An Important Association With Lower Gastrointestinal Bleed: A Case of Heyde Syndrome

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Introduction

First described in 1958, Heyde syndrome is a condition that is defined by a triad of aortic stenosis (AS), gastrointestinal (GI) bleeding from angiodysplasia, and acquired Von Willebrand syndrome [1][2]. Since the time it was first described, there have been multiple case reports and reviews of literature about Heyde syndrome. Nevertheless, it continues to be a diagnosis that is often missed in clinical practice. Hence, we are presenting a case of Heyde syndrome in an 86-year-old female that was admitted for a left femur fracture secondary to severe hematochezia from colonic angiodysplasia that led to the patient losing balance and falling at home. The aim of this case report is to bring forward the importance of keeping Heyde syndrome among the differential diagnosis when dealing with elderly patients presenting with gastrointestinal (GI) bleeding and AS murmur.

Case Presentation

An 86-year-old lady with a history of severe aortic stenosis that was admitted with gastrointestinal (GI) bleeding and AS murmur. She has been in and out of multiple hospitals for blood transfusions in the recent past. She denied hemoptysis, hematemesis, or hematuria. She also denied using aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs). Her medical history was significant for atrial fibrillation and aortic stenosis with an aortic valve area of < 1 cm as evident on an echocardiogram done three weeks prior to admission. She was prescribed apixaban for her arrhythmia; however, she was not taking the medication due to her ongoing bleeding and AS murmur. She was told that her aortic stenosis is severe and was scheduled to get a transcatheter aortic valve replacement (TAVR) in a month’s time.

Upon further history, the patient stated that she has been having frequent episodes of hematochezia over the last three months that would often form a pool of blood below her as she had difficulties ambulating. She has been in and out of multiple hospitals for blood transfusions in the recent past. She denied epistaxis, hemoptysis, hematemesis, or hematuria. She also denied using aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs). Her medical history was significant for atrial fibrillation and aortic stenosis with an aortic valve area of < 1 cm as evident on an echocardiogram done three weeks prior to admission. She was prescribed apixaban for her arrhythmia; however, she was not taking the medication due to her ongoing hematochezia and blood loss. She was told that her aortic stenosis is severe and was scheduled to get a transcatheter aortic valve replacement (TAVR) in a month’s time.

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into the bowel lumen at the lateral right lower abdomen/upper pelvis favoring an ascending colon bleeding site. The patient was treated conservatively with blood transfusions, fluids, and analgesics. She was later taken for open reduction internal fixation (ORIF) and her hip was stabilized. Following her surgery, cardiology was consulted and recommended conservative therapy until the patient gets her already scheduled TAVR procedure done as an outpatient at a tertiary center. The patient was monitored closely thereafter and was eventually discharged to a skilled nursing facility for physical therapy given her fracture and was advised thoroughly to get to her TAVR procedure appointment.

Discussion

The association between AS and angiodysplastic GI bleeding is known as Heyde syndrome. The condition is named after Dr. Heyde who first described the condition in 1958 after noticing a group of 10 patients between sixty and eighty years of age that had calcific aortic stenosis with massive GI bleed [1]. Since that time, further studies have been able to describe the same association, and the condition has been well established in the literature. Nevertheless, there has been some controversy if the association is coincidental or a causal relationship.

The pathogenesis is thought to be related to a relative acquired type 2A von Willebrand factor (vWF) deficiency secondary to aortic stenosis [3]. vWF is a complex disulfide-linked protein that has a size range of 860,000 to over 10 million daltons with a complex multimeric structure. Its structure helps facilitate platelet adhesion and aggregation to the subendothelium [4]. Acquired type 2A vWF deficiency is a condition where the largest vWF multimers are deficient [5]. It is thought proteolysis of vWF occurs as it passes through a stenotic valve that leads to exposure of the bond between amino acids 842 and 843 which happens to affect a specific vWF protease. Thus, proteolysis of the highest molecular-weight multimers of vWF occurs hindering the function of the most effective platelet-mediated hemostasis in a state of high shear stress [6][7][8]. Two studies have shown that patients with type 2A vWF deficiency secondary to either congenital or acquired cardiac disease have their vWF multimer pattern reverting to the normal following operative intervention of their cardiac disease [9][10]. Despite that, the 2020 ACC/AHA guideline for the management of patients with valvular heart disease only counts cardiac symptoms in the evaluation of valve replacement [11]. Endoscopy is currently the modality of choice to diagnose and treat intestinal angiodysplasia. Argon Plasma Coagulation (APC) is the best endoscopy-guided therapy while octreotide and thalidomide are second-line pharmacological therapy in a selected group of patients. Nevertheless, the recurrence rate of APC and pharmacological therapy is high but is considered a good alternative in patients who do not match the criteria for aortic valve replacement/repair or who are at high risk for surgical intervention [12].

Conclusions

In conclusion, Heyde syndrome should be within the differential diagnosis when evaluating an elderly patient that presents with GI bleed. A cardiac exam along with an echocardiogram should be considered as these patients seem to have improvement in their GI bleed following AS repair. Furthermore, it would always help to have a multidisciplinary team including cardiology, gastroenterology, and hematology when suspecting a case of heyde syndrome to come up with a definitive treatment plan and to avoid multiple readmissions.

Additional Information

Disclosures

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References

1. Heyde EC: Gastrointestinal bleeding in aortic stenosis (Letter). N Engl J Med. 1958, 259:196.
2. Randi AM, Laffan MA, Starke RD: Von Willebrand factor, angiodysplasia and angiogenesis. Mediterr J Hematol Infect Dis. 2015, 5:e2015060. 10.4084/MJHID.2015.060
3. Islam S, Islam E, Cevik C, Attaya H, Otahbachi M, Nugent K: Aortic stenosis and angiodysplastic gastrointestinal bleeding: Heyde's disease. Heart Lung. 2012, 41:90-4. 10.1016/j.hrtlng.2010.07.004
4. Ruggeri ZM, Zimmerman TS: Variant von Willebrand's disease: characterization of two subtypes by analysis of multimeric composition of factor VIII/von Willebrand factor in plasma and platelets. J Clin Invest. 1980, 65:1318-25. 10.1172/JCI9795
5. Warkentin TE, Moore JC, Morgan DG: Aortic stenosis and bleeding gastrointestinal angiodysplasia: is acquired von Willebrand's disease the link?. Lancet. 1992, 4:55-7. 10.1016/0140-6736(92)92434-h
6. Tsai HM, Sussman II, Nagel RL: Shear stress enhances the proteolysis of von Willebrand factor in normal plasma. Blood. 1994, 83:2171-9. 10.1182/blood.V83.8.2171.2171
7. Dent JA, Berkowitz SD, Ware J, Kasper CK, Ruggeri ZM: Identification of a cleavage site directing the
immunochemical detection of molecular abnormalities in type IIA von Willebrand factor. Proc Natl Acad Sci U S A. 1990, 87:6306-10. 10.1073/pnas.87.16.6306
8. Gill JC, Wilson AD, Endres-Brooks J, Montgomery RR: Loss of the largest von Willebrand factor multimers from the plasma of patients with congenital cardiac defects. Blood. 1986, 67:758-61. 10.1182/blood.V67.3.758.758
9. Weinstein M, Ware JA, Troll J, Salzman E: Changes in von Willebrand factor during cardiac surgery: effect of desmopressin acetate. Blood. 1988, 71:1648-55. 10.1182/blood.V71.6.1648.1648
10. Vincentelli A, Susen S, Le Tourneau T, et al.: Acquired von Willebrand syndrome in aortic stenosis. N Engl J Med. 2003, 349:545-9. 10.1056/NEJMoa022851
11. Otto CM, Nishimura RA, Bonow RO, et al.: 2020 ACC/AHA Guideline for the Management of Patients With Valvular Heart Disease: a report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines. Circulation. 2021, 145:e72-e227. 10.1161/CIR.0000000000000923
12. Sami SS, Al-Araji SA, Ragunath K: Review article: gastrointestinal angiodysplasia - pathogenesis, diagnosis and management. Aliment Pharmacol Ther. 2014, 39:15-34. 10.1111/apt.12527