
EPIDERMOID METAPLASIA OF THE OESOPHAGUS

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ABSTRACT

CASE SUMMARY : In November 2022, a 52-year-old man presented to our institutional gastroenterology department with a 3-year history of intermittent globus sensation, infrequent heartburn/regurgitation, dysphagia for solids and liquids, and one episode of food impaction with a steak that was forced out with emesis. Two months prior, esophagoduodenoscopy (EGD) revealed GERD grade C esophagitis with H. Pylori-related peptic ulcer and nonobstructing peptic stricture. Esomeprazole 40 mg for 2 months gradually improves symptoms. At the current presentation, repeated EGD showed healing of the prior erosive esophagitis and concentric rings, irregular whitish patches, and plaque-like nodules in the distal oesophagus. A biopsy was done. The lesion's biopsy showed hyperkeratosis and a prominent granular cell layer, indicating esophageal epidermoid metaplasia but no dysplasia.

BACKGROUND: Esophageal epidermoid metaplasia, also known as epidermoid metaplasia of the oesophagus, is a rare condition that affects the middle to lower part of the oesophagus. It is also referred to as esophageal leukoplakia or hyperkeratosis. This is an uncommon condition linked to smoking and heavy alcohol consumption. It is more common in females than males. The pathogenesis is thought to be related to chemical or mechanical irritation, like acid reflux or alcohol abuse. Patients frequently exhibit symptoms of gastroesophageal reflux (GERD) or dysphagia. Epidermoid metaplasia might be underdiagnosed because of its scarcity and lack of awareness. This case emphasises typical risk factors and symptoms linked to epidermoid metaplasia. This article aims to highlight the significance of increasing awareness about this uncommon premalignant condition and the appropriate approach to it, weighing the options of surgical intervention against conservative care involving regular surveillance endoscopy and biopsy.

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CASE PRESENTATION

Our patient who is 50 years old was referred to our specialised gastroenterology unit in November 2022. He has experienced intermittent globus sensation for last 3 years, occasional heartburn/regurgitation, difficulty in swallowing solid and liquid foods, and one incident of food impaction with a piece of steak that was eventually

dislodged through forced vomiting. Two months ago, he had an EGD which showed GERD grade C esophagitis along with an H. Pylori related peptic ulcer at D1 and a no obstructing peptic stricture at the distal oesophagus. The patient seems to be mildly malnourished .

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There was no history of cancer in immediate family members. No drug allergies reported. No documented allergies to environmental factors, food, or seasonal changes, and no history of surgeries. He is a high school graduate and retired from the army in 2014. He has a smoking history of 11.25 pack years and reports occasional social alcohol consumption of 1-2 beers 1-2 times per month. He stopped drinking alcohol when the symptoms began 3 years ago. He claims not to use any recreational drugs. The patient does not engage in formal exercise but feels physically exerted every day from his regular activities. He consumes predominantly home-cooked meals consisting of meat and vegetables. He was taking esomeprazole 40 mg treatment for last 2 months which improved the overall symptoms. Subsequent EGD showed improvement in the previous erosive esophagitis and showed concentric rings, irregular whitish patches, well-defined, with altered texture, and plaque-like nodules in the lower part of the oesophagus. Biopsy from this area revealed significant hyperkeratosis and a prominent granular cell layer, indicating esophageal epidermoid metaplasia without dysplasia. This is the first documented case of epidermoid metaplasia of the oesophagus in our country, as far as we know.

INVESTIGATIONS:

Esophageal epidermoid metaplasia (EEM), also known as esophageal leukoplakia, is a rare condition that is being more frequently identified during esophagogastroduodenoscopy (EGD). EEM is not commonly observed as an accidental finding during endoscopy, but it may occasionally be linked to symptoms such as difficulty swallowing or painful swallowing, as well as acid reflux. Like oral leukoplakia, it is believed to be linked to smoking and alcohol consumption. The reported histopathologies include atypical epithelial changes, specifically the epidermization of the esophageal mucosa. The Lugol's iodine staining identified irregular areas in the resected specimen that were

not easily visible without magnification. The histological examination of the irregular unstained areas revealed clearly defined granular and horny layers, which were identified as epidermization. In addition, the presence of acanthosis with mild nuclear enlargement and epithelial atrophy was noted. The immunohistochemical staining of keratins in the epidermized and atrophic lesions exhibited a similar pattern to that of the epidermis. Conversely, the keratin staining in the acanthotic lesion resembled that of the oral epithelium. Esophageal squamous epithelium with a compact layer of orthokeratosis / hyperorthokeratosis and a prominent granular layer 1 - 4 cells thick with keratohyalin granules, resembling the epidermis of the skin. The Microscopic (histologic) description of our case is fully illustrated in **Figure 2**.

OUTCOME AND FOLLOW-UP:

We are reporting this case to emphasise the importance of thoroughly examining the oesophagus for uncommon lesions that may have serious consequences or are linked to unfavourable outcomes. Our objective is to increase knowledge about this uncommon precancerous condition and the appropriate methods for managing it, such as surgical intervention or conservative care involving regular surveillance endoscopy and biopsy. This guarantees the optimal utilisation of resources and contributes to the preservation of lives. This article seeks to emphasise the importance of raising awareness about this rare precancerous condition and determining the most suitable course of action, considering the choices between surgical intervention and conservative care involving regular monitoring with endoscopy and biopsy. Nevertheless, there are currently no established guidelines to specify the optimal pattern and frequency for evaluating and monitoring EEM, a condition believed to be a precancerous metaplastic state for squamous cell esophageal cancer. This presents a quandary for healthcare professionals in positions of authority. 6 Esophageal epidermoid metaplasia is strongly associated with tobacco smoking and alcohol intake. Esophageal epidermoid metaplasia is a premalignant lesion with risk for progression to squamous cell carcinoma in the affected and surrounding tissue

CASE REPORT

and GERD symptoms. Although it is linked to squamous dysplasia and carcinoma, the precise aetiology remains unknown. Endoscopic ablation or close monitoring is advised, and EGD is suggested six months following the diagnosis. 1-3 Unfortunately, we lost clinical follow up with the patient as he travelled abroad, but despite that fact we continued to contact him, and we provided him with the reports to be followed as advised every 6 months with EGD, and to be referred to surgeons upon necessity.

DISCUSSION

According to a study by Jonathan Cottreau et al. In the 58 patients with oesophageal squamous neoplasms, the authors determined that the prevalence of epidermoid metaplasia was significantly higher ($P < 0.05$); two of these patients (3.5%) also had concurrent epidermoid metaplasia (odds ratio 18.1, 95% confidence interval 2.5-131). "Oesophageal epidermoid metaplasia was observed in 1048 consecutive patients, including 58 patients diagnosed with squamous neoplasms.". 4 Alternatively, a 71-year-old female with a medical background of diabetes and gastroparesis exhibited

symptoms of epigastric pain, nausea, and vomiting of undigested food contents. She had an EGD procedure, during which an unexpected finding was made: a white mucosal plaque measuring approximately 2x3 cm with metaplastic characteristics in the middle part of the oesophagus. Histopathological examination confirmed the presence of EEM. The patient reported no symptoms related to the oesophagus and is scheduled to undergo surveillance esophagogastroduodenoscopy (EGD) in 1 year due to the potential for dysplasia. 5

LEARNING POINTS

For the time being, we recommend performing a repeated esophagogastroduodenoscopy (EGD) with a 4-quadrant biopsy every one centimetre on an annual basis. This is because dysplasia is a possibility. On the other hand, additional research is necessary in order to determine the surveillance strategy that is the most appropriate.

1 FIGURE. VIDEO CAPTIONS

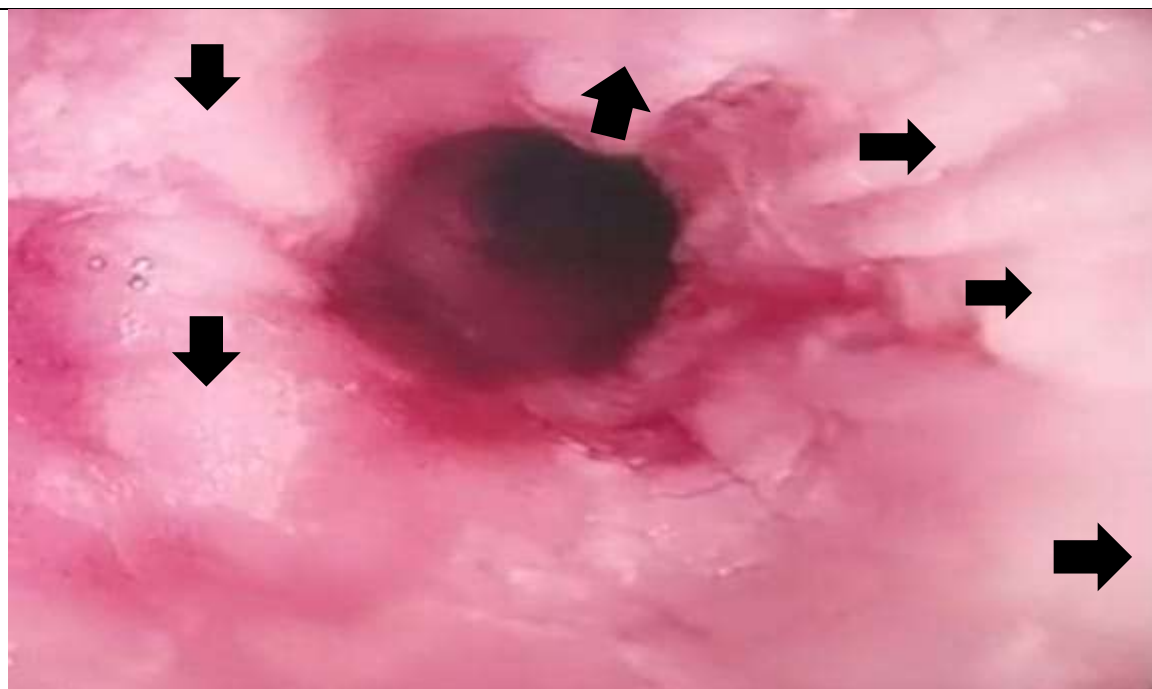
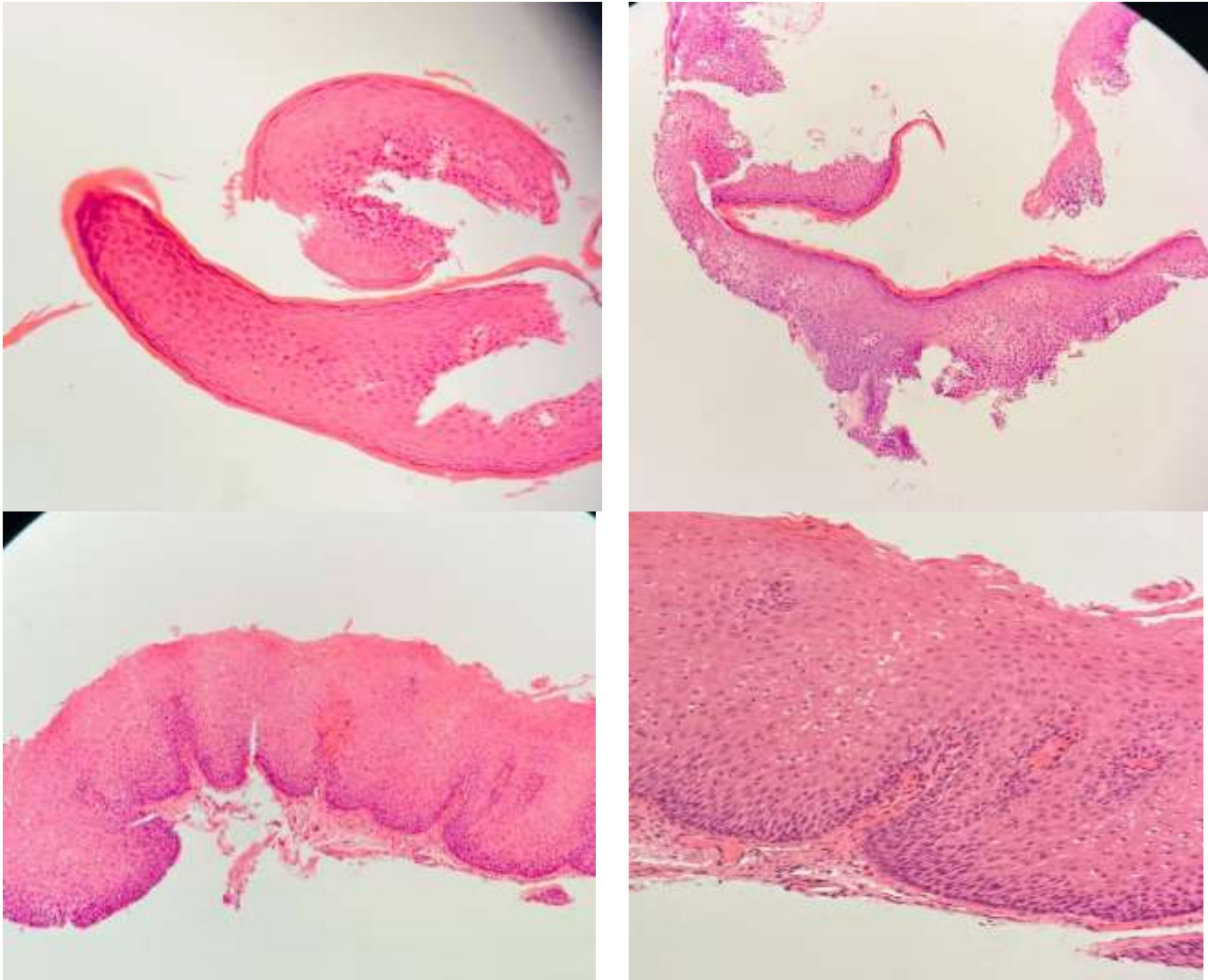


Figure 1 represent a rare case report of a male patient (which is further rarer) with epidermoid metaplasia, which was discovered while assessing a patient with chronic dysphagia, including biochemical and radiological assessment, reaching a final diagnosis by histopathology and endoscopic findings.

Figure 2. Microscopic (histologic) description



Esophageal squamous epithelium with a compact layer of orthokeratosis / hyperorthokeratosis and a prominent granular layer 1 - 4 cells thick with keratohyalin granules, resembling the epidermis of the skin

Conflict of interest

No conflict of interest

REFERENCES

1. Singhi AD, Arnold CA, Crowder CD, Lam-Himlin DM, Voltaggio L, Montgomery EA. Esophageal leukoplakia or epidermoid metaplasia: a clinicopathological study of 18 patients. *Mod Pathol*. 2014 Jan;27(1):38-43.
2. Ma C, Limketkai BN, Montgomery EA. Recently highlighted non-neoplastic pathologic entities of the upper GI tract and their clinical significance. *Gastrointest Endosc*. 2014 Dec;80(6):960-9.
3. Kamboj AK, Gibbens YY, Hagen CE, Wang KK, Iyer PG, Katzka DA. Esophageal Epidermoid Metaplasia: Clinical Characteristics and Risk of Esophageal Squamous Neoplasia. *Am J Gastroenterol*. 2021 Jul 1;116(7):1533-1536.
4. Scott B, Cottreau J, Oviedo A, Arnason T. Ciliated columnar epithelium in the esophagus and gastroesophageal junction: A different perspective from study of a North American population. *Annals of Diagnostic Pathology*. 2019 Aug 1;41:90-5.
5. Alhaqqan D, Sussman DA, Girotra M. Esophageal epidermoid metaplasia-a management dilemma: 1829. *Official journal of the American College of Gastroenterology| ACG*. 2018 Oct 1;113:S1039.
6. Saif El Naser HM, Laoveeravat P, Medrano R, Suchartlikitwong S, Vutthikraivit W, Shredi A, Iwuji K. Acute esophageal necrosis: a case report: 1828. *Official journal of the American College of Gastroenterology| ACG*. 2018 Oct 1;113:S1038-9.