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Evaluation and Management of Mallory – Weiss Syndrome: A Review

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Review Article

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ABSTRACT

Upper gastrointestinal bleeding is a symptom of Mallory-Weiss syndrome, which is caused by longitudinal mucosal lacerations (known as Mallory-Weiss tears) near the gastroesophageal junction or gastric cardia. Mallory-Weiss syndrome is rather prevalent, accounting for 3 to 10% of all upper gastrointestinal bleeding episodes. In mild circumstances, the disease may be

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asymptomatic. Hematemesis is the presenting symptom in 85 percent of patients. Blood is present in varying amounts, ranging from blood-streaked mucous to huge bright red haemorrhage. Other symptoms such as melena, dizziness, or syncope might occur as a result of heavy bleeding. The majority of the time, the bleeding is little and ends on its own. Endoscopy is frequently used to confirm the diagnosis of MWS. Although most patients may be treated with monitoring or conservative medicinal treatment, certain cases require endoscopic or surgical treatment. Despite the fact that MWS is a common cause of nonvariceal upper gastrointestinal bleeding (NVUGIB), little research has been done on it. This article discusses MWS Etiology, epidemiology, evaluation and management.

Keywords: Gastrointestinal bleeding; Mallory-Weiss syndrome; longitudinal mucosal lacerations; gastric cardia.

1. INTRODUCTION

Upper gastrointestinal bleeding is a symptom of Mallory-Weiss syndrome, which is caused by longitudinal mucosal lacerations (known as Mallory-Weiss tears) near the gastroesophageal junction or gastric cardia. Patients with continuous retching and vomiting after an alcoholic binge were the subject of the first description by Mallory and Weiss in 1929. However, any event that causes a rapid rise in intragastric pressure or gastric protrusion into the oesophagus, including prior transesophageal echocardiography, can cause Mallory-Weiss syndrome. Mallory-Weiss rips are responsible for 1 to 15% of all occurrences of upper gastrointestinal haemorrhage [1,2-4].

Endoscopy is frequently used to confirm the diagnosis of MWS. Near the GE junction, there is merely a break in the mucosa. The usual rip is 2-4 cm long, and the majority of patients only have one tear. On the smaller curvature, the rip is immediately beneath the GE connection [5].

Mallory-Weiss syndrome is rather prevalent, accounting for 3 to 10% of all upper gastrointestinal bleeding episodes. The majority of the time, the bleeding is little and ends on its own. Active bleeding or symptoms of recent bleeding at endoscopy require prompt endoscopic hemostasis therapy. The most effective method for initial hemostasis and avoiding recurrent bleeding appears to be band ligation. In all circumstances, the use of proton pump inhibitors and antiemetics appears appropriate, despite the fact that there is no evidence of their effectiveness in the literature [6].

Despite the fact that MWS is a common cause of nonvariceal upper gastrointestinal bleeding (NVUGIB), little research has been done on it. As we all know, endoscopic manipulation has progressed significantly, making early endoscopic intervention more accessible than it always was. Despite this, the rebleeding rate of MWS has remained between 5% and 10% for decades. There have been a number of grading systems developed to predict patient clinical outcomes as well as the requirement for hemostatic intervention. However, because peptic ulcer bleeding is the most prevalent cause of NVUGIB, the majority of them concentrated on it [7-15].

2. ETIOLOGY

Heavy alcohol use is one of the most prominent predisposing variables, with roughly 50 percent to 70% of people diagnosed with Mallory-Weiss syndrome having a history of it. With Mallory-Weiss syndrome, the severity of upper GI bleeding is also known to be greater when portal hypertension and esophageal varices are present. [5] Mallory-Weiss tears with transesophageal echocardiography (MWa) may represent a different clinical condition from Mallory-Weiss tears without TEE (MWu). Cappell et al found that MWa patients had a considerably longer mean age, higher rates of concurrent anticoagulation, and higher mortality in a study of the literature that included 17 recognised instances of MWa and a reported series of 73 cases of MWu [1,3]. The link between Mallory-Weiss syndrome and a hiatal hernia (a protrusion of an organ, generally the upper section of the stomach into the chest cavity through the esophageal aperture of the diaphragm) is still up for question. A hiatal hernia was detected in a significant proportion of Mallory-Weiss syndrome cases, but a case-control study at the Mayo Clinic in Florida reported no difference in the incidence of a hiatal hernia between Mallory-Weiss syndrome patients and the control group [5].

The most common cause of retching and vomiting has traditionally been considered to be binge drinking. Despite this, a study discovered that MWS was linked to alcohol intake in only 17.9% of Chinese female patients in that research. Peptic ulcer, gastric cancer, and Dieulafoy disease with complications such as haemorrhage or obstruction were shown to predispose 12 female patients (42.9%) to vomiting. Furthermore, in men, underlying gastrointestinal illness was the second most common cause of vomiting (31.0 percent). These findings showed that underlying stomach illness, particularly in Chinese female MWS patients, is another key cause of vomiting. As a result, when a patient with bleeding MWS is admitted to the hospital, physicians should proceed with caution during the endoscopic examination in case the patient has underlying stomach illnesses [7].

3. EPIDEMIOLOGY

In the United States, MWS is responsible for 1% to 15% of the causes of upper GI bleeding in adults and fewer than 5% in children. The peak incidence occurs between the ages of 40 and 60. For unknown causes, males are 2 to 4 times more likely than females to acquire Mallory-Weiss syndrome. Because hyperemesis is a common cause of Mallory-Weiss syndrome in young women, pregnancy testing should be explored [5].

According to many research, MWS accounts for 3 percent to 15% of all NVUGIB cases. MWS is a relatively uncommon cause of NVUGIB, as seen by the incidence (6.1 percent). MWS, on the other hand, has a fatality rate comparable to peptic ulcer bleeding in high-risk individuals with bleeding. The majority of previous NVUGIB findings are focused on peptic ulcer bleeding. MWS-focused research is uncommon. The GBS and AIMS65 systems are intended to determine if a patient with acute NVUGIB will require a blood transfusion or endoscopic intervention [7,16-22].

4. HISTORY, PHYSICAL EXAMINATION & EVALUATION

In mild circumstances, the disease may be asymptomatic. Hematemesis is the presenting symptom in 85 percent of patients. Blood is present in varying amounts, ranging from blood-streaked mucous to huge bright red haemorrhage. Other symptoms such as melena, dizziness, or syncope might occur as a result of heavy bleeding. The presence of epigastric discomfort typically indicates the existence of a predisposing condition such as gastroesophageal reflux disease (GERD). [5] Melena, hematochezia, syncope, and stomach pain are less common presenting symptoms; excessive alcohol consumption has been documented in 40-75 percent of patients, and aspirin usage has been observed in up to 30 percent of patients [1].

Mallory-Weiss syndrome has no distinct physical symptoms, and the symptoms are comparable to those of any other hemorrhagic illness or shock. Clinicians must look for symptoms of severe bleeding and shock during a physical examination, such as tachycardia, thready pulse, hypotension, dehydration, diminished skin turgor, and capillary filling time, and treat quickly if they are present. Melena may be detected during a rectal examination [5].

Both the GBS system and the shocking index were successful in predicting the need for a transfusion. GBS is a more accurate system than the shocking index. However, because the GBS system is considerably more complex than the startling index, the shocking index may be a helpful signal for swiftly anticipating transfusion. GBS, on the other hand, seemed to have the best AUC when these scoring systems were used to predict the requirement for endoscopic intervention, followed by shock index. The AUC of the AIMS65 system seems to be the lowest. However, none of them were statistically significant. In a nutshell, the GBS and AIMS65 systems are ineffective in predicting the need for endoscopic intervention in MWS patients. GBS and AIMS65 scores may be high in certain individuals due to underlying gastrointestinal problems rather than the severity of MWS. As a result, the GBS system and AIMS65 may be ineffective in treating MWS caused by underlying gastrointestinal disorders [7].

Laboratory tests used to assess the patient's clinical health include hematologic investigations, chemistries, and type and screen.

To measure the severity of the initial bleeding episode and to monitor patients, obtain haemoglobin and hematocrit tests. Platelet count, prothrombin time (PT), and activated partial thromboplastin time (aPTT) are also used to check for severe thrombocytopenia and coagulopathy, which can be serious complications. Coagulation tests are required in

individuals taking anticoagulants or taking antibiotics with little or no oral intake. Because of the alcohol, the platelet count may be low. To guide intravenous fluid treatment, blood urea nitrogen (BUN), creatinine, and electrolyte levels are examined, as well as a blood type and antibody test for prospective blood transfusions [1].

5. TREATMENT

Although most patients may be treated with monitoring or conservative medicinal treatment, certain cases require endoscopic or surgical treatment. For individuals with risk factors such as portal hypertension or coagulopathy, intensive treatment, including endoscopic hemostasis, has been suggested. In individuals with active bleeding MWT, an endoscopic examination is essential for diagnosis and therapy (e.g., arterial spurting and diffuse oozing). Stigmata on index endoscopy (e.g., non-bleeding visible vasculature and adhering clots) may not always require endoscopic therapy unless there has been a rebleeding episode or they are linked with coagulopathy. In such circumstances, endoscopic hemostasis is the preferred therapy. Injection therapy, contact heat treatment, argon plasma coagulation (APC), hemoclip implantation, and band ligation are the most frequent endoscopic therapies for actively bleeding MWT [23].

There are two types of ESD procedures: traditional ESD and endoscopic submucosal tunnel dissection (ESTD) (Fig. 1). 1). The standard ESD approach included four steps: (1) marking the lesion's border; (2) submucosal injection to raise the lesion; (3) mucosal incision around the lesion; and (4) submucosal dissection. During the dissection phase of ESTD, one or more submucosal tunnels were formed. The endoscopist determined the ESD treatment based on the size of the lesion [24].

5.1 Endoscopic Injection Therapy

Endoscopic injection treatment employs a number of medications, the most common of which is epinephrine. Injection therapy is a straightforward, low-cost first-line treatment option. In terms of recurrent bleeding, hospital stay, and transfusion demand, epinephrine injection treatment improves outcomes when compared to supportive measures alone. Because epinephrine is absorbed into the systemic circulation, when used as an injectable, it can cause ventricular tachycardia. Injection therapy should be avoided in people who have a history of coronary artery disease [23].

5.2 Endoscopic Electrocoagulation

Electrocoagulation enables the application of both heat and pressure to a bleeding lesion at the same time. Coagulation is less effective in a moist field, such as a bleeding site, because heat is quickly dissipated by the liquid. Proper device placement has proved difficult for lesions on the lesser curvature of the cardia. Multipolar electrocoagulation significantly improved hemostasis, reduced surgery in patients with actively bleeding MWT, and was associated with minor side effects. Recurrent coagulation increases the risk of transmural damage and perforation due to the relatively thin esophageal wall and absence of serosa at the tear site [23,25].

5.3 Endoscopic Hemoclip Placement

Endoscopic hemoclip implantation is a straightforward treatment for nonfibrotic tissue bleeding lesions such as MWT and Dieulafoy ulcers. Because of the MWT bleeding position at the gastroesophageal (GE) junction, hemoclip placement is difficult and possibly more technically demanding. A newly invented rotatable mechanism on the delivery catheter allows for controlled hemoclip alignment and easy access to the GE junction. Hemoclip detachment in the GE junction is common due to the large amplitude contractions at this anatomic region. In the case of a deeper tear extension, such as with Boerhaave syndrome, endoclip implantation can repair both tearing edges and seal the perforated lesion [23].

5.4 Endoscopic Band Ligation

Endoscopic band ligation (EBL) has a significant technological advantage over other hemostatic techniques. The lesion is clearly visible tangentially in EBL when subjected to direct pressure from a transparent ligation cap. When esophageal perforation is a real possibility, EBL is especially beneficial for bleeding lesions in nonfibrotic tissue. The clear cover makes EBL easier to operate by immobilizing the bleeding site and preventing movement from peristalsis and belching. The deeper part of the visible vessel is ligated, resulting in permanent hemostasis and strong insertion of the ligated

band. Large MWT can be treated with a single band ligation as well [23]. There was no difference in the effectiveness or safety of band ligation vs epinephrine injection in a short, prospective, randomised investigation of 34 individuals with actively bleeding lesions. Thermal treatment is not advised for bleeding Mallory-Weiss tears associated with portal hypertension and gastric varices, thus band ligation should be used instead [1,26].

In a patient with a severe upper gastro-intestinal bleeding for which a definitive preoperative diagnosis is not achievable, the surgeon must consider all options. If there is no duodenal or gastric lesion, a broad gastrotomy is required with the abdomen open. At this point, a blind gastrectomy is not recommended since bleeding from the oesophagus or cardia will go unnoticed and untreated. The cause of the bleeding will be determined when the anterior wall of the stomach has been incised for a distance of five to seven inches and judicious application of packs. The proximal stomach Mallory-Weiss lacerations will quickly show up and may be repaired with a running catgut suture. If the blood comes from the oesophagus, a higher level of exposure is necessary [27].

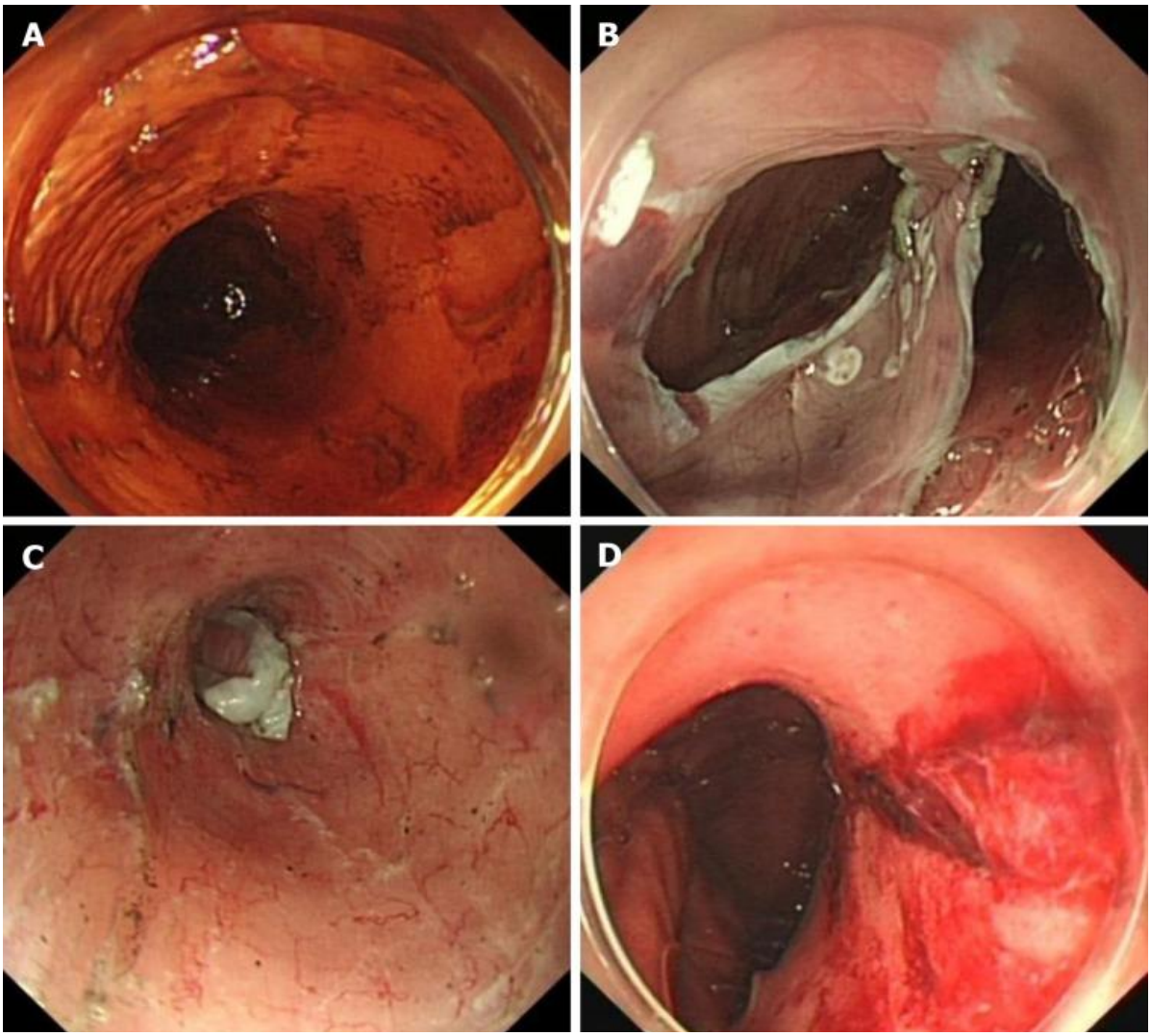

Fig. 1. Mallory-Weiss Tear occurred during ESTD. A: The lesion of the esophagus after iodine staining; B: The submucosal tunnel created during ESTD; C: The artificial wound after ESTD; D: The mucosal laceration at the gastro-esophageal junction. ESTD: Endoscopic submucosal tunnel dissection [24]

In a study by (C Sugawa, et al.) Mallory-Weiss syndrome was discovered to be the source of upper gastrointestinal bleeding in 224 of 2,175 (10.3 percent) patients investigated, owing to the increased early use of endoscopy. Because Mallory-Weiss syndrome is a self-limiting disease in more than 90% of patients, conservative treatment, which includes multiple transfusions, electrocoagulation, and compression with a Sengstaken-Blakemore tube, are the preferred treatment, especially in medically debilitated patients. Cirrhotic patients are very difficult to treat and, regardless of therapy, have a dismal prognosis. In a limited subset of individuals, stomach prolapse into the oesophagus may be an etiologic cause [28].

6. CONCLUSION

Mallory-Weiss syndrome is no doubt one of concerning conditions that exist. Mallory-Weiss syndrome is rather prevalent, accounting for 3 to 10% of all upper gastrointestinal bleeding episodes. Even though in many cases may be asymptomatic Hematemesis is the presenting symptom in 85 percent of patients. At this point endoscopy seems to be treatment of choice for many patients and is preferred over the traditional surgical methods due to decreased recovery time, and less complications.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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