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Case Report

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A Rare Cause of Massive Upper GI Bleeding in a Young Adult: Gastric Cavernous Hemangioma Mimicking GIST

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Abstract

Gastric hemangiomas are exceedingly rare benign vascular tumors, representing less than 0.05% of all gastrointestinal neoplasms and often misdiagnosed as submucosal tumors like gastrointestinal stromal tumors (GISTs). We present a case of a 33-year-old woman who arrived with acute upper gastrointestinal bleeding, presenting as multiple episodes of coffee-ground emesis and signs of hypovolemia. Imaging identified a hyperenhancing lesion in the gastric fundus with active contrast extravasation. Endoscopic evaluation revealed a friable submucosal lesion with central ulceration, initially suspected to be a GIST. Due to bleeding risk, biopsies were inconclusive, and an elevated chromogranin A level further complicated the diagnosis. The patient underwent a laparoscopic-assisted partial gastrectomy for definitive diagnosis and treatment. Histopathological analysis confirmed a benign cavernous hemangioma involving the mucosa and muscularis propria, with negative margins and no malignant features. The patient recovered uneventfully postoperatively. This case emphasizes the diagnostic challenges of gastric hemangiomas, especially when imaging and endoscopic findings mimic more common neoplasms. Surgical resection remains the cornerstone for both diagnosis and management, particularly in cases where biopsy is unsafe or inconclusive. Early recognition and a multidisciplinary approach are critical for optimal outcomes in such rare presentations.

Keywords:- Gastric Hemangioma, Gastrointestinal Bleeding, Submucosal Tumors, Laparoscopic Gastrectomy, Gastrointestinal Stromal Tumor

INTRODUCTION

Gastric hemangiomas are exceptionally rare benign vascular tumors, accounting for less than 0.05% of all gastrointestinal neoplasms.[1] They may present with upper gastrointestinal bleeding, often mimicking more common submucosal lesions such as gastrointestinal stromal tumors (GISTs). Preoperative diagnosis is challenging due to the risk of bleeding during biopsy and the overlapping features seen on endoscopy and imaging.[2]

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Here, we report a case of massive upper gastrointestinal bleeding caused by a gastric cavernous hemangioma in a young adult female, initially suspected to be a GIST.

CASE REPORT

A 33-year-old female with no known chronic medical conditions presented to the emergency department with multiple episodes of coffee-ground emesis and associated epigastric pain. She denied melena, hematochezia, diarrhea, fever, weight loss, recent or prolonged NSAID use, or having heavy menstrual bleeding. Her menstrual cycles were regular, and she had no known personal or family history of gastrointestinal disorders, malignancies, or bleeding diatheses. Her surgical history was notable for an open cholecystectomy performed several years prior, with a well-healed right upper quadrant scar and no postoperative complications.

On presentation, the patient appeared pale and mildly hypotensive, with a blood pressure of 92/58 mmHg, heart rate of 112 bpm, and temperature of 36.8°C. She was clinically hypovolemic. Laboratory investigations revealed a hemoglobin level of 5.9 g/dL, white blood cell count of 15.8 $\times 10^9$/L, and a normal coagulation profile.

A contrast-enhanced computed tomography (CT) scan of the chest and abdomen demonstrated a focal enhancing lesion at the posteroinferior wall of the gastric fundus with evidence of contrast extravasation, suggestive of active bleeding (figure.1).

Figure.1 : a focal enhancing lesion at the posteroinferior wall of the gastric fundus

No signs of gastric wall infiltration or extra gastric extension were noted. Incidental findings included a small 6 mm arterial phase-enhancing lesion in segment 6 of the right lower lung lobe with washout in the venous phase and a small pulmonary embolism in a segmental upper lobar pulmonary artery branch.

The patient was resuscitated with intravenous fluids and high-dose proton pump inhibitors, and she received two units of packed red blood cells. An urgent esophagogastroduodenoscopy (EGD) revealed a 1 cm submucosal lesion with central ulceration at the posterior fundus, located just below the cardia along the greater curvature. The lesion was friable, bled upon contact, and was highly suspicious for a gastrointestinal stromal tumor (GIST) or another submucosal neoplasm. Hemostasis was achieved using three endoscopic clips (figure.2).

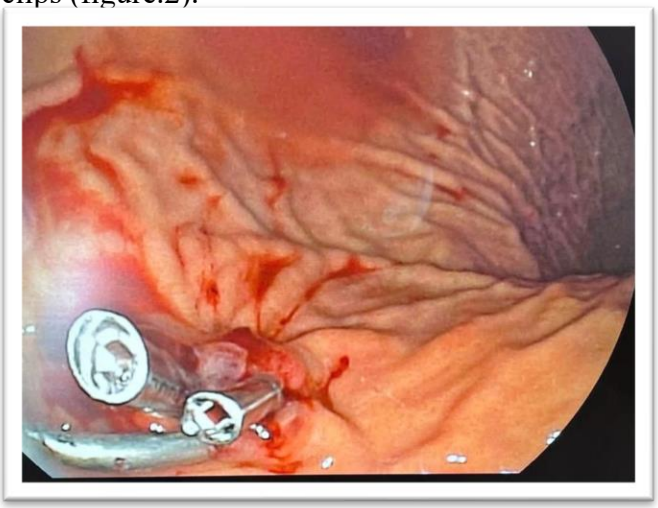

Figure.2 : Three endoscopic clips in -situ.

Due to the friability of the lesion, multiple biopsy attempts were unsuccessful. Moreover, an endoscopic ultrasound (EUS) was not feasible due to metallic clip interference. Thus, tumor markers including carcinoembryonic antigen (CEA), alpha-fetoprotein (AFP), and chromogranin A were ordered. CEA and AFP were within normal limits; however, chromogranin A was markedly elevated at 274 ng/mL (reference range: <93 ng/mL), raising concern for a possible neuroendocrine tumor. Upon further inspection, a Doppler ultrasound of the lower limbs was taken and showed no evidence of deep vein thrombosis. As anticoagulation was contraindicated due to active bleeding, pneumatic compression devices were applied, and consideration was given to the placement of an inferior vena cava (IVC) filter.

Given the diagnostic uncertainty and risk of recurrent bleeding, a multidisciplinary team decided to proceed with surgical management. A laparoscopic-assisted partial gastrectomy was performed using a minimally invasive incision. The

lesser sac was entered, and the lesion was resected with a 5 mm to 1 cm circumferential margin. Intraoperatively, the stomach was opened to confirm the presence of the lesion and the previously placed endoscopic clips at its center (figure.3).

Figure.3 : the previously placed endoscopic clips at the center of stomach

Gross examination confirmed clear surrounding margins. Histopathological evaluation of the specimen revealed a benign cavernous hemangioma measuring 1.5 × 1 × 0.7 cm, involving the mucosa and muscularis propria (figure.4).

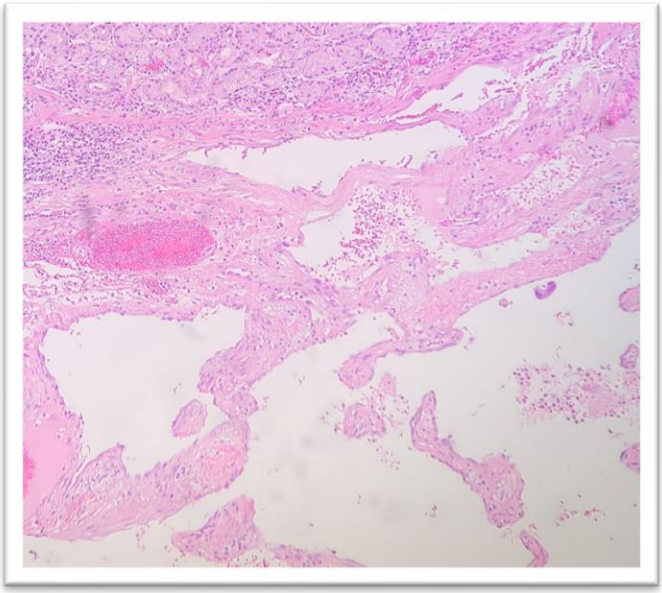

Figure 4: 20x magnification. Cavernous hemangioma containing blood cells (black arrow) within the vascular channels.

No features of malignancy or neuroendocrine differentiation were identified, ruling out suspicion of a neuroendocrine related tumor. Resection margins were negative. Associated findings included chronic gastritis with reactive lymphoid follicles.

The patient's postoperative recovery was uneventful. She was discharged in stable condition with appropriate follow-up arranged.

DISCUSSION

While Gastric hemangiomas are rare, they aligned with the findings and symptoms of the patient. They are typically categorized into capillary, cavernous, and mixed types, with cavernous hemangiomas being most common in adults.[3] Among the most common symptoms are epigastric discomfort, dyspepsia, and upper gastrointestinal bleeding, which can be gradual and subtle or acute and life-threatening conditions. [4]

In this case, the patient presented with massive upper gastrointestinal bleeding, which is a rare but serious manifestation of gastric hemangiomas. The lesion's endoscopic appearance— submucosal with central ulceration and active bleeding— pointed to the possible presence of a gastrointestinal stromal tumor (GIST) initially. However, the failure to obtain biopsy samples due to the lesion's friability further complicated the diagnostic process. Additionally, the elevated chromogranin A level (274 ng/mL) raised concern for a neuroendocrine tumor. Although, chromogranin A can be elevated in several non-neoplastic conditions, The most common causes encountered in the clinical practice is the use of proton pump inhibitors (PPIs), atrophic gastritis cases and impaired kidney function.[5] In this case, the final histopathological diagnosis confirmed a benign cavernous hemangioma with no neuroendocrine features, emphasizing the limited specificity of isolated biomarker elevation.[6]

Preoperative imaging as well as endoscopy is

Often insufficient for definitive diagnosis. CT findings such as focal hyperenhancement and contrast extravasation, as seen in this patient, can raise suspicion but lack specificity.[7] Moreover,

while these tools can be helpful, they cannot be used in certain situations due to patient's condition. Endoscopic ultrasound could have been beneficial in characterizing the lesion's vascular nature and submucosal origin, but the patient's clip artifact suspended its use for this particular case.[8] Endoscopic biopsy is also helpful but typically avoided in suspected vascular lesions due to bleeding risk, such as the one seen in this patient.

Hence, Gastric resection for malignancy, whether performed via traditional open surgery or minimally invasive techniques, such as laparoscopic or robotic-assisted gastrectomy, remains a cornerstone in the management of gastric tumors.[9] In this case, surgical resection was both diagnostic and therapeutic, allowing for the confirmation of a gastric hemangioma. Additionally, the use of minimally invasive techniques allowed for a faster postoperative recovery and minimized surgical morbidity.[10]

Overall, this case highlights the importance of considering rare entities such as gastric hemangiomas in the differential diagnosis of upper gastrointestinal bleeding, especially when endoscopic features are suggestive of submucosal tumors. A multidisciplinary approach, involving gastroenterologists, radiologists, and surgeons, is essential in managing such diagnostically challenging cases.

CONCLUSION

To conclude, the rarity of gastric hemangioma tumor made it difficult to differentiate from other common submucosal tumors. The patient's clinical presentation mimicked a gastrointestinal stromal tumor (GIST), making definitive diagnosis difficult. Despite repeated biopsy attempts and imaging challenges, laparoscopic partial gastrectomy successfully provided both a definitive diagnosis and resolution of the bleeding, ultimately confirming the gastric hemangioma. This case highlights the importance of considering rare conditions like gastric hemangiomas in the differential diagnosis of upper gastrointestinal bleeding. Surgical resection remains the gold standard for treatment, with laparoscopic techniques offering a safe and effective approach. Ultimately, early recognition and appropriate intervention can prevent severe complications and ensure favorable outcomes for patients with such rare gastric lesions.

Conflict of interest

None

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None

REFERENCE

1. Sun A, Sun J, Sun C-K. Cavernous gastric hemangioma as an unusual cause of upper gastrointestinal bleeding in a young woman. Case Rep Gastroenterol. 2022;16(1):1–7. doi:10.1159/000520624.

2. Zong L, Chen P, Shi GH, Wang L. Gastric cavernous hemangioma: A rare case with upper gastrointestinal bleeding. Oncol Lett. 2011 Nov;2(6):1073-1075. doi: 10.3892/ol.2011.364. Epub 2011 Jul 21. PMID: 22848269; PMCID: PMC3406561.

3. Iwamoto T, Jakobiec FA. Ultrastructural comparison of capillary and cavernous hemangiomas of the orbit. Arch Ophthalmol. 1979 Jun;97(6):1144-53. doi: 10.1001/archopht.1979.01020010598020. PMID: 444147.

4. Sukmagautama C, Asaduddin AH, A'malia U, Putri DP. Gastric cavernous hemangioma in 48-year-old male patient: a rare case presenting upper gastrointestinal bleeding manifestations. Gastroenterol Hepatol Bed Bench. 2023;16(3):336–340. doi:10.22037/ghfbb.v16i2.2773. PMID: 37767327; PMCID: PMC10520390.

5. Gut P, Czarnywojtek A, Fischbach J, Bączyk M, Ziemnicka K, Wrotkowska E, Gryczyńska M, Ruchała M. Chromogranin A - unspecific neuroendocrine marker. Clinical utility and potential diagnostic pitfalls. Arch Med Sci. 2016 Feb 1;12(1):1-9. doi: 10.5114/aoms. 2016.57577. Epub 2016 Feb 2. PMID: 26925113; PMCID: PMC4754364.

6. Xu HM, Li WH, Hou N, Zhang SG, Li HF, Wang SQ, Yu ZY, Li ZJ, Zeng MY, Zhu GM. Neuroendocrine differentiation in 32 cases of so-called sclerosing hemangioma of the lung: identified by immunohistochemical and ultrastructural study. Am J Surg Pathol. 1997 Sep;21(9):1013-22. doi: 10.1097/00000478-199709000-00005. PMID: 9298877.
7. Levy AD, Abbott RM, Rohrmann CA Jr, Frazier AA, Kende A. Gastrointestinal hemangiomas: imaging findings with pathologic correlation in pediatric and adult patients. AJR Am J Roentgenol. 2001 Nov;177(5):1073-81. doi: 10.2214/ajr.177.5.1771073. PMID: 11641173.
8. Vander Noot MR 3rd, Eloubeidi MA, Chen VK, Eltoum I, Jhala D, Jhala N, Syed S, Chhieng DC. Diagnosis of gastrointestinal tract lesions by endoscopic ultrasound-guided fine-needle aspiration biopsy. Cancer. 2004 Jun 25;102(3):157-63. doi: 10.1002/cncr.20360.
9. Johnston FM, Beckman M. Updates on Management of Gastric Cancer. Curr Oncol Rep. 2019 Jun 24;21(8):67. doi: 10.1007/s11912-019-0820-4. PMID: 31236716.
10. Singh SS, Shinde RK. Minimally Invasive Gastrointestinal Surgery: A Review. Cureus. 2023 Nov 15;15(11):e48864. doi: 10.7759/cureus.48864. PMID: 38106769; PMCID: PMC10724411.

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