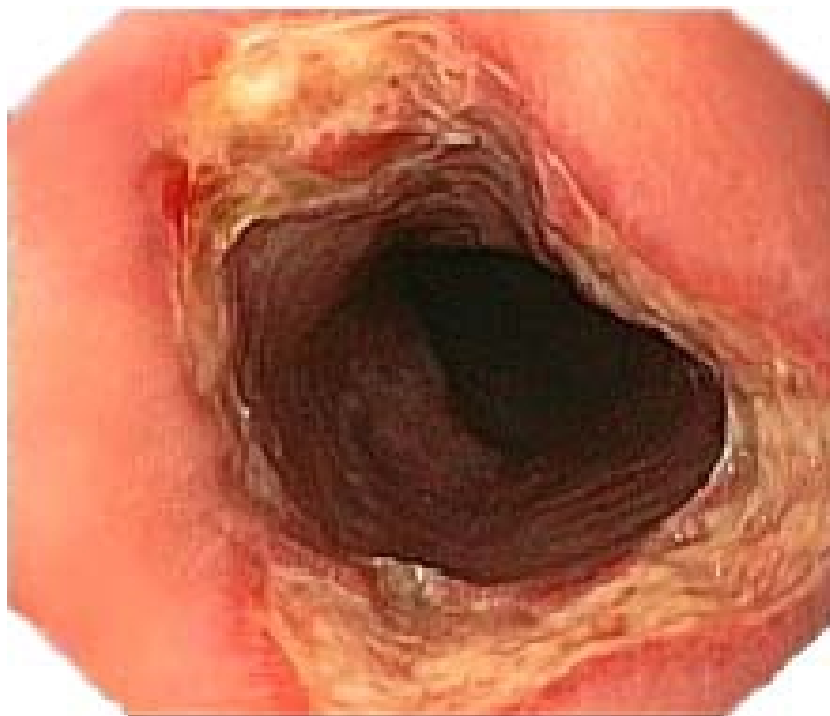


*Chaiteerakij R  
Petcharapirut P  
Rerknimitr R*

## Case 1

A 20-year-old healthy male patient presented with acute odynophagia for 2 days. EGD showed the following image.



What is the most likely diagnosis?

The upper endoscopy showed a large circumferential deep ulcer at middle esophagus with relatively normal surrounding mucosa. The upper and lower one-third of esophagus, including esophagogastric junction were completely normal.

The histological examination revealed esophageal ulcer with diffusely infiltration of neutrophils and eosinophils in the mucosa. Neither organism nor malignant cells were found. The thorough history revealed that he was taking doxycycline for acne for 1 week. The diagnosis was pill-induced esophagitis. After

treated with local anesthetic agent and discontinuation of the drug, his symptom was improved within a few days.

## Discussion

Drug-induced esophagitis is not an uncommon problem in clinical practice; however, most cases have not been diagnosed or underreported resulting in unknown exact incidence of this condition<sup>(1)</sup>. More than 70 drugs causing esophageal injury have been reported which antibiotics, particularly tetracycline, doxycy-

cline, and clindamycin, account for over 60% of the cases<sup>(2)</sup>. Other medications causing esophageal injury are non-steroidal anti-inflammatory drugs (NSAIDs), potassium chloride, ferrous sulphate, ascorbic acid, quinidine, aspirin, captopril, and bisphosphonates, etc<sup>(2)</sup>.

Factors contributing to esophageal injury are medication factors such as concentration and pH of the chemicals, slow release formulation, method of delivery (tablet or gelatin capsule which becomes sticky during dissolution when taken with inadequate water or by recumbent position), and size of the drug<sup>(2)</sup>. Predisposing patient factors include habit of drug ingestion; decreased production of saliva due to old age, use of anticholinergic agents, connective tissue diseases; pre-existing esophageal disorders and condition prolonged esophageal transit time, particularly supine position<sup>(2,3)</sup>.

Several mechanisms of injury varied among different drugs<sup>(2)</sup>. Doxycycline, tetracycline, ascorbic acid, and ferrous sulphate produce a pH below 3.0 when dissolved in 10 cc of water or saliva. Clindamycin, potassium chloride, and quinidine have direct caustic effect to esophageal mucosa. Potassium chloride can also produce local hyperosmolarity resulting in esophageal damage.

Typical scenario is young women, with no history of prior esophageal symptoms, taking doxycycline for acne or gynecological infection with little or no fluid before going to bed followed by sudden onset of odynophagia and retrosternal burning pain several hours later<sup>(1,4,5)</sup>. However, the symptoms can manifest up to ten days after exposure to the drugs<sup>(6)</sup>. Other symptoms are hematemesis, melena, dysphagia or weight loss due to esophageal stricture, and abdominal pain<sup>(2,7)</sup>.

The diagnosis of choice is upper gastrointestinal endoscopy which demonstrates wide spectrum of findings; typical are focal epithelial damage and discrete single or multiple ulcers with relatively normal surrounding mucosa in the mid-esophagus, the most affected location (accounting for two-thirds of cases) resulting from anatomic narrowing due to external compression by left atrium and aortic arch<sup>(1,5,7-9)</sup>. Other findings are mucosal edema, erythema, and superficial erosions. Differential diagnosis are herpes or cytomegalovirus-induced esophagitis which tends to have more wide-spread distribution and usually associated with immunocompromised status; candida esophagi-

tis which ulcers typically occur on a diffuse plaque background; reflux esophagitis which almost always occurs in the distal esophagus; and Crohn's disease which is usually accompanied with evidence of Crohn's disease in the small or large intestine.

Histological examination has no pathognomonic findings<sup>(1)</sup>. The biopsy specimen usually reveals necroinflammation with nonspecific esophagitis<sup>(1,8)</sup>.

This condition is self-limited, therefore, no specific treatment is needed<sup>(2)</sup>. Symptoms usually resolved within 2 to 6 days after discontinuation of the drugs<sup>(5)</sup>. Local anesthetic agent may help relieve the pain, however, the value of this agent, sucralfate suspensions, antacids, anti-secretory drugs and proton-pump inhibitors remain questionable<sup>(1,6,8)</sup>.

The most important issue for management is making correct diagnosis and cessation of the offending drug<sup>(1,5)</sup>. Patients should be instructed to take the drugs with at least 200 ml of water in upright position. Avoid potentially injurious medication and use of alternative agents if feasible is an important measure to prevent drug-induced esophageal injury.

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## Case 2

A 55 years old female, known case of diabetes mellitus and hypertension, presented with hematemesis. EGD was done and showed as Figure 2.

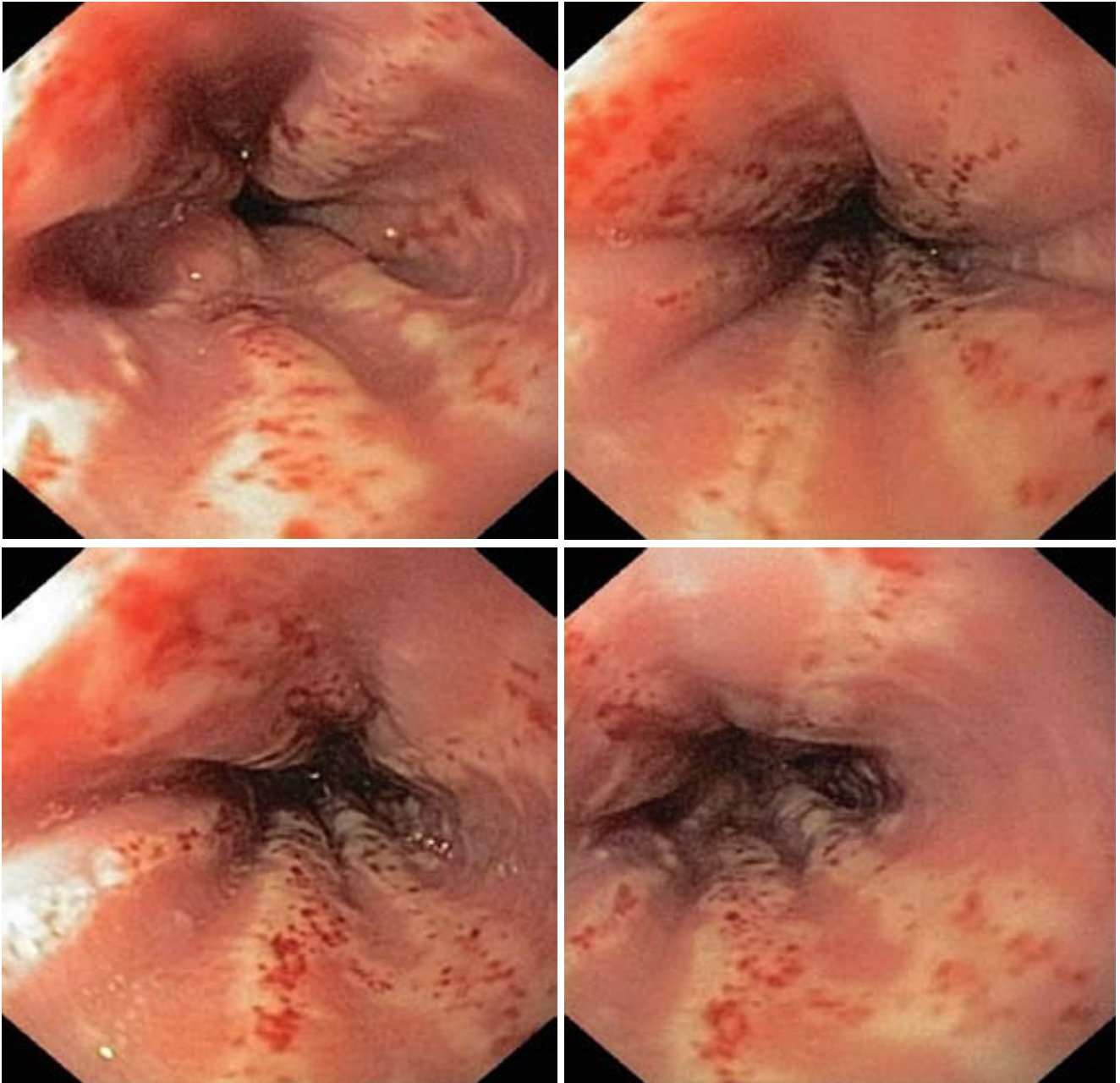


Figure 2.

The EGD showed multiple linear erosion that is continuous between the tops of adjacent mucosal folds along esophagus. These lesions are not circumferential. Reflux esophagitis Los Angeles classification grade C is the diagnosis.

The differential diagnosis are other cause of esophagitis such as pill or infectious esophagitis.

The patient was treated by proton pump inhibitor and the bleeding was well controlled.

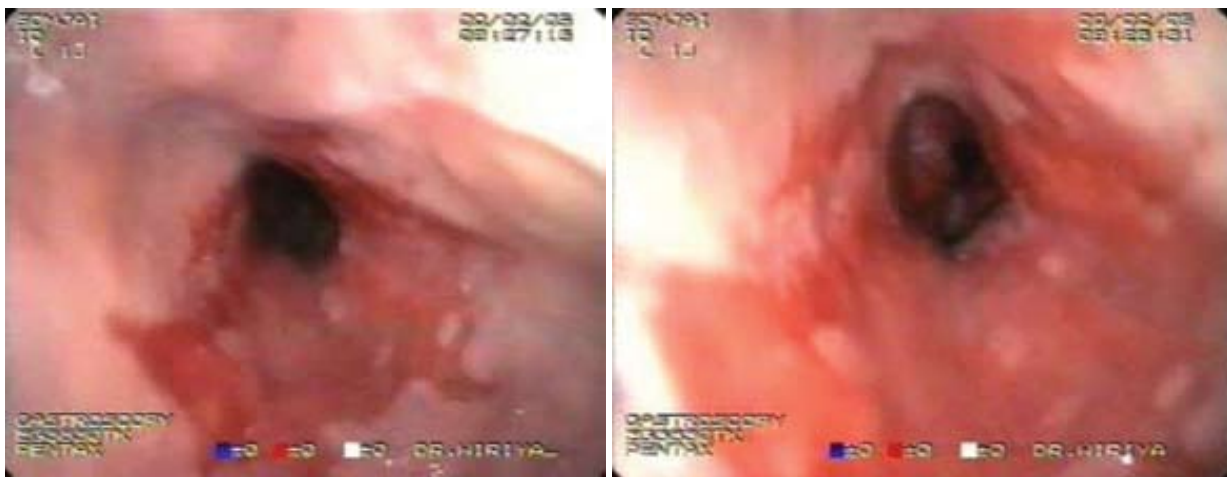
## Discussion

Gastroesophageal reflux disease is the preferred diagnosis when reflux esophagitis or excessive esophageal acid exposure is present or when symptoms are

closely related to acid reflux events or respond to antireflux therapy<sup>(1)</sup>. Endoscopy revealed severe reflux esophagitis (Los Angeles grades C and D), not common in clinical practice due to frequent use of proton pump inhibitor, is associated with bleeding and strictures. This findings help to determine the most appropriate long-term therapy such as continuous potent acid suppression<sup>(2)</sup>.

### Case 3

A 59 years old man with obesity and diabetes was evaluated for his history of long standing reflux symptoms. Esophagogastroduodenoscopy was shown.



**EGD:** 6 cm. of reddish, columnar epithelium extends above the gastroesophageal junction.

**Diagnosis:** Barrett's esophagus

### Discussion

Barrett's esophagus is the condition in which columnar epithelium replaces the squamous epithelium that normally lines the distal esophagus. The condition develops when gastroesophageal reflux disease damages the squamous esophageal mucosa and the injury heals through a mataplastic process in which columnar cells replace squamous ones. The abnormal columnar epithelium that characterized Barrett's esophagus is an incomplete form of intestinal metaplasia that predisposes patients to adenocarcinoma.

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The diagnosis of Barrett's esophagus is based on endoscopic findings and confirmed by histologic examination. The junction (Z-line) of the glossy white esophageal squamous mucosa and reddish pink gastric columnar mucosa is normally found at tubular end of esophagus, in Barrett's esophagus, the distal esophagus is lined by columnar epithelium, extending upward for a varying distance.

Some controversy exists over the classification of Barrett's esophagus<sup>(1)</sup>. Classic or "long segment" Barrett's esophagus requires at least 3 cm. of colum-

**Table 1.** American College of Gastroenterology Guideline for surveillance of Barrett's esophagus

Dysplasia category	Recommended documentation for categorizing dysplasia	Follow-up endoscopy after documentation
None	Two EGD with biopsy	Every 3 years
Low grade	No worse than low grade dysplasia on repeat biopsy	Yearly until no dysplasia
High grade	Repeat EGD with biopsy to exclude cancer, High grade dysplasia confirmed by expert pathologist	Every 3 months if unifocal Multifocal; ablation, EMR, esophagectomy

nar-lined esophagus it's increase risk for developing adenocarcinoma. "Short segment" Barrett's esophagus refers to shorter lengths (<3 cm.) or tongues of columnar epithelium in the distal esophagus with intestinal metaplasia on biopsy, this entity is three to five times more common than the long segment variant, and its risk cancer appear to be lower<sup>(2)</sup>.

Patients with Barrett's esophagus should undergo regular endoscopic surveillance for curable neoplasia to decrease the risk of death from esophageal cancer<sup>(3)</sup> small, retrospective studies have shown that endoscopic surveillance can detect curable neoplasms in patients with Barrett's esophagus and that the cancer identified are less advanced than those identified in patients with symptoms of cancer such as dysphagia and weight loss<sup>(4)</sup>. These results do not prove that surveillance is beneficial, however, early esophageal cancers can remain asymptomatic for years and invasive treatments such as esophagectomy are associated with morbidity and mortality.

Management of Barrett's esophagus included PPI therapy and ablation of Barrett's epithelium in the setting of strict PPI, Photodynamic therapy, laser, multipolar electrocoagulation, argon plasma coagulation and endoscopic mucosal resection are used in this purposed.

Regular endoscopic surveillance for cancer is recommended in patients with Barrett's esophagus but the appropriate surveillance interval for patients with Barrett's esophagus has not been studied prospectively. However, current programme, proposed by American College of Gastroenterology<sup>(5)</sup>, are based on the grade of dysplasia (Table 1).

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