is not always a contraindication of DVT prophylaxis.
- Given this patient's low risk of bleeding, based on recent colonoscopy results and CT results, he should have been started on DVT prophylaxis, given his high risk of developing a pulmonary embolism after an orthopedic surgery and immobilization.

Conclusion

VTE prophylaxis recommendations based on American Society of Hematology 2018 guidelines

- High bleeding risk: mechanical prophylaxis is preferred over pharmacological methods.
- High VTE risk but acceptable bleeding risk: medication is preferred over mechanical prophylaxis.
- When medication is used to prevent VTE, low-molecular-weight heparin is preferred over unfractionated heparin and over direct oral anticoagulant

References

1. Deutsch, G. B., Kandel, A. R., Knobel, D., Gupta, R., Ritter, G., Marini, C. P., & Barrera, R. (2012). Bleeding risk secondary to deep vein thrombosis prophylaxis in patients with lower gastrointestinal bleeding. *Journal of intensive care medicine*, 27(6), 379-383.
2. Malhotra, N., & Chande, N. (2015). Venous thromboprophylaxis in gastrointestinal bleeding. *Canadian journal of gastroenterology & hepatology*, 29(3), 145-148.
3. Holger J. Schünemann, Mary Cushman, Allison E. Burnett, Susan R. Kahn, Jan Beyer-Westendorf, Frederick A. Spencer, Suely M. Rezekende, Neil A. Zaki, Kenneth A. Bauer, Francesco Dentali, Jill Lansing, Sara Balduzzi, Andrea Darzi, Gian Paolo Morgano, Ignacio Neumann, Robby Nieuwlaat, Juan J. Yepes-Núñez, Yuan Zhang, Wojtek Wiercioch; American Society of Hematology 2018 guidelines for management of venous thromboembolism: prophylaxis for hospitalized and nonhospitalized medical patients. *Blood Adv* 2018; 2 (22): 3198-3225