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CASE REPORT | ESOPHAGUS

Cervical Esophageal Adenocarcinoma Arising From Gastric Inlet Patch: A Benign Lesion With Malignant Potential

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ABSTRACT

Proximal esophageal adenocarcinoma is extremely rare. A gastric inlet patch is a lesion of ectopic gastric mucosa usually found in the cervical esophagus and is considered an incidental finding, but there is a risk for malignant transformation. We report the case of a 50-year-old male with gastroesophageal reflux disease with a 6-month history of progressive dysphagia and 20-pound weight loss. Upper endoscopy showed a malignant stricture with adjacent gastric inlet patch. Biopsies obtained from endoscopic ultrasonography showed adenocarcinoma. This case re-emphasizes careful examination of ectopic gastric mucosa and to consider biopsy if there is suspicion for malignant transformation.

KEYWORDS: esophageal adenocarcinoma; gastric inlet patch; malignant; narrow band imaging

INTRODUCTION

Esophageal adenocarcinoma (EAC) is commonly localized to the distal third of the esophagus and is associated with long-standing acid reflux, resulting in the characteristic metaplasia of Barrett's esophagus. By contrast, adenocarcinoma in the proximal third of the esophagus without Barrett's esophagus is extremely rare and arises either from foci of ectopic gastric mucosa (EGM) or submucosal glands.[1] A gastric inlet patch (GIP) is a lesion of EGM usually found in the cervical esophagus and is considered an incidental finding, with the reported incidence being approximately 2.5%.[1,2] The characteristic appearance on endoscopy is a raised lesion, flat plaque, or sessile polyp, which may be solitary or multiple. GIP is typically sharply demarcated and is yellowish brown or deep pink in color but can easily be overlooked on esophagogastroduodenoscopy because of proximity to the esophageal inlet.[3] Clinically, patients with GIP can present with reflux symptoms, dysphagia, throat discomfort, globus sensation, hoarseness, and cough.[4] Albeit rare, there is a risk of malignant transformation. We present a 50-year-old man diagnosed with cervical EAC arising from GIP.

CASE REPORT

A 50-year-old man with gastroesophageal reflux disease presented with a 6-month history of progressive dysphagia and 20-pound weight loss. Family history was noncontributory. He consumed alcohol about once per month and reported a 1-pack-year history of smoking but quit 30 years earlier. Computed tomography scan of the neck with contrast showed a heterogeneously enhancing ill-defined mass involving the cervical esophagus below the cricoid cartilage indenting the posterior margin of the trachea. Bronchoscopy was negative for bronchogenic cancer. Upper endoscopy showed a malignant stricture at 18 cm from the incisors and a GIP adjacent to the stricture (Figure 1). Multiple biopsies from the stricture showed acute and chronic inflammation with increased intraepithelial eosinophils, suggestive of reflux-associated changes. Endoscopic ultrasound with fine-needle aspiration and core biopsy showed a noncircumferential hypoechoic mass in the cervical esophagus 18 cm from the incisors extending to 20 cm

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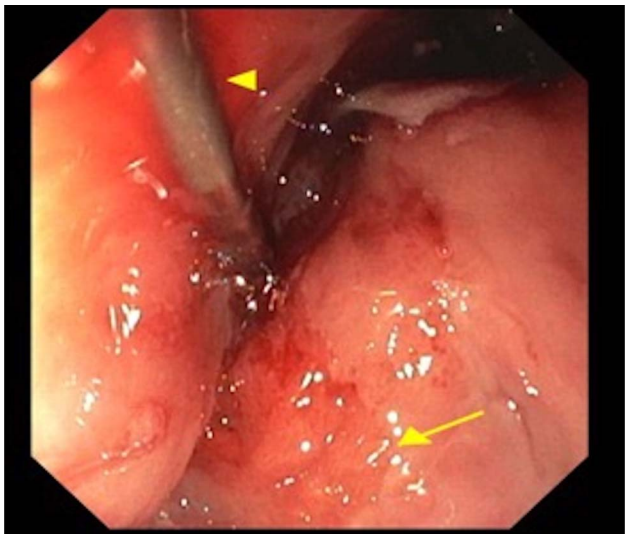

Figure 1. Esophagogastroduodenoscopy with arrow and arrowhead indicating salmon-colored mucosa characteristic of gastric inlet patch.

(Figure 2). The mass was predominantly extrinsic but was also noted to have a luminal component and poorly defined endosonographic borders with invasion into the muscularis propria. Biopsy sections showed irregularly shaped neoplastic glands in the background of desmoplastic reaction consistent with moderately differentiated adenocarcinoma (Figure 3). Carcinoembryonic antigen was within normal limits, whereas CA 19-9 was markedly elevated. Immunohistochemistry was positive for CK7, CK20, and CDX2. Her-2-neu staining was equivocal. Immunostaining of biopsy tissue revealed positivity in MLH1, PMS2, MSH2, and MSH6. No *Helicobacter pylori*-like organisms were seen. The patient was referred to oncology for further management. He was determined to be stage III (cT3, cN0, cM0, and G2). He subsequently underwent percutaneous endoscopic gastrostomy tube placement and was initiated on chemotherapy and radiation. The clinical course was complicated by esophageal stenosis and complete obstruction in the postcricoid region. He then underwent esophageal dilation with a Savary dilator, which was complicated by esophageal perforation. A subsequent positron emission tomography

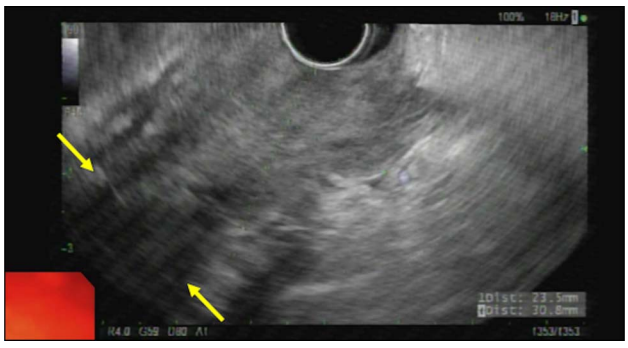

Figure 2. Endoscopic ultrasonography with arrows identifying a noncircumferential hypoechoic mass with poorly defined endosonographic borders.

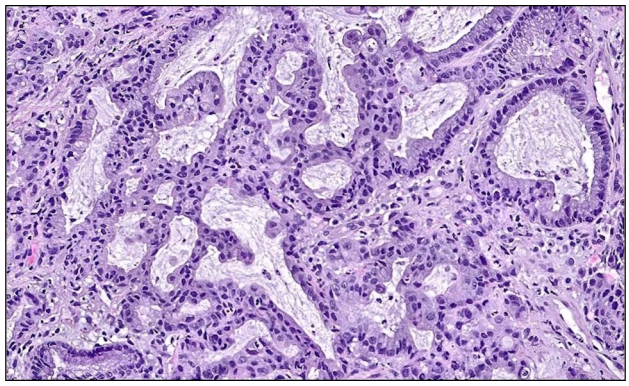

Figure 3. Hematoxylin and eosin stain with 10× magnification showing cribriform pattern, mild nuclear pleomorphism, and abundant mitoses and apoptosis consistent with moderately differentiated adenocarcinoma.

scan showed recurrence to T3 vertebral body. He was then started on palliative chemotherapy but unfortunately succumbed to his illness.

DISCUSSION

Proximal EAC is extremely rare, making up less than 1% of esophageal cancers.[5] The association between GIPs and proximal EAC has been proposed by individual case reports, but large studies have not been conducted. Von Rahden et al proposed a clinicopathologic classification of cervical heterotopic gastric mucosa (CHGM) divided into 5 categories designated CHGM I-V, respectively. The classification system ranges from CHGM I, which pertains to patients with CHGM who are asymptomatic, and CHGM V, which describes invasive cancer within the inlet patch. As such, our patient was classified as CHGM V. The pathogenesis of malignant transformation remains unclear, but several theories have been proposed. The bacterium *H. pylori* has been described in the ectopic tissue of GIP and is known to predispose patients to developing gastritis, peptic ulcer disease, and gastric cancer.[5,6] Other studies have postulated that the progression of GIP may be associated with the capacity of ectopic mucosa to produce and secrete a pathophysiological amount of acid. Chronic, uncontrolled acid secretion has the propensity to induce pathologic changes within the esophagus, such as chronic inflammation, ulceration, and stricture formation.[4,5] Over time, these changes may result in intestinal metaplasia, which is associated with a higher risk of carcinogenesis and is known to predispose patients to EAC as seen in Barrett's esophagus.[7] Therefore, intestinal metaplasia may also be a contributing factor to the malignant transformation observed in microscopic GIP foci.[8] However, it is important to note that, unlike Barrett's esophagus, GIP should not be regarded as a precancerous lesion.

The prevalence of GIP may be underestimated because these lesions can be overlooked during esophagogastroduodenoscopy. Most are in the upper third of the esophagus, near the level of the cricopharyngeus muscle, and can range in size.[3] Under white

light, GIP is salmon-colored, but normal esophageal squamous lining appears red. This slight color variation may contribute to missing GIP on endoscopic examination.[4] However, recent studies have demonstrated that narrow-band imaging (NBI) may improve the identification of GIP, which in turn may improve detection rates.[5,9] With NBI, GIP appears grayish pink in color, whereas normal esophageal mucosa appears grayish green, making GIP more distinct and, as a result, more easily recognizable to the endoscopist.[4] A meta-analysis by Yin et al showed the pooled prevalence of GIP was higher in studies using NBI as compared to those using white light or capsule endoscopy. Other modalities including blue laser imaging, i-Scan, and Fuji intelligent chromoendoscopy appear to have similar advantages in detecting such lesions.[4] In addition, slow withdrawal of the endoscope has also been shown to improve the detection of GIP.[4]

There are no established screening guidelines for ectopic gastric mucosa, and routine biopsies are not recommended because preneoplasia within GIP is rare.[9] Concerning endoscopic features for malignancy include polypoid or infiltrative lesions, stricture formation, or ulceration within the cervical esophagus.[10] Management options for cervical EAC are limited. Reports have described surgical resection with esophagectomy, chemotherapy, and chemoradiation, alone or in combination.[11,12] Our case reemphasizes careful endoscopic examination of EGM and the need to consider biopsy if there is a high index of suspicion for malignant transformation.

DISCLOSURES

Author contributions: K. Abdul-Baki: writing, revising/editing, obtained images, and is the article article guarantor. R. Pavurala: writing, revising/editing, and contributed endoscopy images. H. Salim: writing and revising/editing. R. Menon: revising/editing. L. Bigham: writing, revising/editing, and contributed pathology images. H. Thaker: final approval and contributed pathology images. G. Reep: final approval, revising/editing, and contributed endoscopy images. S. Parupudi: final approval and contributed endoscopy images.

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Informed consent was obtained for this case report.

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