

# Esophagus

## Case 1

Surachai Amornsawadwattana, MD.

Rungsun Rerknimitr, MD.

A 40-year-old Chinese male, presented with chronic diarrhea. His stool examination was positive for acid fast bacilli. HIV testing was requested and the result was non-reactive. Then, he was treated with the standard anti-tuberculous therapy. During hospitalization, he developed GI bleeding. EGD was performed and the findings are shown as below.



EGD findings revealed multiple groups of vesicles mixed with denuded esophageal mucosa at mid and distal esophagus. Biopsy from the lesions was done and the histology revealed multinucleated giant cells. The final diagnosis was **herpes simplex virus (HSV) esophagitis**.

## Discussion:

Herpes simplex virus (HSV) is a linear double-stranded DNA virus in the Herpesviridae family<sup>1</sup>. The most common site for herpes simplex infection in the GI tract is esophagus. HSV esophagitis is usually found in immunocompromised hosts and likely due to a reactivation of the virus. However, it is quite rare phenomenon in immunocompetent hosts. Ramanathan, et al<sup>2</sup>. reported a case series of 38 immunocompetent patients with HSV esophagitis and found that the most common initial manifestations were acute onset of odynophagia (76.3%) and heartburn (50%). Other symptoms were fever (44.7%), dysphagia (21.1%), myalgia (21.1%) and weight loss (13.2%), respectively. Endoscopic findings usually revealed friable mucosa (84.2%) and multiple ulcers that vary in size, 1-15 mm. in diameter

(86.8%). The most common site of involvement was distal esophagus (63.8%). However, it can be located diffusely in the entire esophagus in 26.3% of cases. The rest were found in mid (10.5%) and upper esophagus (2.6%). Histopathology alone sometimes failed to diagnose HSV infection in 1/3 of the cases. Additional tissue viral culture can increase the sensitivity up to 97.4%<sup>2</sup>.

## References

1. Lavery EA. Coyle WJ. Herpes Simplex Virus and the Alimentary Tract. Curr Gastroenterol Rep 2008;10:417-23.
2. Ramanathan J, Rammouni M, Baran J Jr., Khatib R. Herpes Simplex Virus Esophagitis in the Immunocompetent Host: An Overview. Am J Gastroenterol 2000;95:2171-6.



## Case 2

Satimai Aniwan, MD.

Rungsun Rerknimitr, MD.

A 63-year-old-Thai woman, presented with progressive dysphagia for 6 months. She had had severe aortic stenosis and underwent aortic valve replacement surgery for 5 years. She had had breast cancer 3 years earlier; a modified radical mastectomy had been performed and positive lymph nodes were found. She had received chemotherapy and radiation therapy. During the 2-year follow-up, annual mammograms revealed normal study.

Barium swallow (Figure 1) showed esophageal luminal narrowing at the upper thoracic esophagus near T2-3 level with regular outline and shouldering edges together with proximal esophageal dilatation. Esophagogastro-duodenoscopic examination (Figure 2) showed a benign-appearing stricture without evidence of a mass. Microscopic examination of biopsy specimens from the esophagus showed no malignancy.



Figure 1

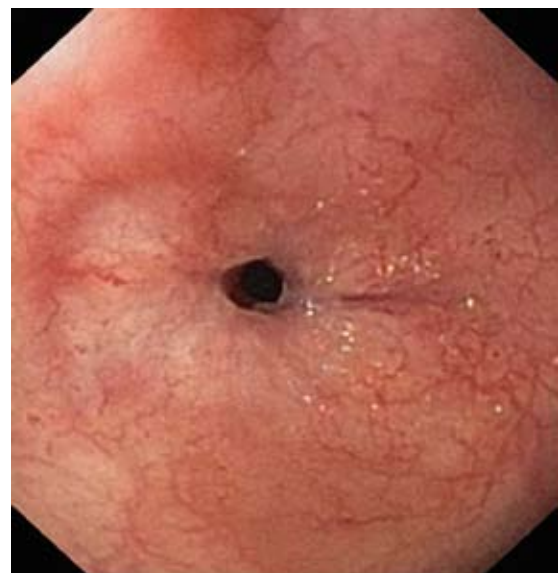


Figure 2

## Diagnosis:

Post-radiation induced esophageal stricture.

## Discussion:

Dysphagia secondary from proximal esophageal strictures, is a common, debilitating, and potentially life threatening complication, especially after chemoradiation for breast cancer, lung cancer, and head and neck cancer<sup>1</sup>. The esophagus at the upper end of the gastrointestinal tract is reported to be fragile and radiosensitive. The tolerance dose of the entire length of the esophagus to standard fractionated radiotherapy is estimated to be approximately 6Gy. Approximately 5% of patients receiving 6Gy to the entire esophagus is expected to develop esophageal fistula or perforation<sup>2</sup>. The interval between the end of radiotherapy and the diagnosis of stricture before the diagnosis of stricture is 1–60 months (median, 6 months)<sup>3</sup>. More than 60% of patients who received a full dose to the esophagus may develop esophageal stricture<sup>4</sup>.

## References

1. Nguyen NP, Moltz CC, Frank C, Vos P, Smith HJ, Karlsson U, et al. Dysphagia following chemoradiation for locally advanced head and neck cancer. *Ann Oncol* 2004 ;15:383-8.
2. Emami B. Three-Dimensional Conformal Radiation Therapy In Bronchogenic Carcinoma. *Semin Radiat Oncol* 1996;6:92-7.
3. Laurell G, Kraepelien T, Mavroidis P, Lind BK, Fernberg JO, Beckman M, et al. Stricture of the proximal esophagus in head and neck carcinoma patients after radiotherapy. *Cancer* 2003 1;97:1693-700.
4. Arnott SJ, Duncan W, Kerr GR, Walbaum PR, Cameron E, Jack WJ, et al. Low dose preoperative radiotherapy for carcinoma of the oesophagus: results of a randomized clinical trial. *Radiother Oncol* 1992;24:108-13.

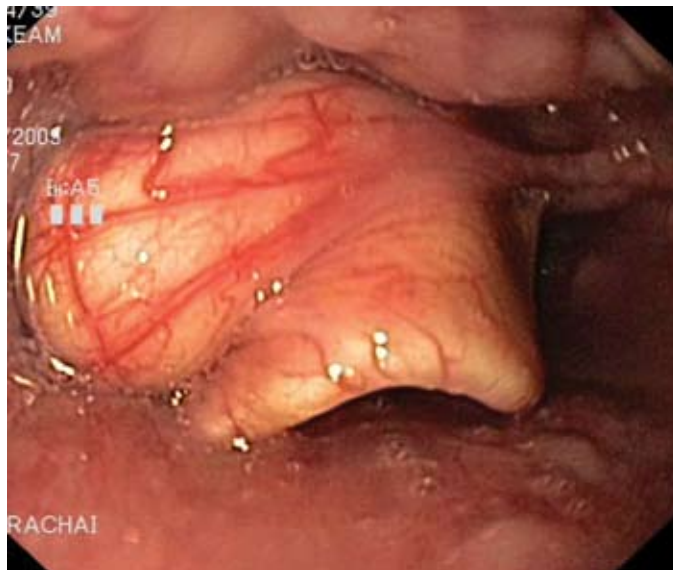


## Case 3

Surachai Amornsawadwattana, MD.

Rungsun Rerknimitr, MD.

A 70-year-old male, presented with dyspeptic symptom. He did not experience any difficulty in swallowing. EGD was performed and the finding is shown.



EGD revealed a round, cystic lesion with normal appearing mucosa located at the base of tongue. **The most likely diagnosis in this patient is vallecular cyst.**

### Discussion:

Vallecular cyst, which is also known as epiglottic mucous retention or base of the tongue cyst<sup>1</sup>, is usually asymptomatic in adulthood, although it can cause

airway obstruction, feeding difficulties or failure to thrive in infancy. Berger, et al. retrospectively reviewed 38 adult patients with vallecular cysts and found that vallecular cyst can be the cause of acute epiglottitis with or without abscess formation in adults<sup>1</sup>.

The possible explanation of the vallecular cysts formation is the obstruction of mucous gland at the base of tongue resulting in mucous retention<sup>2</sup>. Other probable etiologies are angiomatous or lymphatic malformations. The diagnosis of this cyst is often made by direct visua-

lization with a direct laryngoscopy<sup>2</sup>. The curative treatment of symptomatic cyst is marsupialization with CO<sub>2</sub> laser or electrocautery<sup>2</sup>.

## References

1. Berger G, Averbuch E, Zilka K, et al. Adult vallecular cyst: thirteen-year experience. Otolaryngol Head Neck Surg 2008;138:321-7.
2. Amagasu M, Lee D, Bluestone CD. Imaging quiz case 1. Vallecular cyst. Arch Otolaryngol Head Neck Surg 1999;125:592-4

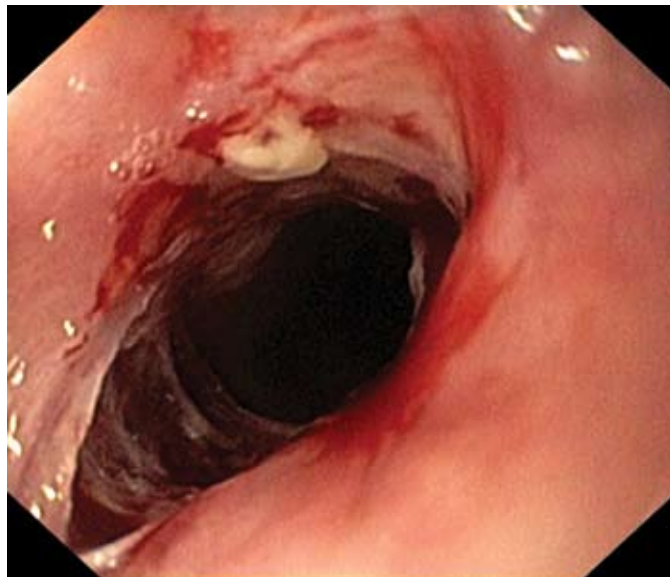


## Case 4

Satimai Aniwan, MD.

Rungsun Rerknimitr, MD.

A 63-year-old Thai woman was referred to the gastroenterology clinic for management of benign esophageal stricture. The stricture was measured as 2 cm. in length, located at 18 cm. from the incisor and did not allow the passage of the endoscope. Esophageal dilatation was performed by a Savary-Gilliard technique without fluoroscopy. The Savary-Gilliard-type dilators are passed after a guidewire has been positioned with the tip distal to the stricture. Three consecutive dilators (No 11, 12.8, 14) were applied. EGD after dilatation revealed esophageal tear from mucosa to muscular layer at 5 o'clock with minimal bleeding. The clinical and chest x-ray showed no evidence of perforation.



## Diagnosis:

### Post dilation esophageal tear

## Discussion:

The main complications associated with esophageal dilation include perforation, hemorrhage and bacteremia. The reported rate of perforation and massive bleeding is 0.3%<sup>1</sup>; this risk is higher when complex strictures<sup>2</sup> and caustic strictures<sup>3</sup> are dilated. It is generally believed that the risk of perforation is minimal if the 'rule of three' is applied, meaning that dilation diameters should not increase by more than 3 mm. per session. Specifically, after moderate resistance is encountered during dilation therapy with Savary-type dilators, no greater than three consecutive dilators should be passed in a single session. A corollary to this approach may be applied for balloon dilators. Whereas there are no objective data specifically supporting this approach, a conservative approach to dilation should be undertaken to reduce the chances of perforation. Repeat dilation sessions is done as needed, with a goal of achieving a luminal diameter of 12 mm. or larger. These usually are adequate to alleviate symptoms of solid dysphagia. The risk of perforation is least in

simple strictures; the presence of angulations or irregularities, longer strictures, or high-grade strictures that do not allow the passage of the endoscope are indicators that likely to confer an increased risk for perforation<sup>4</sup>. Perforation usually occurs at the site of the stricture resulting in intra-abdominal or intra-thoracic perforation, in which the latter being more serious<sup>5</sup>.

## References

1. Siersema PD. Treatment options for esophageal strictures. *Nat Clin Pract Gastroenterol Hepatol* 2008;5:142-52.
2. Hernandez LV, Jacobson JW, Harris MS. Comparison among the perforation rates of Maloney, balloon, and Savary dilation of esophageal strictures. *Gastrointest Endosc* 2000;51(4 Pt 1):460-2.
3. Poley JW, Steyerberg EW, Kuipers EJ, Dees J, Hartmans R, Tilanus HW, et al. Ingestion of acid and alkaline agents: outcome and prognostic value of early upper endoscopy. *Gastrointest Endosc* 2004;60:372-7.
4. Lew RJ, Kochman ML. A review of endoscopic methods of esophageal dilation. *J Clin Gastroenterol* 2002;35:117-26.
5. Riley SA, Attwood SE. Guidelines on the use of oesophageal dilatation in clinical practice. *Gut* 2004;53 Suppl 1:i1-i6.





## Case 5

Salyavit Chittmittrapap, MD.

Rungsun Rerknimitr, MD.

A 22-year-old female was brought to the hospital after suicidal attempt. She had profound drooling, nausea, and severe epigastric pain. She admitted on drinking a gulp of hydrochloric acid. EGD findings showed circumferential mucosal necrosis along the entire esophagus which compatible with caustic esophageal injury grade 2B (Figures 1-2). Erosive gastritis and necrosis was also found. Necrotic gastric tissues confined in the fundus and cardia (Figures 3-4).

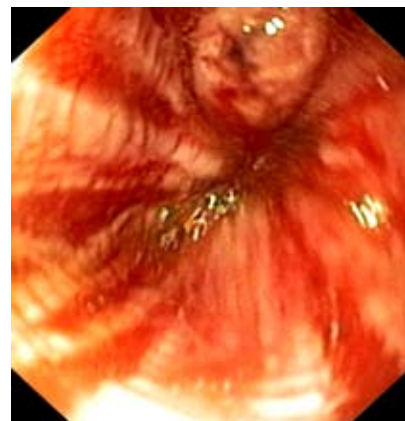


Figure 1, 2 Esophageal necrosis

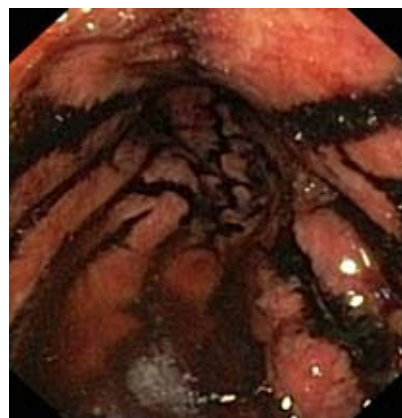


Figure 3, 4 Necrotic gastric mucosa secondary to acid injury

## Diagnosis:

### Acidic injury of the esophagus and stomach

## Discussion:

Apart from history, endoscopy is a useful tool to evaluate for caustic injury of the esophagus and stomach<sup>1,2</sup>. These linear necrotic lesions in stomach were attributed by liquid nature of acidic corrosive agent that lying on the dependent area of gastric rugae. Its superficial necrotic tissue suggested acidic rather than alkaline injury, because acids generally cause coagulation necrosis, with eschar formation that may limit further substance penetration and injury depth.

Whereas alkali usually destroys tissue proteins and trigger liquefaction necrosis and saponification, which make them classically penetrate into the tissue deeper than acidic injury. It also causes thrombosis of vessels as well.

## References

1. Salzman M, O'Malley RN. Updates on evaluation of evaluation and management of caustic exposures. Emerg Med Clin North Am 2007;25:459–76.
2. Zargar SA, Kochhar R, Mehta S, Mehta SK. The role of fiberoptic endoscopy in the management of corrosive ingestion and modified endoscopic classification of burns. Gastrointest Endosc 1991;37:165–9.



## Case 6

Surachai Amornsawadwattana, MD.

Rungsun Rerknimitr, MD.

A 53-year-old-male with no underlying disease presented with melana. EGD was done and showed as figures.



In this case, EGD showed **severe reflux esophagitis with Los Angeles (LA) Classification Grade C**, extended to 15 cm. above the esophagogastric junction and hiatal hernia. Later, proton pump inhibitor was prescribed in this patient reported a good response in term of healing and symptoms.

### Diagnosis:

**Reflux esophagitis Los Angeles Classification Grade C with hiatal hernia**

## Discussion:

In Asian countries; GERD is less common than in Western countries. Asian populations had the prevalence of GERD ranged from 2.5% to 6.7% for at least weekly symptoms of heartburn and/or acid regurgitation.<sup>1</sup> In previous study<sup>2</sup>, Pan et al, reported a prevalence for erosive esophagitis in 21.4% of patients with GERD symptoms. Well-established risk factors for GERD in Asian include hiatal hernia and obesity. Age and male sex also may be important risk factors. Chest pain and asthma are the predominant extraesophageal manifestation of GERD in China and Japan; respectively<sup>3, 4</sup>. Clinically important hemorrhage has been reported in 7% to 18% of GERD patients, and usually be associated with deep esophageal ulcer and severe esophagitis (LA grade C or D)<sup>5</sup>. Other complications of GERD were also reported including esophageal adenocarcinoma related to Barrett's esophagus, peptic esophageal stricture and esophageal perforation<sup>6</sup>.

## References

1. Wong BCY, Kinoshita Y. Systematic Review on Epidemiology of Gastroesophageal Reflux Disease in Asia. *Clinical Gastroenterology and hepatology* 2006;4:398-407.
2. Pan G, Xu G, Ke M, et al. Epidemiological study of symptomatic gastroesophageal reflux disease in China: Beijing and Shanghai. *Chin J Dig Dis* 2000;1:2-8.
3. Wong WM, Lai KC, Lam KF, et al. Prevalence, clinical spectrum and health care utilization of gastro-esophageal reflux disease in a Chinese population: a population-based study. *Aliment Pharmacol Ther* 2003;18:595-604.
4. Nakase H, Itani T, Mimura J, et al. Relationship between asthma and gastro-esophageal reflux: significance of endoscopic grade of reflux oesophagitis in adult asthmatics. *J Gastroenterol Hepatol* 1999;14:715-22.
5. Dacosta N, Guillaume C, Merle C, et al. Bleeding reflux esophagitis: A prospective 1-year study in a university hospital. *Am J Gastroenterol* 2001;96:47-51.
6. Zeitoun P, Flejou JF. Complications of gastroesophageal reflux disease and Barrett's esophagus. *Gastroenterol Clin Biol* 1999; 23:S50-60.



## Case 7

Phonthep Angsuwatcharakon, MD.

Rungsun Rerknimitr, MD.

An 80-year-old woman, presented with chronic dyspepsia with solid food dysphagia intermittently. EGD was done.



EGD revealed an out-pouching esophageal mucosa at the posterior wall of proximal esophagus (white arrow).

### Diagnosis:

Zenker's diverticulum

## Discussion:

Zenker's diverticulum is a false diverticulum, occurs at the proximal esophagus, Killian triangle, where the muscular layer of esophagus is most weakened. The diverticulum may be associated with the increased intrapharyngeal pressure during swallowing while the upper esophageal sphincter relaxes improperly. Patients may experience aspiration or dysphagia and may be endangered if blind endotracheal or blind scope intubation is performed. In asymptomatic patient, no

treatment is required. In large or symptomatic patients, surgical diverticulectomy or myotomy with diverticuloscope or flexible endoscopy is found to be efficacious and safe<sup>1</sup>.

## Reference

1. Ferreira LE, Simmons DT, Baron TH. Zenker's diverticula: pathophysiology, clinical presentation, and flexible endoscopic management. Dis Esophagus 2008;21:1-8.



## Case 8

Surachai Amornsawadwattana, MD.

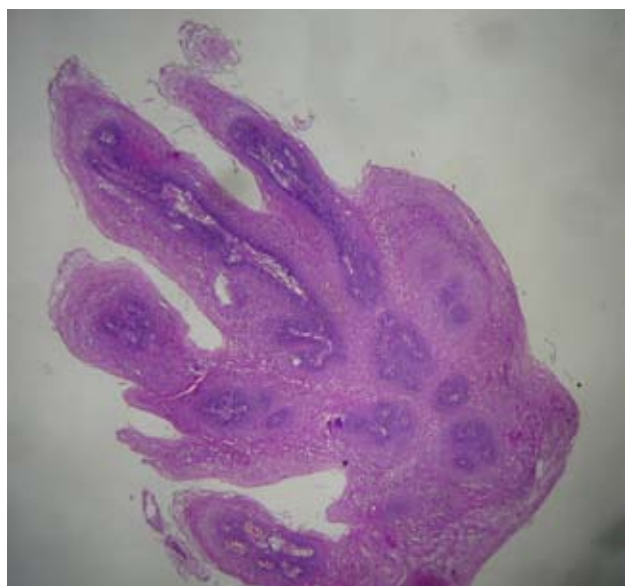
Naruemon Klaikeaw, MD.

Rungsun Rerknimitr, MD.

A 29-year-old female, presented with dyspepsia. EGD was performed and had the finding as shown.



EGD revealed a whitish verrucous-like lesion at the proximal part of the esophagus (22 cm. from incisor). Biopsy was performed and confirmed the diagnosis of **squamous papilloma of esophagus**.



## Discussion:

Squamous papilloma is a rare benign esophageal tumor. The prevalence from the reported literatures was between 0.01 to 0.43%<sup>1</sup>. The pathogenesis is uncertain; chemical (reflux esophagitis), viral (*Human papilloma virus*) and mechanical (esophageal dilation, or esophageal stent) factors are proposed to be the etiologies<sup>1</sup>. The patients with this condition are usually asymptomatic and the lesion is incidentally found during endoscopy. However, it is also not associated with malignancy<sup>1</sup>. Endoscopic finding of this lesion can be described as a small, round, pinkish or whitish, soft consistency lesion with smooth or slightly verrucous surface, and well demarcated border, though it can be large or multiple<sup>1</sup>. The differential diagnoses

are glycogenic acanthosis, verrucoid border of squamous cell carcinoma, and verrucous carcinoma<sup>1</sup>. Histopathology shows the finger-like projection of squamous epithelium with vascularized connective tissue core<sup>1, 2</sup>.

## References

1. Mosca S, Manes G, Monaco R, et al. Squamous papilloma of the esophagus: long-term follow up. J Gastroenterol Hepatol. 2001;16:857-61.
2. Orłowska J, Jarosz D, Gugulski A, et al. Squamous cell papillomas of the esophagus: report of 20 cases and literature review. Am J Gastroenterol 1994;89:434-7.





## Case 9

Satimai Aniwan, MD.

Sutep Golachanvit, MD.

Rungsun Rerknimitr, MD.

A 76-year-old-male patient, presented with intermittent dysphagia for 2 months. He had no history of chest pain. EGD revealed normal appearing esophageal mucosa with spiral like esophageal contraction at the distal part of esophagus. (Figure A: during esophageal relaxation and Figure B: during esophageal contraction) Barium swallow showed corkscrew appearance in the lower half of esophagus. (red arrow, Figure C) Esophageal manometry showed simultaneous contraction in the lower esophagus. (Figure D)



Figure A



Figure B



Figure C

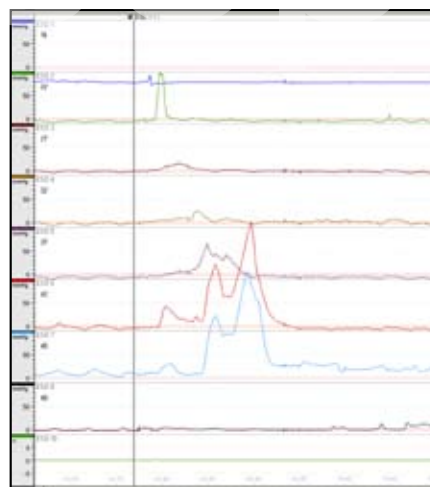


Figure D

## Diagnosis:

Diffuse esophageal spasm

## Discussion:

Diffuse esophageal spasm (DES) is a disease characterized by simultaneous contractions of the distal esophageal smooth muscle with clinical manifestations of dysphagia and/or chest pain. Pathology of DES occurs in the smooth muscle of the lower esophagus, and is believed to be due to dysfunction of the intrinsic neural regulation of contraction. Therefore, a normal peristalsis almost always remains intact in the upper third of the esophagus, which is composed mainly of striated muscle<sup>1</sup>. The manometric diagnosis of esophageal spasm is based on identifying simultaneous contractions of the distal esophageal smooth muscle, manifested as “synchronous” pressure waves (>8 cm./sec propagation) with a minimum amplitude of 30 mmHg. These are required on >20% of 10 swallows, and some “normal” peristaltic waves must also be present<sup>2</sup>. The radiological patterns

of esophageal spasm as sudden distortions in the lower half of the esophagus during a barium swallow with puckering into a series of pockets, giving a the ‘corkscrew’ or ‘rosary bead’ appearance<sup>3</sup>. Esophagoscopy is also useful to make diagnosis by showing the typical view of the corkscrew esophagus. Furthermore, upper gastro-intestinal endoscopy has to be included in the diagnostic procedures to rule out other diagnoses<sup>4</sup>.

## References

1. Grubel C, Borovicka J, Schwizer W, et al. Diffuse esophageal spasm. Am J Gastroenterol 2008 Feb;103:450-7.
2. Spechler SJ, Castell DO. Classification of oesophageal motility abnormalities. Gut 2001;49:145-51.
3. Tutuian R, Castell DO. Review article: oesophageal spasm-diagnosis and management. Aliment Pharmacol Ther 2006 15;23:1393-402.
4. Storr M, Allescher HD, Classen M. Current concepts on pathophysiology, diagnosis and treatment of diffuse oesophageal spasm. Drugs 2001;61:579-91.

## Case 10

Rapat Pittayanon, MD.  
Pradermchai Kongkam, MD.  
Rungsun Rerknimitr, MD.

A 30-year-old Thai man, presented with bright red blood hemetemesis after severe vomiting that occurred during heavy alcohol drinking. His vital signs were stable. He did not have any sign of chronic liver stigmata. EGD was performed as shown (Figures 1-3).



Figure 1



Figure 2



**Figure 3**

EGD revealed esophageal ulcer at EGJ at 40 cm. (Figure 1) Three linear shaped shallow clean base ulcers were demonstrated from cardia (around EG junction) to body of the stomach.(Figure 2) Another serpiginous clean base ulcer was found next to these three ulcers in gastric body with surrounding mucosal swelling. One gastric ulcer, low risk, 0.3 cm. in diameter in the antrum was seen. (Figure 3) No active bleeding was detected. The duodenum appeared normal.

## Diagnosis:

**Mallory-Weiss Syndrome**

## Discussion:

Mallory-Weiss Syndrome (MWS) is a laceration of the mucosa at the gastroesophageal junction (EGJ), gastric cardia, or distal esophagus. In most patients, bleeding is self limited<sup>1</sup>. Patients with ongoing bleeding need urgent endoscopic therapy. Multipolar electrocautery appears to be the most effective therapy, but epinephrine injection, clips, or band ligation also appear to be effective. Perhaps this is one of the lesion that hemostasis can be achieved by epinephrine injection alone. By contrast, uncontrolled bleeding requires angiographic therapy or surgery<sup>2</sup>.

## References

1. Bharucha AE, Gostout CJ, Balm RK. Clinical and endoscopic risk factors in the Mallory-Weiss syndrome. *Am J Gastroenterol* 1997;92:805-8.
2. Adler DG, Leighton JA, Davila RE, et al. ASGE guideline: The role of endoscopy in acute non-variceal upper-GI hemorrhage. *Gastrointest endosc* 2004;60:497.



## Case 11

Salyavit Chittmittrapap, MD.

Sutep Gonlachanvit, MD.

Rungsun Rerknimitr, MD.

A 80-year-old-female, presented with worsening of dysphagia for 2 months. She had been diagnosed as supraglottic squamous cell cancer stage 1 (T1N1M0) for 6 months. Swallowing function was normal, subsequently, an EGD was warranted to exclude the obstruction and to place a manometry catheter.

EGD demonstrated a diffusely dilated esophagus with residual food content. Retained food content precluded direct passage of the endoscope (Figure 1), thus the Seldinger technique with a

guidewire leading the scope pass was used (Figure 2). After passing guidewire through the obstruction, a gastroscope was able to follow and we discovered an esophageal ulcer that compatible with reflux esophagitis. In addition, a round smooth surface gastric cardia mass was detected (Figure 3, white arrow). It laid at 1 cm. away from the esophagogastric junction and had benign-looking appearance.

Manometric result confirmed as esophageal aperistalsis and failure of LES relaxation which were compatible with achalasia cardia.

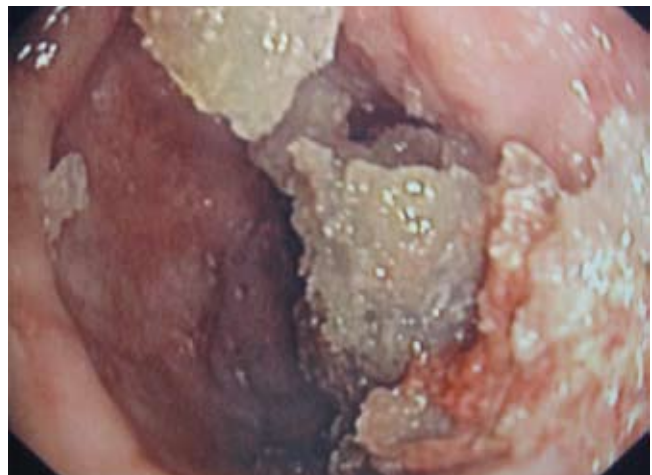


Figure 1



Figure B

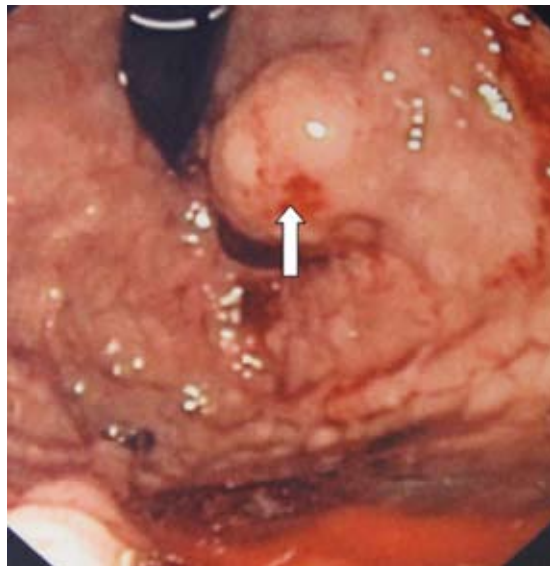


Figure C

## Diagnosis:

Secondary achalasia

## Discussion:

Achalasia is one of the most common motor disorders of esophagus. Neuromuscular dysfunction causes failure to relax of the lower esophageal sphincter. True achalasia was idiopathic (without an identifiable cause). Pseudoachalasia in the setting of neoplasm has many mechanisms. Benign, malignant and metastatic tumor can invade lower esophageal sphincter. Achalasia can be a part of paraneoplastic syndrome which contributed to 2.6% of achalasia cases reported from literatures<sup>1</sup>.

Markers of paraneoplastic achalasia include autoantibodies to type 1 antineuronal (anti-Hu), cytoplasm of type 1 Purkinje cell (PCA-1 or anti-Yo), and to N-type calcium channel. Paraneoplastic pseudoachalias from cancers originated from bladder, prostate and vocal cord were also reported<sup>2</sup>.

## References

1. Gockel I, Eckardt VF, Schmitt, et al. A case series and analysis of the literature. Scand J Gastroenterol 2005;40(4):378-85.
2. Ulla JL, Fernandez-Salgado E, Alvarez V, et al. Pseudoachalasia of the cardia secondary to nongastrointestinal neoplasia. Dysphagia 2008;23:122-6.





## Case 12

Satimai Aniwan, MD.

Rungsun Rerknimitr, MD.

A 63-year-old man, presented with hematemesis after severe vomiting. He had consumed alcohol daily. His vital signs were stable. EGD finding revealed two large lacerations at EGJ. (Figures 1 and 2) One large mucosal with submucosal tear was measured as 1x2 cm. in length and 0.3 cm. in depth with active bleeding. The other one was only mucosal laceration, 1 cm. in length. Endoscopic treatment was performed by using diluted adrenalin injection followed by hemoclip placement. Endoscopic findings after 3 days of treatment showed a healing deep ulcer with hemoclip in place. (Figures 3 and 4)

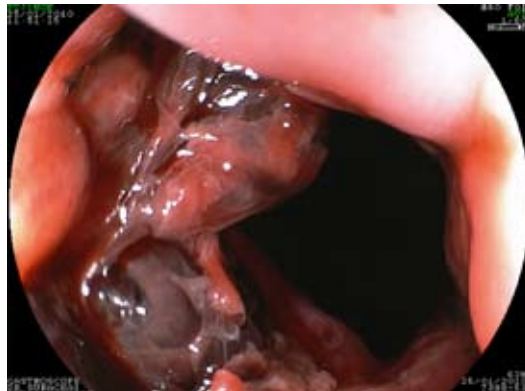


Figure 1



Figure 1



Figure 3

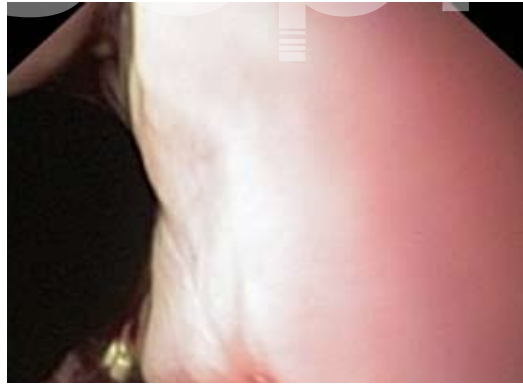


Figure 4

## Diagnosis:

Deep Mallory-Weiss syndrome

## Discussion:

Mallory-Weiss syndrome (MWS) is defined by upper gastrointestinal bleeding from vomiting-induced mucosal lacerations at the esophagogastric junction. MWS lesions account for approximately 5% of all non-variceal upper GI bleeding. In most cases, the hemorrhage in MWS requires no intervention other than hemodynamic support. However, some patients, especially those with stigmata of active bleeding, unstable vital signs at admission and/or associated comorbid diseases, may require a hemostatic procedure, including injection of different agents, electrocoagulation, application of hemoclips and band ligation<sup>1</sup>. The optimal modality is still up for the debate. Epinephrine injection, endoscopic hemoclip placement, and endoscopic band ligation are equally effective and safe for the management of active bleeding in MWS. Ultimately, the choice of which endoscopic treatment is best will be influenced by technical factors and endoscopist's preference<sup>2-5</sup>. The use of proton pump inhibitors and antiemetics seems

logical in all cases, although nothing in the literature demonstrates their efficacy<sup>1</sup>.

## References

1. DiMaio CJ, Stevens PD. Nonvariceal upper gastrointestinal bleeding. *Gastrointest Endosc Clin N Am* 2007;17:253-72, v.
2. Cho YS, Chae HS, Kim HK, et al. Endoscopic band ligation and endoscopic hemoclip placement for patients with Mallory-Weiss syndrome and active bleeding. *World J Gastroenterol* 2008 7;14: 2080-4.
3. Lecleire S, Antonietti M, Iwanicki-Caron I, et al. Endoscopic band ligation could decrease recurrent bleeding in Mallory-Weiss syndrome as compared to haemostasis by hemoclips plus epinephrine. *Aliment Pharmacol Ther* 2009 15;30:399-405.
4. Park CH, Min SW, Sohn YH, et al. A prospective, randomized trial of endoscopic band ligation vs. epinephrine injection for actively bleeding Mallory-Weiss syndrome. *Gastrointest Endosc* 2004;60: 22-7.
5. Yuan Y, Wang C, Hunt RH. Endoscopic clipping for acute nonvariceal upper-GI bleeding: a meta-analysis and critical appraisal of randomized controlled trials. *Gastrointest Endosc* 2008;68:339-51.

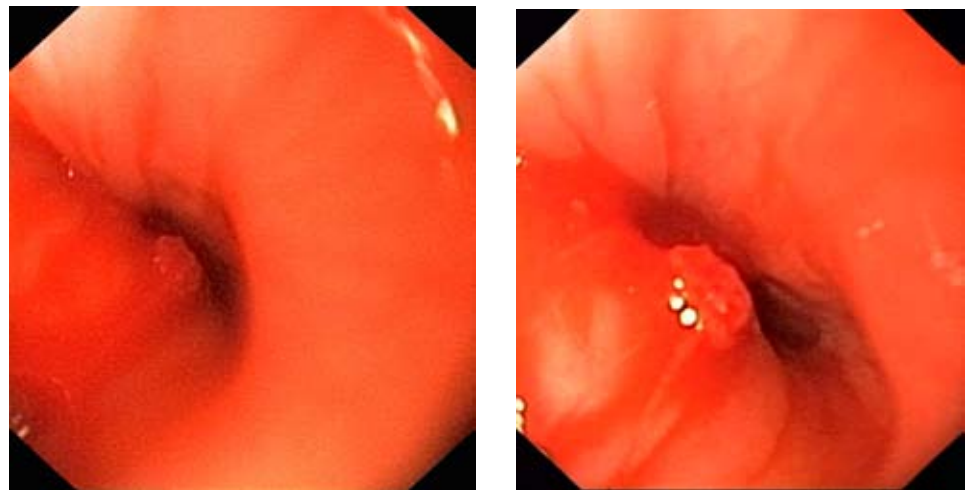


## Case 13

Surachai Amornsawadwattana, MD.

Rungsun Rerknimitr, MD.

A 23-year-old woman, known case of neurofibromatosis type II with recurrent left acoustic neuroma, was hospitalized for surgery. Her hospital stay was complicated by aspiration pneumonia. During hospitalization, she developed massive hematemesis with hypovolemic shock. Emergency EGD was performed and findings are shown in figure 1.



**Figure 1** EGD showed massive GI bleeding at mid-esophagus, there was a protuberant spot with an evidence of extrinsic compression.

EGD revealed narrowing of esophageal lumen caused by pulsatile extrinsic compression with white nipple sign on top, found at 20 cm. from the incisor. The procedure was prematurely terminated due to fatal exsanguinations and hemodynamic instability of the patient. Then CT angiography of the thoracic aorta

was requested to evaluate the possibility of aorto-esophageal fistula and the finding is shown as in figure 2. It showed evidence of contrast extravasation from right-sided aortic arch to esophagus. A large solid mass which expanded from left T2 neural foramen and protruded into the left apical hemothorax is also noted. This CT angiogram confirmed the diagnosis of aorto-esophageal fistula. Unfortunately, the patient expired shortly after the completion of CT scan.

## Diagnosis:

Fatal aorto-esophageal fistula

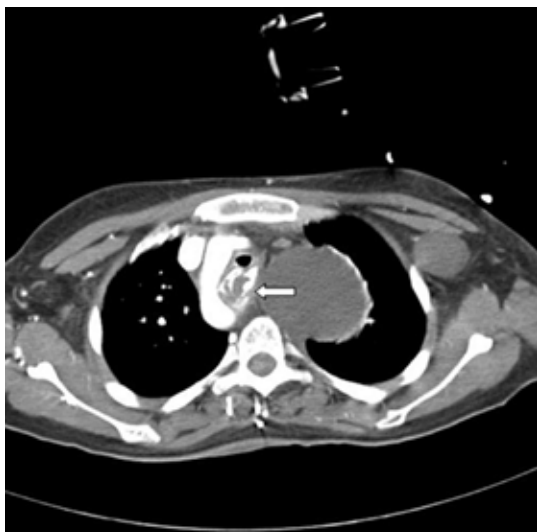
## Discussion:

Aorto-esophageal fistula (AEF) is a rare, fatal etiology of GI hemorrhage, accounts for 10% of all aorto-enteric fistulas. It may be caused by

aortic aneurysm, intrathoracic neoplasm, following thoracic aortic aneurysm surgery, or after ingestion of foreign body. The classic clinical manifestation of AEF is “Chiari triad” of mid-chest pain or dysphagia, a short symptom-free period, followed by a herald bleeding. Endoscopic features that have been reported in literatures are 1) pulsating submucosal mass 2) bluish grey mucosa caused by intramural hematoma or aortic dissection 3) foreign body, ulcer or esophagitis 4) visualization of the opening of fistula. The treatment of choice in this condition is surgery, but most of the patients die before establishing the diagnosis.

## Reference

1. Amin S, Luketich J, Wald A. Aorto-esophageal fistula: case report and review of the literature. Dig Dis Sci 1998;43:1665-71.



**Figure 2** CT angiography of thoracic aorta showed extravasation (arrow) of contrast from right-sided aortic arch into esophagus. Large amount of blood clot was also seen in esophageal lumen. A solid mass at left apical hemothorax was also noted.

## Case 14

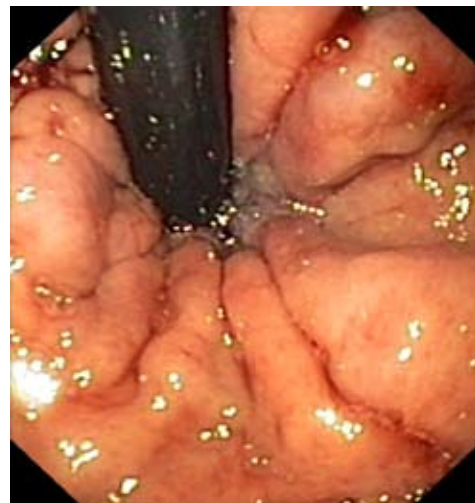
Surachai Amornsawadwattana, MD.

Akkwat Janchai, MD.

Rungsun Rerknimitr, MD.

A 49-year-old Chinese male, known case of cryptogenic cirrhosis, has been hospitalized and treated endoscopically several times due to recurrent variceal bleeding. EGD was performed and findings are shown as in figure 1 CT scan of the upper abdomen was obtained and revealed liver cirrhosis with portal hypertension and evidences of post glue embolization of the gastroesophageal varices as shown in figure 2

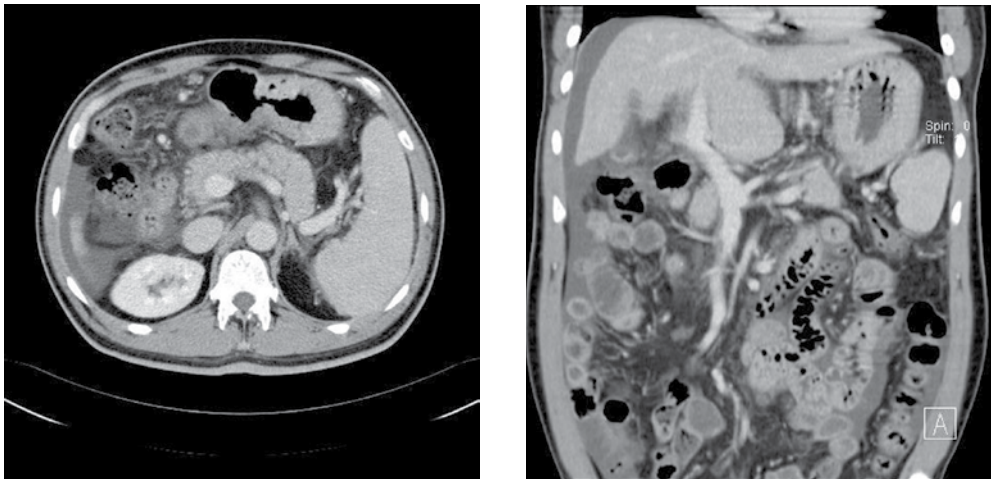
Despite repeated endoscopic band ligations, patient still developed recurrent bleeding. Transjugular intrahepatic portosystemic shunt (TIPS) was requested and successfully placed as figure 3 The pre-TIPS hepatic venous pressure gradient was measured as very high (30 mmHg). Subsequent EGD was done for a follow up (post TIPS treatment day 1) and the findings are shown in figure 4



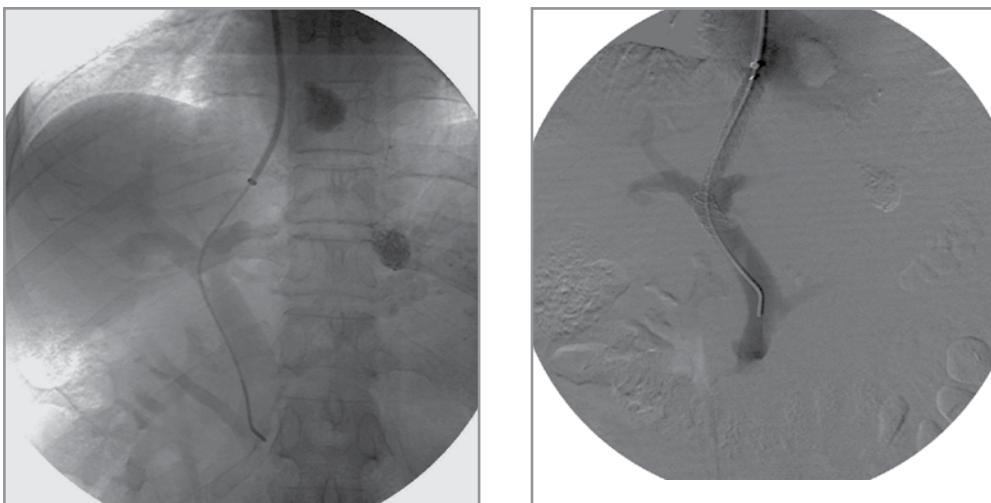
**Figure 1** EGD findings before TIPS therapy showed medium size varices with one rubber band was partially covered the column of varix. Another F2 size varix column was found nearby.

## Diagnosis:

Refractory variceal bleeding requiring TIPS



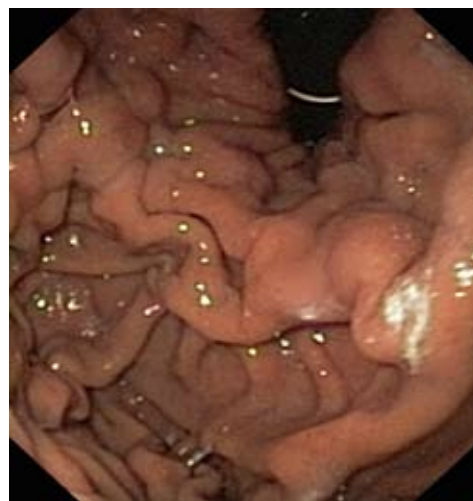
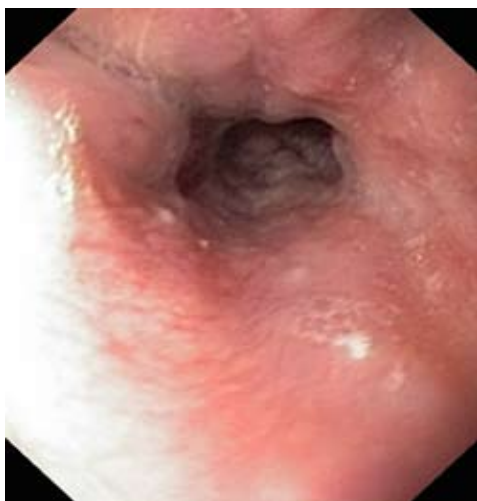
**Figure 2** CT scan of the upper abdomen revealed liver cirrhosis and evidences of portal hypertension. Noted, splenomegaly was observed.



A

B

**Figures 3** TIPS A) Portography of this patient B) Polytetrafluoroethylene (ePTFE) covered stent deployment



**Figure 4** Resolution of gastroesophageal varices after TIPS therapy (Day 1)

## Discussion:

TIPS is recommended in patients with refractory ascites and also used as a salvage treatment of variceal bleeding<sup>1</sup>. The objective of TIPS in the treatment of variceal hemorrhage is to reduce portal hypertension and this would decrease the risk of recurrent variceal bleeding if hepatic venous pressure gradient (HVPG) is less than 12 mmHg<sup>1</sup>. Complications of TIPS include TIPS dysfunction, fistula, sepsis, hemobilia, intraperitoneal bleeding, hepatic encephalopathy (HE), etc<sup>1</sup>. The uses of nonabsorbable disaccharides or antibiotics do not prevent the occurrence of HE and are not recommended at this time<sup>2</sup>. Traditionally, an uncovered stent was used to bridge the two venous systems. However, the drawback of this bare stent is a higher risk of shunt malfunction and this might affect the patency of the shunt<sup>2</sup>.

AASLD practice guideline update 2009 recently preferred to use covered stent instead of bare stent in order to create TIPS<sup>2</sup>, especially expanded polytetrafluoroethylene (ePTFE)-cover stent is highly suggested<sup>2</sup>.

## References

1. Boyer TD, Haskal ZJ. The role of transjugular intrahepatic portosystemic shunt in the management of portal hypertension. *Hepatology* 2005;41:386-400.
2. Boyer TD, Haskal ZJ. The Role of Transjugular Intrahepatic Portosystemic Shunt (TIPS) in the Management of Portal Hypertension: update 2009. *Hepatology* 2010;51:306.

