Intramural Esophageal Hematoma Following Endoscopic Biopsy

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Case report

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Abstract

Background: Intramural esophageal hematoma (IEH) is a rare form of esophageal injury, which may occur spontaneously, or be following esophageal dilatation, food impaction, improper swallowing of drug pills, thrombolysis therapy, or coagulopathy. However, it is uncommon that IEH could be induced by endoscopic biopsy.

Case presentation: We report a 58-year-old male patient who developed chest pain and hematemesis after endoscopic biopsy. Fourteen days later, esophageal ulcer and hematoma disappeared by conservative management. After 3 months, gastroscopy showed old esophageal scar, and mucous healed completely.

Conclusion: IEH is a rare complication of endoscopic biopsy, which is easily ignored. Moreover, It could be cured by conservative treatment.

Introduction

Intramural esophageal hematoma (IEH) is an unusual esophageal mucosal injury, which may be an intermediate of mucosal tear (Mallory-Weiss syndrome) or transmural rupture (Boerhaave's syndrome)[1]. IEH is characterized by a submucosal hemorrhage, which could lead to a hematoma. IEH can occur spontaneously, or it can be secondary to food impaction, improper swallowing of drug pills, thrombolysis therapy, antiplatelet drugs and coagulopathy[2–7]. In addition, some endoscopic operations could lead to IEH,such as variceal injection therapy, esophageal dilation, esophageal biopsy, endoscopic mucosal resection and endoscopic retrograde cholangiopancreatography[8–12]. We here report a case of IEH, which occurred after endoscopic biopsy and was recovered following conservative management.

Case Presentation

A 58-year-old male patient with heartburn due to acid regurgitation came to the gastroenterology department of our hospital for gastroscopy on September 3rd, 2016. He received an intravenous dose of propofol (200 mg) for conscious sedation. There were no hiccups or severe vomiting reflux during the examination. The results showed that white bean dregs could be seen throughout the esophagus and could not be washed away. Above the dentate line, two longitudinal erosive foci could be found, and there was no fusion between these two foci. The esophageal mucosa was rough, Lugo's iodine staining showed that the mucosa in the middle part of the esophagus was lightly stained, one piece of biopsy was performed (figure A). The patient had a history of diabetes for ten years and he was treated with metformin intermittently. The patient had no history of hypertension and coronary heart disease, no abnormal blood routine, and coagulation were found before the operation. After the operation finishing, the patient was monitored for half an hour, and then he returned home without apparent discomfort. The patient developed a small amount of hematemesis on the second day, with retrosternal discomfort and dysphagia. He was admitted to our ward on September 5th, 2016. In two days, his hemoglobin decreased

from 158g/L to 136g/L. ECG examination shows normal electrocardiogram, myocardial enzyme spectrum is normal and myocardial infarction (troponin, myoglobin, creatine kinase Enzymes) are negative. The computed tomography (CT) scan of the chest showed that the wall of the middle and lower part of the esophagus was locally thickened and the lumen became narrow (figure B, figure C, figure D). Gastroscopy was performed on September 7th, 2016. Purplish red longitudinal mucosal protruding lesions could be observed on the posterior wall of the esophagus, erosion could be found in part of the surface, and a small amount of blood could be seen by touch (figure E and figure F). The patient received conservative treatment with a nothing by mouth regimen, empiric antibiotics and proton-pump inhibitors. Upper endoscopy detected a longitudinal non-bleeding ulcer, which from the right posterior wall of the esophagus with white moss attached to the surface on September 20th, 2016. The surrounding mucosa was congestive and edematous, and the esophageal lumen had no distinct stricture (figure G). The patient had no obvious discomfort and was discharged from the hospital. Gastroscope showed that a longitudinal line of old scar was taken place, the surface of mucosa was smooth, and a submucosal vein was exposed on December 16th, 2016. (figure H).

Discussion And Conclusion

The esophagus is a slender tube connecting the upper part of the pharynx and the lower part of the cardia of the stomach. It is the passage through which food enters the stomach. According to the stroke of the esophagus, it can be divided into three segments: neck, chest and abdomen[13]. The esophagus is mainly composed of the segment muscle layer (inner layer) and the longitudinal muscle layer (outer layer). Because the contraction and peristalsis of these two muscles force food into the stomach, its main function is to push food into the stomach. The mucosa of the esophagus is moist and smooth, pink, and the lower esophageal mucosa is slightly gray. There are 7 to 10 longitudinal folds on the mucosa, protruding into the lumen, which helps the liquid to flow down.

The submucosa of the esophagus is composed of loose connective tissue and is bounded between the mucosa and the muscle layer. It contains larger blood vessels, nerves, lymphatic vessels and esophageal glands[14]. The esophageal muscle layer is divided into inner ring and outer longitudinal layers, about 2 mm thick, with elastic fibers sandwiched between the two layers. The muscle layer of the upper esophagus belongs to the striated muscle, and the longitudinal muscle fibers are lacking behind it. The circular muscles at both ends of the esophagus are more developed, similar to the sphincter. The middle esophagus is the area where striated muscle and smooth muscle are mixed, and the lower esophagus is entirely composed of smooth muscle. The outer membrane of the esophagus is composed of loose connective tissue, rich in blood vessels, lymphatic vessels and nerves[13].

Intramural esophageal hematoma (IEH), Mallory-Weiss syndrome and Boerhaave’ s syndrome all belong to acute esophageal injury. IEH is less common and is considered an intermediate transition state of the latter two[15]. IEH is a rare esophageal injury, which is characterized by a submucosal hemorrhage leading to a hematoma and first described in 1968[16]. IEH can occur at any age, and is more likely to occur in the lower esophagus and the sub-perileum. It can be caused by abnormal blood coagulation,

vomiting, trauma, and aortic disease. The main pathological changes are due to the high pressure of direct injury or esophageal pressure, causing the blood vessel rupture of the mucosal layer and the mucosa, as blood is constantly accumulating, and ultimately leads to the interlayer. In most cases, IEH can be spontaneous, especially in patients under anticoagulant/antiplatelet treatment. It also can be caused by esophageal dilatation, food impaction, improper swallowing of drug pills, thrombolysis therapy or coagulopathy. In our case, we proposed that forceps biopsy tore submucosal vessels at a tangent angle, could result in the formation of IEH since the patient had no such factor mentioned before. Besides, mycotic esophagitis may play a role in the process.

There are 5 subtypes of IEH, which are classified according to the nature of bleeding: traumatic, vomitogenic, related to abnormal hemostasis, related to aorta, and spontaneous[17]. Spontaneous esophageal submucosal hematoma is further divided into factors that increase bleeding tendency such as drugs or underlying diseases. The most common risk factors for IEH are endoscopic surgery, vomiting, tension, and bleeding disorders[18].

The presentation of IEH composed of the triad of hematemesis, retrosternal pain and dysphagia. Most patients just have one or two of the triad, while only 32% have all three[19]. Risk factors include middle age, female, a history of vomiting or coughing and foreign body ingestion[20]. Our patient is a 58-year-old male and have all the triad. This get our attention and is contributed to making early diagnosis.

Multidetector non-contrast Computed Tomography (CT) is the modality of choice in the evaluation of IEH, which is cheap and safe. As a non-invasive imaging modality, CT can evaluate the integrity of esophageal wall and assess for other mediastinal structures. The typical finding is symmetric or asymmetric mural thickening of the esophageal wall and variable degree of obliteration of the lumen[21]. The CT of our patient has the characteristic.

IEH should be distinguished from cardiovascular diseases such as myocardial ischemia and aortic dissection, because although IEH is a relatively benign disease, anticoagulation therapy can make it worse[22]. In situations where anticoagulation and/or thrombolysis are required, such as PE, regular reassessment of new chest pain and dysphagia/sore throat may be beneficial so that Ieh can be identified and managed early. In order to preliminarily distinguish IEH from cardiovascular events, ECG, myocardial injury markers and myocardial enzymes can be selected.

The prognosis of IEH is good by conservative and supportive care, which remains the main therapeutic modality. However, IEH also can be a severe cause of sudden death. Therefore, early endoscopic treatment of IEH is necessary for the specific case. Sudhamshu et al., in a case report, mentioned the hematoma decompressed rapidly which happened to be incised. It makes us realize that early endoscopic treatment may be a beneficial way in the treatment of IEH[23].

In conclusion, IEH is a rare complication of endoscopic esophageal biopsy and is easily misdiagnosed. CT is a better choice to distinguish IEH with cardiopulmonary diseases. Both conservative and endoscopic treatment are effective methods for the treatment of IEH, and It is vital to choose the

appropriate treatment. Indeed, a high suspicion is important to make the diagnosis and provide the appropriate management.

Declarations

Ethics approval and consent to participate

Ethics approval by committee was not required for this case report.

Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Competing interests

All authors declare that they have no competing interests.

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Authors' contributions

KW and NW: Manuscript writing, literature research. XYC, QN, NS and XFJ: Management of the case, editing the manuscript. CXL: Manuscript writing, management of case and final approval of manuscript. All authors have read and approved the manuscript.

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Figures

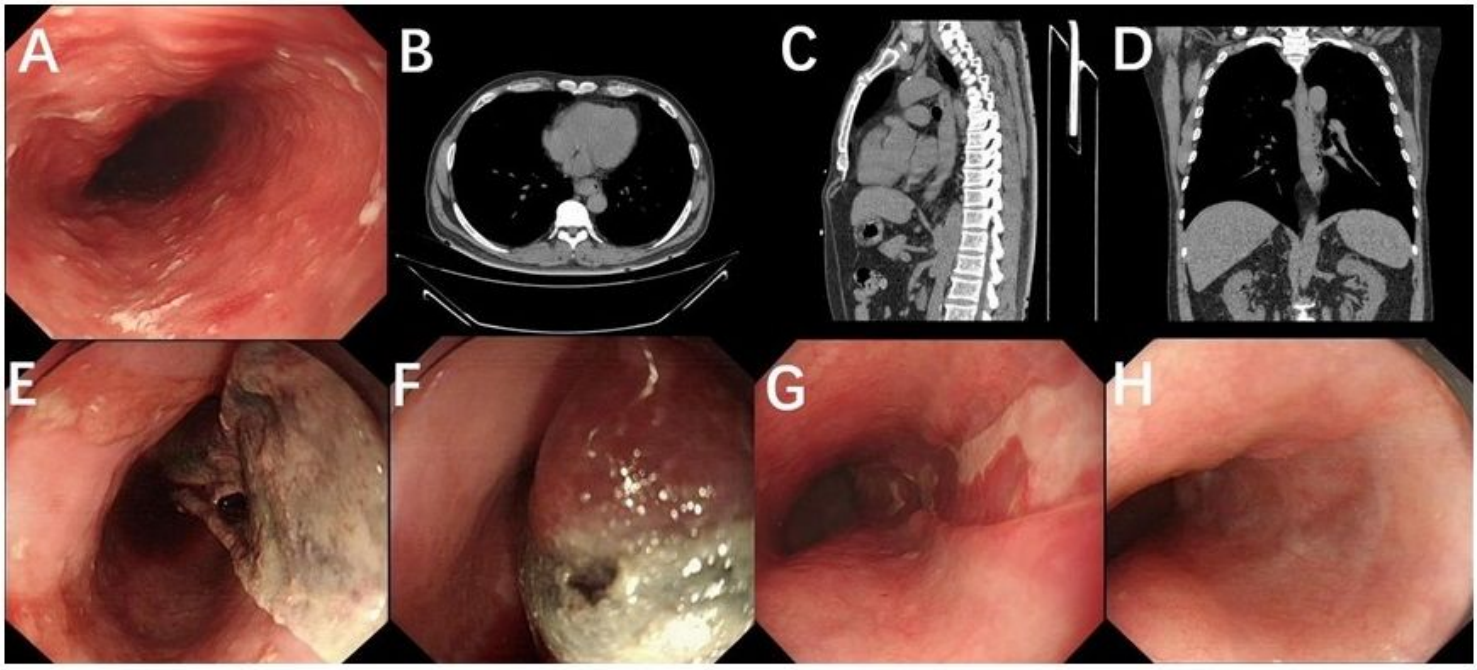

Figure 1

The esophageal mucosa was rough, Lugo's iodine staining showed that the mucosa in the middle part of the esophagus was lightly stained, one piece of biopsy was performed (figure A) The computed tomography (CT) scan of the chest showed that the wall of the middle and lower part of the esophagus

was locally thickened and the lumen became narrow (figure B, figure C, figure D). Gastroscopy was performed on September 7th, 2016. Purplish red longitudinal mucosal protruding lesions could be observed on the posterior wall of the esophagus, erosion could be found in part of the surface, and a small amount of blood could be seen by touch (figure E and figure F) The surrounding mucosa was congestive and edematous, and the esophageal lumen had no distinct stricture (figure G) Gastroscope showed that a longitudinal line of old scar was taken place, the surface of mucosa was smooth, and a submucosal vein was exposed on December 16th, 2016. (figure H).