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Case Report

Massive Upper Gastrointestinal Bleeding in a Patient with Thoracoabdominal Aortic Aneurysm Who Underwent Tevar and Wedge Gastrectomy for a Gastrointestinal Stromal Tumor: A Case Report

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Abstract

Gastrointestinal stromal tumors (GISTs) account for about 1-3% of all gastrointestinal malignancies and are the most common mesenchymal tumor of the gastrointestinal tract [1]. This is a case of a 42-year-old male with a known thoracoabdominal aortic aneurysm who came in with massive amounts of hematochezia. A suspicious aortoenteric fistula was noted in the initial CT angiogram which prompted the patient to undergo TEVAR. After the TEVAR, the patient underwent an esophagogastroduodenoscopy that revealed a submucosal mass. Promptly, a laparoscopic surgery was done revealing 2 arteries feeding the mass, a wedge resection was made thereafter. Histopathology of the mass revealed a gastrointestinal stromal tumor. The patient's postoperative recovery was uneventful for major complications. Pathology reports showed a complete surgical resection (R0); the tumor was diagnosed as gastric GISTs in the very low-risk/low-risk category, and adjuvant chemotherapy was not necessary according to the NCCN guidelines. At onemonth post-operative follow-up, no symptoms were referred by the patient.

Keywords: GIST; Gastrointestinal Stromal Tumor; Gastrointestinal Bleeding; TEVAR; Aortic Aneurysm

Introduction

Gastrointestinal stromal tumors (GISTs) account for about 1-3% of all gastrointestinal malignancies and are the most common mesenchymal tumor of the gastrointestinal tract [1].

Along the enteric tract, GISTs usually arise from the stomach, then from the small intestines. Mostly GISTs present as gastric discomfort or ulcer-like symptoms, acute life-threatening episodes of melena or hematemesis, intestinal obstruction, or tumor rupture with hemoperitoneum. Nearly a third of GISTs are incidentally detected during surgical or imaging procedures or endoscopic screening for gastric carcinoma [2].

In patients who have known co-morbidities that predispose them to gastrointestinal bleeding such as an abdominal aortic aneurysm, it is a must to rule out the presence of rare gastric malignancies, for instance, GISTs.

Case

This is a case of a 42/M known hypertensive with thoracoabdominal dissecting aneurysm, type B, admitted last June 17, 2020 as transfer from another institution. The patient was initially admitted at another hospital presenting with anemia of hemoglobin at 39g/dL, melena and hematemesis where he was initially transfused with 3 units PRBC, he was venoclyzed and was advised endoscopy for further work up. However, due to lack of endoscopy unit at the said hospital, the patient transferred to our institution. Patient was initially seen at the emergency room and initial laboratory results revealed severe anemia with hemoglobin at 38g/L and hematocrit at 0.11L/L, blood transfusions were done, proton pump inhibitor drip was started and the patient was admitted at the Intensive Care Unit (ICU) for medical management and identification of the source of bleeding.

On the 3rd hospital day, with no recurrence of hematemesis and melena, patient was transferred to telemetry, however, after a few

hours, patient had a recurrence of massive hematemesis, and was again transferred back to the ICU and was referred to Interventional Cardiology and TCVS team for the possibility of a thoracoesophageal fistula. He had a transient loss of consciousness despite the aggressive blood transfusion and was also referred to Neurology service for evaluation and management.

On his 4th hospital day, CT scan finding of suspicious radioopaque density between left subclavian artery and esophageal wall (Figure 1.1, Figure 1.2), TCVS team decided to do an emergency ascending and arch aortogram with distal run off carotid subclavian bypass amplatz plug of left subclavian artery, endograft repair of chronic type B dissection for a suspected aortoesophageal fistula. He tolerated the procedure well and hour later, the patient underwent esophagogastroduodenoscopy (EGD) and was noted to have the following findings (Figure 2)

- Submucosal bulge at upper esophagus just after the CE junction
- Submucosal mass 4-5 cm with smooth surface at fundus with big adherent clot beside it.

Figure 1.2: CT angiography with the false and true lumen.

Figure 1.1: CT scan of the AAA showing the true and false lumen.

Figure 2: Presence of a submucosal mass with adjacent blood clot upon endoscopy

CT Scan of the abdomen was done which revealed a gastric mass (Figure 3). The patient was immediately referred to surgery service for tumor resection. On the 5th hospital day patient underwent emergency laparoscopic wedge gastrectomy (fundus) with omentoplasty and drainage with the following intraoperative findings (Figure 4)

Figure 3: Presence of the graft post TEVAR, as well as the well circumscribed gastric mass.

Figure 4: Operative findings of a submucosal gastric mass with ulceration.

- 3.5 x 3.5 cm mass noted at the fundus of the stomach, no adhesions noted, no other pathologies seen
- 2 large feeding vessels noted at the greater curvature area, fundus
- 1.5 cm mucosal break noted on the upper posterior aspect of gastric tumor with exposed vessels

Patient tolerated the procedure well and was sent back to ICU postoperatively. Patient was monitored and managed medically in the ICU and was then transferred back to the Telemetry unit on his 9th hospital day.

On the same day, the patient subsequently developed occasional cough and fever and was started on Vancomycin and Meropenem for Hospital Acquired Pneumonia. Antibiotics were then shifted to Cefepime, Clindamycin and Levofloxacin after 5 days.

Final diagnosis

- Upper Gastrointestinal Bleeding (UGIB) Secondary to Bleeding Gastrointestinal Stromal Tumor GIST), Resolved, S/P Gastroscopy
- S/P Emergency Laparoscopic Partial Wedge Gastrectomy (Fundus), With Omentoplasty, Drainage
- Severe Anemia Secondary to Upper GI Bleeding, Resolved
- Stanford Type B Thoracoabdominal Dissecting Aneurysm, S/P Emergency Thoracic Endovascular Aortic Repair (TEVAR)
- Acute Kidney Injury, Pre-Renal, Multifactorial, Resolved
- Hypertensive Cardiovascular Disease, Permanent Atrial Fibrillation in Controlled Ventricular Response CHADSVASC 2 HAS BLED 2
- Multiple Electrolyte Imbalance Secondary to Gi Bleeding and Multiple Blood Transfusions (Hypomagnesemia, Hypocalcemia, Hypokalemia, Hypernatremia), Resolved
- Mild Metabolic Encephalopathy, Resolved
- Hospital Acquired Pneumonia, COVID Negative, Resolved

On the 18th hospital day, patient was noted to have no recurrence of fever with improving pneumonia seen on x-ray. Patient was brought to a regular room for continuing care and management.

On the 19th hospital day, antibiotics were completed and patient was cleared for discharged. Patient went home well and improved. Figure 5. Histopathologic finding of the mass consistent with GIST, showing spindle shaped cells.

Discussion

Patients who have gastrointestinal bleeding secondary to an untreated aortoenteric fistula has almost a hundred percent mortality. Its detection is crucial especially in patients presenting with massive amounts of hematochezia. Aortoenteric fistula is a rare cause of acute UGIB and is most often iatrogenic [5].

Usually, patients present with an initial "herald bleed" presented by hematemesis and/or hematochezia; and may be followed up to a few weeks later by overt bleeding [3]. A high index of suspicion such as in this patient is needed to establish the diagnosis, with the help of a CT angiography. CT has widely variable sensitivity (40%90%) and specificity (33%-100%) for the diagnosis of aortoenteric fistulas [6].

Thoracic Endovascular Aortic Repair (TEVAR) was first approved by the FDA for thoracic aneurysm repair following the Gore TAG pivotal trial in 2005 with the following indications: Aortic Aneurysm, Traumatic Aortic Transection, Penetrating Aortic Ulcer/ Intramural Hematoma, Thoracoabdominal Aneurysms and management of Type B Dissection such as in this patient [7]. Seeing the absence of a fistula from this patient, prompts an endoscopic work up for gastrointestinal bleeding. It is recommended to use the Glasgow Blatchford scoring to identify patients who are low risk for rebleeding and mortality [9]. As the GBS increased, there is a greater likelihood of pathology. Positive predictive values (PPVs) for pathology on endoscopy for GBS less than or equal to 8 reached 96.58%. Even at low GBS scores, pathologies were found. The NPV for diagnosis at a GBS score of 0 was 43.55% (33.04-54.67%) [8]. This patient has a GBS score of 15.

According to Jhonston., *et al.* Gastrointestinal stromal tumors (GISTs), defined as spindle cell tumors that are CD117 (c-kit protein) positive, are the most common mesenchymal tumors arising within the gastrointestinal (GI) tract. GISTs account for only 1-3% of all gastrointestinal tumors [2]. They most frequently involve the anterior and posterior walls of the gastric fundus and often ulcerate and bleed. Lesions that seem benign on histologic examination may behave in a malignant manner. These tumors rarely invade adjacent viscera and characteristically do not metastasize to lymph nodes, but they may spread to the liver and lungs [10].

The most common symptoms of GIST include GI bleeding, gastric discomfort or ulcer-like symptoms, intestinal obstruction or tumor rupture with hemoperitoneum; and acute life-threatening episodes of melena or hematemesis as seen in the patient [4]. Nearly a third of GISTs are incidentally detected during surgical or imaging procedures or endoscopic screening for gastric carcinoma [2].

Surgical resection with free margins of tumor disease (R0) is their only curative option. In the case of potentially resectable gastric tumors, laparoscopic wedge resections are considered the standard therapy [11].

The patient's postoperative recovery was uneventful for major complications. Pathology reports showed a complete surgical resection (R0); the tumor was diagnosed as gastric GISTs in the very low-risk/low-risk category, and adjuvant chemotherapy was not necessary according to the NCCN guidelines. At one-month postoperative follow-up, no symptoms were referred by the patient.

Conclusion

Gastrointestinal tumors account to 1-3% of GI malignancies. Symptoms could be occult GI bleeding, abdominal discomfort, or lifethreatening melena, and/or hematochezia. The importance of a multidisciplinary team management is emphasized in complicated cases, such in a patient with existing AAA with massive blood loss. Prompt management of GI emergencies should be done especially with high index of suspicion. Early recognition and timely detection of cancer is sometimes underrated; and the use of imaging such as CT scan with contrast is lucrative to early detect certain disease entities. It is concluded laparoscopic surgery is a valid alternative for the hemorrhage control and the removal of a gastrointestinal tumor in a life-threatening situation [11]. R0 surgeries for patients with GIST have the best prognosis, evading the adverse effects of chemotherapy.

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