Mini-Review

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Uncommon, overlooked and underreported causes of upper gastrointestinal bleeding

Sachin Mahendrakumar Chaudhary[1], Ajay Singh[2,*], Manisha Chavan[3], Arghadip Das[4], Pinank Kiritkumar Bathvar[1]

[1] Department of General Surgery, SMT. NHL Municipal Medical College, Ahmedabad, Gujarat, India;
[2] Department of General Surgery, Sri Ram MurtiSmarak Institute of Medical Sciences, Bareilly, Uttar Pradesh, India;
[3] Department of General Surgery, Kakatiya Medical College, RangamPeta, Warangal, Telangana, India;
[4] Department of General Surgery, Nilratan Sircar Medical College and Hospital, Kolkata, West Bengal, India.

SUMMARY Upper gastrointestinal bleeding (UGB) is a potentially fatal consequence of digestive disorders. There is a wide range of rare causes for UGB that can lead to misdiagnosis and occasionally catastrophic outcomes. The lifestyles of those who are afflicted are mostly responsible for the underlying conditions that result in the hemorrhagic cases. The development of a novel approach targeted at raising public awareness of the issue and educating the public about it could significantly contribute to the elimination of gastrointestinal bleeding with no associated risks and to a nearly zero mortality rate. There are reports of UGB related to Sarcina ventriculi, gastric amyloidosis, jejunal lipoma, gastric schwannoma, hemobilia, esophageal varices, esophageal necrosis, aortoenteric fistula, homosuccus pancreaticus, and gastric trichbezoar in the literature. The common feature of these rare causes of UGB is that the diagnosis is difficult to establish before surgery. Fortunately, UGB with a clear lesion in the stomach itself is a clear sign for surgical intervention, and the diagnosis can only be verified by pathological examination with the help of immunohistochemical detection of a particular antigen for a specific condition. The clinical traits, diagnostic techniques, and the therapeutic, or surgical options of unusual causes of UGB reported in the literature are compiled in this review.

Keywords upper gastrointestinal bleeding, uncommon cause, diagnosis, treatment

1. Introduction

Upper gastrointestinal bleeding (UGB) is a potentially fatal complication of gastrointestinal illnesses. Even though bleeding is a common symptom, the various reasons vary greatly. Bleeding is caused by several conditions and organ abnormalities in addition to the gastrointestinal tract itself. Therefore, for clinicians to properly diagnose and treat the disease, understanding the origin and characteristics is crucial (*1*). Peptic ulcers continue to be the most frequent cause of UGB, accounting for around half of all cases (*2-3*). UGB can also be brought on by esophageal varices, gastritis, gastric cancer, benign digestive tract tumors, use of blood thinners, or use of non-steroidal anti-inflammatory drugs (*2-10*) (Table 1). Despite advancements in medicine, endoscopy, intensive care units, and surgical management, the death rate of patients with UGB is 5-10% and has not improved much since 1945 (*11*).

Numerous case reports of uncommon causes of UGB have been published, which has expanded our knowledge of the etiology of the condition (*12*). However, UGB from rare causes can also contribute to misdiagnosis (*13*) and can have life threatening consequences. In this succinct review, we attempt to encapsulate uncommon causes of UGB (Table 2). This will increase our understanding of the causes of UGB, amplifying our ability to diagnose patients correctly and enhance the effectiveness of treatment through timely and more aggressive intervention.

2. Uncommon, overlooked, and underreported causes of UGB

2.1. Sarcina ventriculi

A rare gram-positive anaerobic bacteria, Sarcina ventriculi, does well in the stomach's acidic environment. Patients with delayed stomach emptying or gastric outlet obstruction frequently have the bacteria present

Table 1. Common causes of upper gastrointestinal bleeding

Cause / *Ref.*	Pathophysiology	History and clinical findings	Treatment
Peptic ulcer (*2-3*)	Commonly due to Helicobacter pylori infection or irritation from nonsteroidal anti-inflammatory drugs (NSAIDs) such as aspirin or ibuprofen.	Many people with ulcers experience no symptoms. If symptoms do occur, they may include pain, often in the upper abdomen, nausea or vomiting, feeling of fullness or bloating.	Anti- H. pylori therapy and proton pump inhibitors (PPIs)
Mallory-Weiss tear (*5*)	Mucosal tears of the esophagus or fundus. The rip in the mucosa at the less flexible gastroesophageal junction is caused by a sudden rise in intra-gastric or intra-abdominal pressure.	Episode of hematemesis following a bout of retching or vomiting. Less common presenting symptoms include melena, hematochezia, syncope, and abdominal pain. The presence of hiatal hernia is a predisposing factor. Excessive alcohol use have been reported in 40-75% of patients.	5-30% patients require intervention, mostly endoscopic. Patients without risk factors for rebleeding or active bleeding at endoscopy can be managed conservatively.
Gastritis (*6*)	Inflammation of the stomach due to the use of NSAIDs, injury, inflammatory bowel disease (IBD). Overtime, gastritis can cause ulcers or damage parts of the stomach lining, leading to bleeding.	Majority of people with gastritis do not have any symptoms, but it can cause pain in the upper abdomen, feeling of fulness or bloating.	PPIs are administered to suppress stomach acid production.
Esophageal varices (*7*)	Portal hypertension from fibrotic liver parenchyma and dilation of collaterals.	Most common in people with liver disease, such as cirrhosis. Alcoholism and ascites may also be causes. Do not usually have symptoms unless the veins begin to bleed. The symptoms include stomach pain, vomiting blood, and bloody stools.	Beta blockers, nasogastric intubation, rubber band ligation, sclerotherapy, transjugular intrahepatic portosystemic shunt, balloon tamponade, and therapeutic endoscopy.
Arteriovenous malformations (*8*)	Congenital vascular malformations that are predisposed to rupture.	Painless bleeding in older patients (> 70 years), history of iron deficiency anemia.	Surgical resection of the involved bowel with complete resection of the nidus.
Dieulafoy's lesion (*9*)	Submucosal caliberpersistent artery anomaly mostly occurring in the upper part of the stomach, rarely in the antrum or the duodenum.	The bleeding stops temporarily with hypovolemic shock but recurs while resuscitation is achieved.	Endoscopic injection, cautery, ligation, embolization, and surgery.
Esophageal malignancy (*10*)	Bleeding from vasculature	Multiple previous episodes of bleeding, recent unintentional weight loss, history of alcohol or tobacco abuse.	Coagulation therapy with APC (argon-plasma coagulation) is used as a first choice. It enables the coagulation of superficially large areas of the bleeding tumor as well as the additional ablation of some of the intraluminal tumor mass.

(*14*). Gastric ulcers, emphysematous gastritis, gastric perforation, gastric adenocarcinoma, and pancreatic cancer have all been linked to the bacterium. It is quite uncommon for hematemesis to be the first sign of S. ventriculi infection in an otherwise asymptomatic patient. Epigastric stomach discomfort or spasms, abdominal distension, nausea, and later emesis are symptoms of S. ventriculi infection (*15*). Endoscopy demonstrates diffuse erythema, esophageal and stomach inflammation, a gastric ulcer, and food and bile retention. Endoscopic examination reveals a distinct, well defined border between normal and aberrant mucosae, a highly uncommon characteristic that suggests this illness. However, given the association with severe and life-threatening consequences, a multidrug treatment approach with metronidazole, ciprofloxacin, sucralfate, and pantoprazole has proven effective. Nonetheless, there currently needs to be a consensus regarding the best therapeutic agents or duration of treatments. Concomitant conditions and patient age are taken into account when adjusting the dose.

2.2. Splenic artery pseudoaneurysm

Though uncommon, UGB caused by a splenic artery pseudoaneurysm (SAPA) can potentially be fatal (*16*). Only a little more than 200 instances of SAPA have been reported so far (*2*). Pancreatitis, trauma, iatrogenic, post-operative reasons, and peptic ulcer are rare causes of SAPA. It is quite uncommon to have a SAPA eroded by a duodenal ulcer. The pancreatic duct is a typical location for bleeding, with some spilling into the peritoneal cavity, stomach, or even the colon (*17,18*). However, the rarity of SAPA fistulizing to the duodenal bulb makes precise diagnosis challenging. Massive hematemesis with an acute start and momentary loss of consciousness are the symptoms, but there is no acid reflux, stomach discomfort, or distension. Imaging methods, particularly computer tomography (CT) angiography and three-dimensional rendering, are helpful in this case for

Table 2. Uncommon, overlooked, and underreported causes of upper gastrointestinal bleeding (UGIB)

Cause / *Ref.*	Clinical Findings	Diagnostic Technique	Treatment	Caution
Sarcina ventriculae (gram positive anaerobic bacteria) (*14,15*)	Delayed stomach emptying or gastric outlet obstruction, gastric ulcers, emphysematous gastritis, gastric perforation, gastric adenocarcinoma, and pancreatic cancer are all possible causes. Hematemesis is a somewhat infrequent precursor to S. ventriculi infection in a patient who is otherwise asymptomatic. The symptoms include nausea, abdominal distension, epigastric pain or spasms, and eventually emesis.	Endoscopic examination reveals a clear, well-defined line between normal and aberrant mucosae, a fairly unusual feature that points to this condition.	Metronidazole, ciprofloxacin, sucralfate, and pantoprazole are part of a successful multidrug therapy regimen.	The dose is modified based on the patient's age and any coexisting conditions.
Splenic artery pseudoaneurysm (SAPA) (*17,18*)	Rare causes of SAPA include gastric ulcer, pancreatitis, trauma, iatrogenic, and post-operative reasons. The erosion of a SAPA by a duodenal ulcer is incredibly rare. The symptoms include severe hematemesis with an abrupt onset and brief loss of consciousness, although there is no acid reflux, stomach discomfort, or distension.	CT angiography to examine the bleeding veins. In the arterial phase of contrast-enhanced computed tomography (CT), the hematoma between the duodenal bulb and pancreas can be seen in both cross-sectional and coronal views.	Endovascular therapy or surgical intervention are recommended treatments for bleeding pseudoaneurysms.	Due to the atypical patient history and endoscopic results, both pharmacological and endoscopic techniques to diagnosis and hemostasis are disregarded.
Gastric amyloidosis (*20,21*)	Diarrhea, nausea, vomiting, weight loss, low hemoglobin, widespread abdominal pain, multiple episodes of melena, and GI bleeding.	In addition to bluish-black lesions and inflammatory lesions in the antrum with adherent blood clots, upper GI endoscopy also reveals blood clots in the fundus and body of the stomach.	Patients can be managed with the help of supportive care, such as intravenous proton pump inhibitors, intravenous steroids, fluid resuscitation, blood transfusions, *etc.*	The effectiveness of the treatment is dependent on the patient's age and comorbidities.
Jejunal lipoma (*22,23*)	The small intestine is where lipomas generally develop alone. When they are severe, UGIB, intussusception, and occlusion are rare. Persistent GI bleeding could be caused by a massive lipoma. The bleeding is caused by direct pressure from the lipoma or mucosal ulcers caused by mass expansion and regular peristalsis.	The video capsule endoscopy (VCE) can screen the whole small intestine and identify bleeding that has occurred in the proximal, middle, or distal third of the small intestine based on the length of the transit time of the capsule.	Surgical resection of the lipomas.	It can be difficult to identify the bleeding site by angiography or radionucleotide scan due to the intermittent or low rate of bleeding.
Gastric schwannoma (*24,25*)	Individuals between the ages of 30 and 50 are usually affected by gastric schwannomas, which are typically single lesions that arise from the lower curvature of the stomach. On histology, they are visible as prominent peripheral lymphocyte aggregates, either with or without a germinal core. Spindle cells constitute the majority of them, while epithelioid and unusual plexiform variations have also been reported.	Typically diagnosed through endosonography.	Surgical resection is the treatment of choice.	The muscularis propria of the stomach is where schwannomas most usually present as a nodular mass. As a result, they occasionally get misdiagnosed as neurofibromas and gastrointestinal stromal tumors.
Hemobilia due to hepatobiliary manipulation (*26,27*)	Although stomach ache, jaundice, and tarry stools are the usual symptoms, patients may also exhibit rectorrhagia and hypotension.	Computed tomography angiography.	Endovascular embolization is the primary treatment. Vascular or bile duct stent implantation is another option.	Always be on the lookout for patients who have UGIB, a history of biliary duct instrumentation or manipulation, or a previous diagnosis of biliopancreatic disease.

Table 2. Uncommon, overlooked, and underreported causes of upper gastrointestinal bleeding (UGIB) (continued)

Cause / *Ref.*	Clinical Findings	Diagnostic Technique	Treatment	Caution
Hemobilia due to choledocholiothiasis (*28,29*)	Among other things, iatrogenic, traumatic, vascular disease, neoplasms, inflammation, and gallstones can cause hemobilia. Usually, a large stone will erode the cystic artery or invade an adjacent artery or organ. There is a chance that it will cause severe hemobilia, which must be addressed severely.	The suggested initial diagnostic procedure is esophagogastroduodenoscopy (EGD), as it can find blood or clots at the ampulla of Vater in instances of hemobilia. The hepatic artery selective arteriography is the most conclusive test.	Endoscopic retrograde cholangiopancreatography (ERCP) or in some cases a laparoscopic cholecystectomy with bile duct exploration	During a preoperative radiological examination, large stones could be misconstrued for cancerous lesions. Therefore, surgeons should use conventional diagnostic algorithms and keep open surgery in mind early on rather than solely relying on endoscopic methods.
Inadvertant esophageal intubation (*30,31*)	Overdistension during endoscopy for the placement of a percutaneous endoscopic gastronomy tube has been documented to result in rips in the stomach mucosa in situations of malnutrition, old age, and gastric atrophy. When upper gastrointestinal bleeding occurs in severely ill patients who have unintentionally had esophageal intubation or cardiopulmonary resuscitation, this complication should be included in the differential diagnosis.	Capnography	Laparotomy	Abdominal imaging should be done to exclude stomach perforation in UGB subjects with a history of inadvertent esophageal intubation before upper endoscopy.
"Downhill" esophageal varices (*32,33*)	Blood from dilated veins brought on by superior vena cava blockage enters the azygous vein or inferior vena cava. They may be in the upper esophagus or the entire esophagus, depending on the severity of the obstruction above or below the azygous venous system, respectively.	Upper endoscopy provides for direct visualization of proximal varices and, if necessary, enables for intervention. Several imaging techniques, including a CT scan, can be used to determine the underlying reason of obstruction.	The main line of treatment concentrates on the underlying issue. The variceal band ligation procedure considerably reduces bleeding. Using a Sengstaken-Blakemore tube can potentially save lives in cases of uncontrolled bleeding	There needs to be a customised treatment plan. The underlying cause is the main focus of treatment.
Acute esophageal necrosis (*34,35*)	esophagus develops a distinct demarcation at the gastroesophageal junction and totally necrotizes along its circumference. The patients are typically elderly and critically ill, with common comorbidities like atherosclerotic cardiovascular disease, diabetes mellitus, hypertension, chronic renal insufficiency, and malnutrition. Patients often have hematemesis and melena in addition to upper stomach pain and systemic hypotension.	Endoscopy confirms distinct and conspicuous mucosal abnormalities.	Red blood cell transfusions, intensive fluid resuscitation, nothing by mouth (NPO orders), IV proton pump inhibitors, and other treatments are used.	Due to the serious underlying conditions that are present in most patients, acute esophageal necrosis can have a poor prognosis.
Aortoenteric fistula (AEFs) (*36*)	AEFs should be suspected in patients who have undergone aortic reconstruction surgery. Secondary AEFs often develop where a vascular graft's suture line meets the intestine, whereas primary AEFs are hypothesised to happen where the native aorta and GI tract interface. The graft's frequent pulsations against the duodenum wall could cause it to become ischemic, which would cause it to disintegrate and bleed. Sepsis that is concurrent is typically seen in secondary AEFs.	EGD and CT scans are the most useful tests to detect aortoenteric fistula.	Clot removal, graft revascularization, duodenorrhaphy, and omentoplasty should all be performed in conjunction with a laparotomy.	Based on the patient's medical history and a thorough physical examination, a proper diagnosis necessitates a high index of clinical suspicion.

Table 2. Uncommon, overlooked, and underreported causes of upper gastrointestinal bleeding (UGIB) (continued)

Cause / *Ref.*	Clinical Findings	Diagnostic Technique	Treatment	Caution
Homosuccus pancreaticus (HP) (*38,39*)	Clinical indicators include epigastric discomfort with sporadic, mild gastrointestinal bleeding. A blood clot develops as a result of pressure on the pancreatic duct, which causes pain. Following its expulsion into the gastrointestinal lumen, this blood clot causes sporadic episodes of melena and, less frequently, hematemesis.	Contrast-enhanced CT with angiography is a remarkable diagnostic technique for detecting structural pancreatic defects, and it typically yields an accurate diagnosis.	Interventional therapies, which have a high rate of success and a low mortality, are the first line of treatment for patients who are hemodynamically stable. Only patients with hemodynamic instability who have failed a prior, less invasive therapy undergo surgery.	HP may not always be found during EGD because to its anatomical position and sporadic bleeding.
Gastric Trichobezoar (*40,41*)	The clinical signs include asthenia, anaemia, melena, hematemesis with abdominal pain, and weight loss. Gastric bezoars can result in blockage, perforation, bleeding, and ulceration of the stomach.	Best diagnostic tool to detect trichobezoar is endoscopy.	The suggested course of treatment is minimally invasive procedures like laparoscopic extraction or endoscopic fragmentation and removal of trichomes. However, surgical extraction is the preferred treatment.	Endoscopic removal of all the debris necessitates multiple sessions and carries a risk of pressure sores and esophageal perforation.

surveying the bleeding veins. The hematoma between the duodenal bulb and pancreas is visible in the arterial phase of contrast-enhanced CT in both cross-sectional and coronal images. Both pharmacological and endoscopic approaches to diagnosis and hemostasis are excluded due to the atypical patient history and endoscopic findings. To treat the bleeding pseudoaneurysm, either endovascular therapy or surgical intervention are suggested.

2.3. Gastric amyloidosis

Another rare cause of UGB is gastric amyloidosis. The likelihood of gastrointestinal involvement in amyloidosis varies depending on the type, and it seems less common in AL amyloidosis (amyloid light chain or primary amyloidosis) (*19*). In a retrospective assessment of 769 patients with systemic amyloidosis, 1% of patients had clinically evident gastrointestinal (GI) amyloidosis (*20*). Presentations included diarrhea, nausea, vomiting, weight loss, and GI bleeding. It is uncommon for gastric amyloidosis to cause severe and deadly GI hemorrhage. The patient might also have low hemoglobin, widespread abdominal pain, and multiple episodes of melena. In upper GI endoscopy, blood clots are found in the fundus and body of the stomach, as well as bluish-black lesions and inflammatory lesions in the antrum with adhering blood clots. It is conceivable that multiple myeloma is the etiology of AL amyloidosis (amyloid light chain or primary amyloidosis) in these patients based on the number of biopsies they have undergone and their increased serum beta 2 microglobulin levels (*21*). Patients can be managed with supportive therapy such as intravenous proton pump inhibitors, intravenous steroids, fluid resuscitation, blood transfusions, *etc.* The patient's age and comorbidities determine the efficacy of the treatment.

2.4. Jejunal lipoma

The benign submucosal tumors known as jejunal lipomas are uncommon and frequently discovered by accident. The large intestine is the most common site, where they appear in 65-75% of cases, followed by the stomach. The majority of instances manifest in the sixth and seventh decades of life, with a slight female preponderance. Acute GI bleeding or intestinal obstruction may occasionally occur, however, their clinical behavior is typically quiet (*22*). In most cases, repeated gastroscopy and colonoscopy show no substantial abnormalities. Lipomas typically occur alone in the small intestine. UGB, intussusception, and occlusion are uncommon when they are significant. An enormous lipoma may result in persistent GI bleeding. The ulceration of the mucosa brought on by mass enlargement and regular peristalsis, or direct pressure from the lipoma, results in the bleeding. Jejunal lipomas have been documented in roughly 1% of cases (*23*). Due to the intermittent or

low rate of bleeding, identifying the bleeding source by angiography or radionucleotide scan can be challenging. Based on the capsule's transit duration, video capsule endoscopy (VCE) can screen the whole small intestine and pinpoint the bleeding caused to the proximal, middle, or distal third of the small intestines. When ambulatory investigation fails due to the issue of compliance, VCE might be used as an initial modality for evaluating cryptic GI bleeding in a hospital setting. Surgical resection of the lipomas remain the treatment of choice.

2.5. Gastric schwannoma

These uncommon gastrointestinal mesenchymal tumors, also known as schwannomas, neurinomas, and neurilemomas, most frequently manifest themselves in the stomach as a nodular mass in the muscularis propria (*24*). Because of this, they are occasionally mistakenly identified as neurofibromas and gastrointestinal stromal tumours. Gastric schwannomas are typically single lesions that develop from the stomach's lower curvature and frequently affect people between the ages of 30 and 50. They appear as conspicuous peripheral lymphocytic aggregates with or without a germinal center on histology. Although epithelioid and uncommon plexiform variants have also been reported, spindle cells make up the majority of them. They have positive immunohistochemical staining for vimentin and s-100 protein but negative staining for CD117, C-kit, and smooth muscle actin. Because they are benign tumors, gastrointestinal schwannomas can be surgically removed and have a decent prognosis (*25*). Gastric schwannomas are typically diagnosed with GI endoscopy, such as endosonography. Only a few examples of gastric malignant schwannomas have been documented in the literature due to their exceptional rarity. Further research is needed on the effectiveness of surgical resection and the postoperative prognosis.

2.6. Hemobilia due to hepatobiliary manipulation

Hemobilia accounts for less than 5% of instances of UGB (*26*). Any patient with GI bleeding who has recently undergone hepatobiliary surgery is at risk for hemobilia, which has an iatrogenic origin in the majority. Depending on the level of the bleeding, its clinical presentation varies. Patients may also present with rectorrhagia and hypotension, although the typical symptoms are stomach discomfort, jaundice, and tarry stools. In a majority of cases, these symptoms resolve on their own, without the need for further treatment. Patients with UGB, a history of biliary duct instrumentation or manipulation, or a previous diagnosis of biliopancreatic illness should always be suspects (*27*). The gold standard for diagnosing of hemophilia is an angiography; however, developments in computed tomography angiography have made this procedure less invasive and more accessible. Although vascular or bile duct stent implantation are other options, endovascular embolization is the primary treatment for these patients. The procedure is generally well tolerated and successful, with minimal rates of death and morbidity. Surgery is an infrequent choice for the treatment of hemobilia.

2.7. Hemobilia due to choledocholiothiasis

Hemobilia can be brought on by iatrogenic, traumatic, vascular illness, neoplasms, inflammation, and gallstones, among other things. In 25% of instances of cholelithiasis and 35% of cases of choledocholithiasis, microscopic bleeding occurs (*28*). Less than 1% of all cases of hemobilia that have been recorded involve macroscopic hemobilia. It typically occurs when a sizable stone enters an adjacent arterial or organ or erodes the cystic artery. It can occasionally result in profuse hemobilia, which needs to be taken seriously. Stones in common bile duct (CBD) can grow to substantial sizes without showing any other severe signs besides jaundice. Giant stones may be mistaken for malignant lesions during preoperative radiological examination. Therefore, instead of just depending on endoscopic procedures, surgeons should use traditional algorithms for diagnosis and keep open surgery in mind early on. Hepatolithiasis was frequently present in cases with sizeable common duct stones, which have been documented in multiple instances (*29*). Chronic obstruction of the pancreatobiliary tract can potentially cause hemobilia by causing inflammation, erosion, and fistulization with nearby vascular structures. For stones smaller than 2.5 cm, mechanical lithotripsy is used. Esophagogastroduodenoscopy (EGD) is the preferred initial diagnostic procedure for individuals with UGB because it can detect blood or clots at the ampulla of Vater in cases of hemobilia. The most confirming test is selective arteriography of the hepatic artery.

2.8. Inadvertant esophageal intubation

In cases of malnutrition, advanced age, and gastric atrophy, overdistension during endoscopy for the installation of a percutaneous endoscopic gastronomy tube has been reported to cause tears in the stomach mucosa (*30*). Patients receiving resuscitation and unintentional esophageal intubation have experienced stomach perforation due to an overdistension. Rapid air collection causes mucosal rips and, ultimately, iatrogenic gastric rupture in certain situations. The defect is often seen in the smaller curvature of the stomach (the area with the least elastance) during laparotomy or autopsy (*31*). Rapid gastric distension may change the angle of the antrum and result in the right hemidiaphragm compressing the cardia. These modifications enable air passage through the gastroesophageal junction at the pylorus. Before doing upper endoscopy in cases of UGB where a history of unintentional esophageal intubation is

documented, abdominal imaging should be used to rule out stomach perforation.

2.9. "Downhill" esophageal varices

The azygous vein or the inferior vena cava receives blood from dilated veins caused by superior vena cava blockage. Depending on the degree of obstruction above or below the azygous venous system, respectively, they are either in the upper esophagus or may involve the entire esophagus (*32*). Only 0.1% of esophageal variceal bleeding is caused by "downhill" varices (*33*). Lack of coagulopathy and submucosal and higher-located varices in the esophagus, away from erosive gastroesophageal reflux, may contribute to a lower risk of bleeding. There are no firm recommendations on how to identify and treat "Downhill" varices. An individualized treatment strategy is required. The primary course of treatment focuses on the underlying cause. Although the location of the banding is not well defined, variceal band ligation is efficient for reducing bleeding. The weakening of the proximal esophagus posterior wall and the general lack of serosa appear to increase the risk of bleeding or perforation. In the event of uncontrolled bleeding, using a Sengstaken-Blakemore tube may be lifesaving. Successful management can be achieved through awareness, quick diagnosis, and case-by-case care using available endoscopic, radiographic, and surgical techniques.

2.10. Acute esophageal necrosis

Acute esophageal necrosis, often known as "black esophagus", is a disorder that causes the esophagus to become completely necrotic across its circumference, with varied proximal extension and visible demarcation at the gastroesophageal junction (*34*). It is a rare cause of UGB that can be identified on endoscopy by distinct and conspicuous mucosal abnormalities. Less than 0.5% of occurrence is suggested, indicating an unusual clinical appearance. With common comorbidities such as atherosclerotic cardiovascular disease, diabetes mellitus, hypertension, chronic renal insufficiency, and malnutrition, the patients are typically elderly and severely ill. In addition to upper stomach pain and systemic hypotension, patients typically present with hematemesis and melena. Histopathologically, it shows severe mucosal necrosis along with ulceration and hemosiderin deposits. Necrosis may involve the muscularis propria in deeper layers, and vascular thrombosis may indicate ischemia damage. It helps to rule out iron pill damage and esophageal melanocytosis, respectively, when particular staining with Perl's Prussian blue and Fontana-Masson is negative (*35*). A biopsy is not typically required until clinically needed in atypical presentations like cytomegalovirus (CMV) or herpes, as the endoscopic findings support the diagnosis.

2.11. Aortoenteric fistula

Patients having a history of aortic reconstruction procedures should be on the lookout for aortoenteric fistulas (AEFs), a rare but sometimes fatal cause of UGB. Primary AEFs are thought to occur where the native aorta and GI tract communicate, whereas secondary AEFs typically develop where a vascular graft's suture line meets the intestine (*36*). The duodenal wall could become ischemic from the graft's repeated pulsations against it, which would then erode and bleed. AEFs seldom arise following aortic reconstruction; and incidence ranges from 1% to 4%. In secondary AEFs, concomitant sepsis is frequently observed. Any section of the gastrointestinal canal may be affected, but the duodenum's third portion accounts for 80% of cases, followed by its fourth portion, the jejunum and the ileum. Due to thrombus development, the first bleeding is frequently brief and self-limiting. Periods of bleeding can last for hours, days, or even weeks, building to a significant hemorrhage and hypovolemic shock in the end. Back discomfort or fever may be the primary symptoms in some persons. A correct diagnosis requires a high index of clinical suspicion based on the patient's medical history and a careful physical examination (*37*). To rule out alternative sources of upper GI bleeding in patients who have herald bleeding, EGD is typically performed initially. When a diagnosis is suspected, a laparotomy should be done along with clot removal, graft revascularization, duodenorrhaphy, and omentoplasty.

2.12. Homosuccus pancreaticus

The rare and potentially fatal condition known as Homosuccus pancreaticus (HP), also known as pseudohemobilia or wirsungorrhagia, causes UGI hemorrhage. It is primarily caused by bleeding from a pseudoaneurysm that enters the second part of the duodenum through the pancreatic duct. One case of HP is thought to occur out of every 1,500 (*38*). Less than 1.1% of instances of UGB are caused by rupture of pseudoaneurysm, a relatively uncommon but potentially fatal consequence of chronic pancreatitis that occurs in 6–8% of patients with pseudocysts (*39*). The average age of presentation is between 50 and 60 years old. Given its anatomical location and intermittent bleeding, HP may not always be detected during EGD. Clinical signs include epigastric pain linked to minor gastrointestinal bleeding that is progressive and intermittent. The pain is caused by pressure on the pancreatic duct, which leads to the secondary production of a blood clot. This blood clot is subsequently expelled into the gastrointestinal lumen, resulting in primarily intermittent episodes of melena, and less frequently, hematemesis. Laboratory tests reveal general findings such as iron deficiency anemia. Hyperbilirubinemia is also mentioned in relation to pancreaticobiliary reflux. The average number of days

between the onset of symptoms and HP diagnosis is more than 30. An excellent diagnostic method for identifying structural pancreatic anomalies is contrast-enhanced computed tomography with angiography, which in most instances, provides an accurate diagnosis. In patients who are hemodynamically stable, interventional therapies are the first line of treatment, with a high rate of success and decreased mortality. Surgery is only performed on hemodynamically unstable patients in whom a prior, less invasive therapy failed or was impractical, despite a death rate of 28 to 56% noted in these circumstances.

2.13. Gastric Trichobezoar

A Trichobezoar is a buildup of non-absorbable human hair in the stomach. It defines the Rapunzel syndrome when it spreads *via* the pylorus to the duodenum, jejunum, and colon (*1*). Less than 1% of the general population are affected by this unusual illness. 90% of Trichobezoar instances are seen in young women with long hair between the ages of 13 and 20, who also have Trichotillomania (the compulsive pulling out of hair) and Trichophagia (compulsion to swallow hair). The signs include asthenia, anemia, melena, hematemesis with abdominal pain, and weight loss. Gastric bezoars can result in blockage, perforation, bleeding, and ulceration of the stomach (*40*). Currently, minimally invasive treatments like laparoscopic extraction or endoscopic fragmentation and removal of trichomes are the recommended options for treatment. A risk of pressure ulcers and esophageal perforation comes with endoscopic removal of all the fragments, which calls for repeated sessions. So, the preferred treatment is still thought to be surgical extraction. In order to address comorbid illnesses that are frequently linked to the disease and prevent relapses, psychiatric counselling is also essential (*41*).

3. Conclusion

UGIB is a frequent emergency scenario that requires an immediate and precise diagnosis. Even while peptic ulcers and variceal bleeding are the most frequent causes of UGB and account for more than 80% of cases, there are still a wide range of uncommon, less frequently reported causes that also contribute to UGB with digestive tract hemorrhage. The mortality rate could be higher than 75% and some rare causes can be the reason for rapid and massive hemorrhage. That means that not all cases respond effectively to conservative treatment, and in some cases, immediate surgical intervention is the only effective treatment. It is also evident that not all bleeding origins can be found *via* endoscopy. Therefore, a more accurate diagnosis can be made by combining endoscopy with additional imaging detection methods including ultrasonography, CT scanning, and angiography.

For diagnosing rare situations, there are still some hints. The doctor's attention and emphasis should extend beyond just the digestive system. Since even rare diseases have distinctive traits of their own, a comprehensive physical examination and in-depth history inquiry help the doctor make the right diagnosis.

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References

1. Zhang W, Manda E, Qiu M. Unusual causes of upper gastrointestinal bleeding: Review of Chinese literature. Intractable Rare Dis Res. 2012; 1:18-22.
2. Bor S, Dağli U, Sarer B, Gürel S, Tözün N, Sıvrı B, Akbaş T, Sahın B, Memık F, Batur Y. A retrospective study demonstrating properties of nonvariceal upper gastrointestinal bleeding in Turkey. Turk J Gastroenterol. 2011; 22:249-254.
3. Hearnshaw SA, Logan RF, Lowe D, Travis SP, Murphy MF, Palmer KR. Acute upper gastrointestinal bleeding in the UK: patient characteristics, diagnoses and outcomes in the 2007 UK audit. Gut. 2011; 60:1327-1335.
4. Aljarad Z, Mobayed BB. The mortality rate among patients with acute upper GI bleeding (with/without EGD) at Aleppo University Hospital: A retrospective study. Ann Med Surg (Lond). 2021; 71:102958.
5. Rawla P, Devasahayam J. Mallory Weiss Syndrome. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022.
6. Pang SH, Leung WK, Graham DY. Ulcers and gastritis. Endoscopy. 2008; 40:136-139.
7. Cremers I, Ribeiro S. Management of variceal and nonvariceal upper gastrointestinal bleeding in patients with cirrhosis. Therap Adv Gastroenterol. 2014; 7:206-216.
8. Hirayama Y, Takai C, Korekawa K, Saito M, Akasaka A, Nagasawa H, Iwai W, Hachimori H, Satoh M, Yajima N, Oki M. Gastric arteriovenous malformation with characteristic endoscopic findings. Intern Med. 2018; 57:2341-2345.
9. Baxter M, Aly EH. Dieulafoy's lesion: Current trends in diagnosis and management. Ann R Coll Surg Engl. 2010; 92:548-554.
10. Schatz RA, Rockey DC. Gastrointestinal bleeding due to gastrointestinal tract malignancy: Natural history, management, and outcomes. Dig Dis Sci. 2017; 62:491-501.
11. Kim BS, Li BT, Engel A, Samra JS, Clarke S, Norton ID, Li AE. Diagnosis of gastrointestinal bleeding: A practical guide for clinicians. World J Gastrointest Pathophysiol. 2014; 5:467-478.
12. Chen CJ, Hsu HT, Yen HH. An unusual cause of upper gastrointestinal bleeding. Gastric yolk sac tumor with a large retroperitoneal metastasis. Gastroenterol. 2010; 139:1098-1427.
13. Mantoo SK, Rao J. An unusual cause of upper gastrointestinal bleeding. Endoscopy. 2010; 42 Suppl 2:E123.
14. Worrall EB, Chhapria A, Carpenter D, Neuschwander-Tetri BA. A rare cause of upper gastrointestinal bleeding: *Sarcina ventriculi*. ACG Case Rep J. 2022; 9:e00846.

15. Al Rasheed MR, Senseng CG. Sarcina ventriculi: Review of the Literature. Arch Pathol Lab Med. 2016; 140:1441-1445.
16. Wang J, Wang B, Chen D-F. An unusual cause of recurrent massive upper gastrointestinal bleeding. Gastroenterol. 2012; 143:542-872.
17. Pasha SF, Gloviczki P, Stanson AW, Kamath PS. Splanchnic artery aneurysms. Mayo Clin Proc. 2007; 82:472-479.
18. Sawicki M, Marlicz W, Czapla N, Łokaj M, Skoczylas MM, Donotek M, Kołaczyk K. Massive upper gastrointestinal bleeding from a splenic artery pseudoaneurysm caused by a penetrating gastric ulcer: Case report and review of literature. Pol J Radiol. 2015; 80:384-387.
19. Mall A. Uncommon cause of upper gastrointestinal bleeding. Am J Gastroenterol. 2012; 107:S300.
20. Kutluana U. A rare cause of upper gastrointestinal bleeding in patients with end stage renal disease: gastric amyloidosis. Rev Esp Enferm Dig. 2017; 109: 877-878.
21. 27th International Congress of the European Association for Endoscopic Surgery (EAES) Sevilla, Spain, 12-15 June 2019. Surg Endosc. 2019; 33(Suppl 2):485-781.
22. Wardi J, Langer P, Shimonov M. Unusual cause of upper gastrointestinal bleeding. J Surg Case Rep. 2013; 2013(3):rjt013.
23. Mouaqit O, Hasnai H, Chbani L, Benjelloun B, El Bouhaddouti H, Ibn el Majdoub K, Toughrai I, Laalim SA, Oussaden A, Maazaz K, Amarti A. Adult intussusceptions caused by a lipoma in the jejunum: Report of a case and review of the literature. World J Emerg Surg. 2012; 7:28.
24. Gisser JM, Blanchard SS, Parry RL, Redline RW, Chelimsky G. A rare cause of upper gastrointestinal bleeding in children: Gastric Schwannoma. Curr Pediatr Rev. 2009; 5:52-55.
25. Kamiya A, Yamagata Y, Yoshida H, Ishizu K, Wada T, Hayashi T, Otsuki S, Yoshikawa T, Katai H. Laparoscopic resection of a primary diaphragmatic schwannoma: A case report and literature review. BMC Surg. 2020; 20:289.
26. Ramı̂rez M, Restrepo-Castrillon J. Hemobilia, a rare cause of upper gastrointestinal bleeding. Rev Colomb Gastroenterol. 2021; 36:626.
27. Berry R, Han J, Kardashian AA, LaRusso NF, Tabibian JH. Hemobilia: Etiology, diagnosis, and treatment. Liver Res. 2018; 2:200-208.
28. Khalifeh G, Orm NB, Ghandour R, Awar GJ, Dbouk S, Mcheimeche H, Sahili R. Unusual rare case of upper gastrointestinal bleeding. Clin Pract. 2019; 16:1403-1407.
29. Chang CW, Wu YH, Liu HL. Upper gastrointestinal bleeding with hemobilia caused by gallstones. J Emerg Med. 2020; 58:e227-e229.
30. Mullady DK, McGee JB. A rare iatrogenic cause of upper gastrointestinal bleeding. Anesthesiology. 2006; 105:1063-1064.
31. Green BT, Tendler DA. Diffuse mucosal hemorrhage after air insufflation during endoscopy for PEG placement. Am J Gastroenterol 2003; 98:502-504.
32. Chakinala RC, Kumar A, Barsa JE, Mehta D, Haq KF, Solanki S, Tewari V, Aronow WS. Downhill esophageal varices: A therapeutic dilemma. Ann Transl Med. 2018; 6:463.
33. Ali AA, Jadeja S, Agrawal N, Lamsal S, Patel S, De Souza Ribeiro B. Active bleeding from downhill varices: Case report and management. VideoGIE. 2021; 6:305-307.
34. Kalva NR, Tokala MR, Dhillon S, Pisoh WN, Walayat S, Vanar V, Puli SR. An unusual cause of acute upper gastrointestinal bleeding: Acute esophageal necrosis. Case Rep Gastrentrol. 2016; 2016:6584363.
35. Lahbabi M, Ibrahimi A, Aqodad N. Acute esophageal necrosis: A case report and review. Pan Afr Med J. 2013; 14:109.
36. Adarsh CK, Kiran R, Mallikarjun P. An unusual cause of upper gastrointestinal bleeding. Indian J Crit Care Med. 2014; 18:533-535.
37. Lakhani DA, Sharma SA, Kutayni H, Balar AB, Marano G, Martin D. Primary aortoenteric fistula: A case report and brief review of the literature. Radiol Case Rep. 2021; 16:3549-3553.
38. Cardona JD, Beltrán Saavedra JA, Rueda M, Blanco A, Muñoz Quiroga LM, Hernandez Buelvas JM. Getting closer to an underdiagnosed disease: Hemosuccus pancreaticus, a rare cause of upper gastrointestinal bleeding. Cureus. 2022; 14:e30837.
39. Ülkü A, Sarıtaş AG, Topal U, Çoğal İ, Üsküdar O, Akçam AT. Hemosuccus pancreaticus A case report and review of the literature. Ann Ital Chir. 2020; 91:27-34.
40. Harrabi F, Ammor H, Latifa MB, Gupta R, Ali AB. Gastric trichobezoar causing gastrointestinal bleeding: A case report. Cureus. 2022; 14:e30282.
41. Tiago S, Nuno M, João A, Carla V, Gonçalo M, Joana N. Trichophagia and trichobezoar: Case report. Clin Pract Epidemiol Ment Health. 2012; 8:43-45.

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*Address correspondence to:
Ajay Singh, Department of General Surgery, Sri Ram MurtiSmarak Institute of Medical Sciences, Bareilly, Uttar Pradesh, India.
E-mail: asinngh593510@gmail.com

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