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Esophageal Melanocytosis as a Rare Disease of Esophagus

Melek Balamir[1], Tuğçe Eşkazan[1], Uğur Önal[1], Selçuk Candan[1], Onur Ekşi[1], Ayşe Bahar Ceyran[2], Ahmet Merih Dobrucalı[1]

[1]Division of Gastroenterology, Department of Internal Medicine, İstanbul University,-Cerrahpaşa, Cerrahpaşa Faculty of Medicine, İstanbul, Türkiye
[2]Department of Pathology, Demiroğlu Bilim University, Faculty of Medicine, İstanbul, Türkiye

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Abstract

Esophageal melanocytosis is an extremely rare condition characterized by melanocyte proliferation in the esophageal squamous epithelium. The etiology and pathogenesis of the disease are unclear. Although it is thought to be a benign condition, there are publications reporting that it may be a precursor of malignant melanoma. In this report, we present a case with esophageal melanocytosis along with a literature review.

Keywords: esophagus, melanocytosis, esophageal neoplasm

Introduction

Esophageal melanocytosis (EM) is a rare disease characterized by melanocyte proliferation in the basal layer and melanin pigment deposition in the esophageal squamous epithelium. The incidence is between 0.07% and 2.1% in the endoscopic series and up to 7.7% in the autopsy series.[1,2] It is more common in the male population, and it tends to be located in the middle and lower parts of the esophagus.[3] It is easy to recognize as black-brown; irregular; and oval, linear, or circular pigmentation areas with indeterminate borders detected with conventional endoscopic examinations.[4]

Primary malignant melanoma of the esophagus (PMME) is a very rare primary malignancy of esophagus. It appears as submucosal lesions covered with intact mucosa in the middle and distal esophagus in endoscopic examinations.[3]

Esophageal melanocytosis can be a precursor lesion for PMME.[2,5] In the literature, PMME cases developing from EM had been shown.[3] Since both melanocytosis and PMME are very rare, there is no consensus about the monitorization and management of these entities.

Herein, we present a case with EM along with a review of the literature.

Case Presentation

A 60-year-old female patient was admitted to our clinic with dyspepsia. She had cholecystectomy due to cholelithiasis 6 months ago, and she was diagnosed with alkaline reflux gastritis for 2 years. She has no smoking or alcohol habits. Tenderness in the left lower quadrant of the abdomen, hyperpigmentation in the perianal region, and decreased anal sphincter tone were detected. Biochemical parameters were normal. She was on proton pump inhibitor therapy, and gastroscopy was repeated due to the continuation of their complaints under PPI. Several irregular linear blackish pigmentations (melanosis) with normal mucosal areas in the distal two-thirds of the esophagus were detected with conventional gastroscopy (Figure 1). When examined with a magnified endoscope (Fujifilm Eluxio BL/VP 7000, EG-760 Z Gastroscope, Tokyo) at a maximum magnification of X145, we observed dark granule-like spots arranged in a linear pattern within the lesions. (Figure 2). Gastric mucosa was hyperemic and edematous, and the stomach was full of bile content. We took multiple biopsies from corpus, antrum, and pigmented areas in esophagus. Histopathological examination of esophagus revealed diffuse pigment deposition in the lamina propria. Cytoplasmic blackish-brown staining was observed in melanophages in the submucosa (diffuse melanocytosis) with hematoxylin and eosin (Figure 3) and Masson-Fontana staining (Figure 4). Antrum and corpus biopsies were reported as chronic active gastritis. A control gastroscopy of the patient was performed 6 months later, and it was observed that the findings were continued and there was no progression. We planned to control the patient with endoscopy after 1 year. Written consent was obtained from the patient that the medical data could be published.

Discussion

Esophageal melanocytosis was first described by De la Pava et al[6] in 1963. In an autopsy series of 100 patients who died due to different malignancies, melanocytes containing melanin were detected in the esophageal epithelium of 4 patients.[6]

Normally, esophageal epithelium mucosa does not contain melanocytes. Two theories have been proposed in the etiopathogenesis of this condition. The first theory is the aberrant migration of melanocytes originating from the neural crest in the embryonic period. The second and more common one is stem cells differentiation into melanocytes with various stimuli in the basal layer of squamous epithelium. Mucosa hyperplasia due to chronic irritation tends to melanocyte proliferation and ultimately the development of PMME precursor lesions arise in the presence of conditions such as reflux disease.[2] In the case we presented, melanocytosis was detected in the distal part of the esophagus, and the presence of chronic gastritis and bile reflux in gastroscopy might support this theory.

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Corresponding author: Ahmet Dobrucalı, Division of Gastroenterology, Department of Internal Medicine, İstanbul University-Cerrahpaşa, Cerrahpaşa Faculty of Medicine, İstanbul, Türkiye
e-mail: adobrucali@yahoo.com
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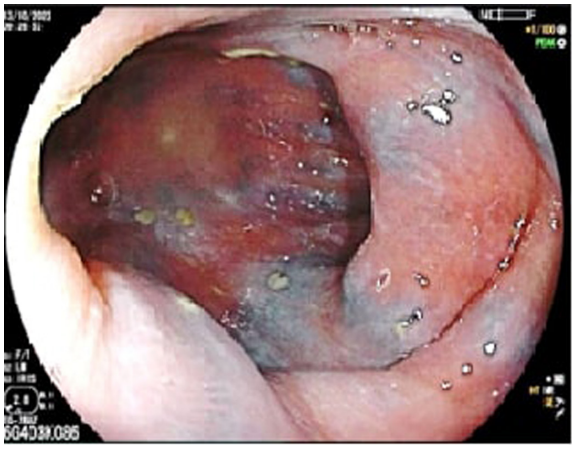

Figure 1. Conventional endoscopic view of esophagus.

Due to its similarity in endoscopic examinations, anthracosis, lipofuscin deposition, acute esophageal necrosis, hemosiderosis, and exogenous dye uptake should be considered in differential diagnosis.[7,8] Ohashi et al[2] analyzed 127 esophageal specimens obtained from surgical specimens of patients with normal esophagus and esophageal carcinoma in Japan and showed that melanocytosis rates were 7.7% and 29.9% in healthy individuals and esophageal carcinoma patients, respectively.[2]

Primary malignant melanoma of the esophagus is one of the rarest malignant tumors of the esophagus, and early diagnosis is very important because the survival period is limited to months after diagnosis.[9] Some PMME cases reported starting from benign melanocytic hyperplasia and progressing to melanoma in situ in the literature.[10,11] Because 50% of the lesions are located in the submucosa, PMME may not be easily diagnosed by endoscopic biopsies. Endoscopic ultrasonography allows fine needle aspiration biopsy from the submucosal area and contributes to staging, so it can be useful for the diagnosis.[12]

As another option, magnified endoscopes can be used in the diagnosis of melanocytosis. When the magnified endoscopic examinations and histopathological findings of 3 PMME cases were compared, it was seen that the findings were remarkable for differential diagnosis: linear, uniform black spots are seen along the intrapapillary capillary loop in melanocytosis, while it has been seen that irregular spots of different sizes extend along the curved and enlarged intrapapillary capillary loop in melanoma.[13] In our case, we displayed dark granule-like spots in a linear pattern. Histologically, the presence of cytonuclear atypia, atypical mitosis, and junctional activity are crucial to differentiate PMME from melanocytosis.[14]

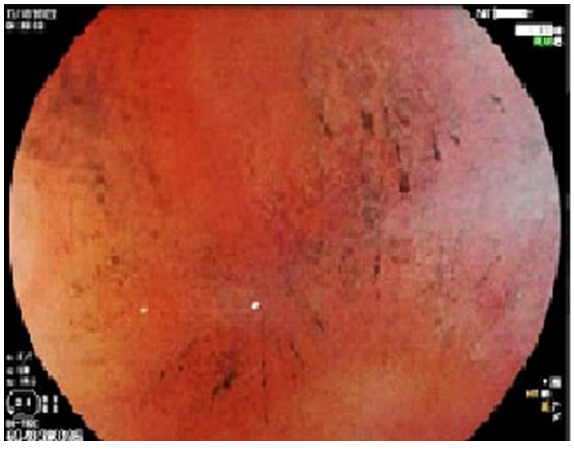

Figure 2. Magnified endoscopic view of esophagus.

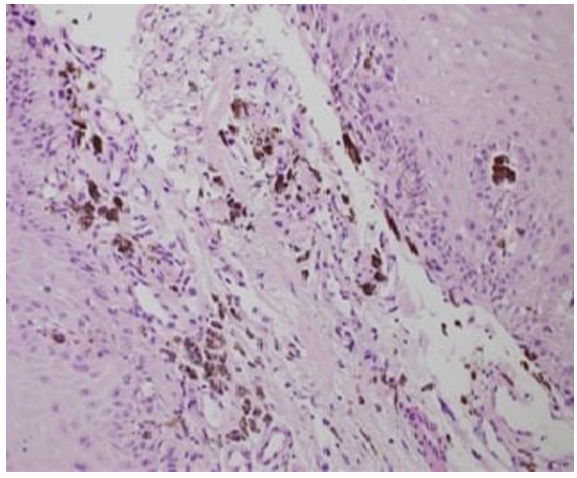

Figure 3. Microscopic demonstration of esophagus biopsy specimen with hematoxylin and eosin staining.

The infrequency of the disease significantly limits the experience of endoscopist with regard to diagnosis and follow-up. There are not enough data based on long observation for the standardization of follow-up and therapy options.[15] American Society for Gastrointestinal Endoscopy (ASGE) guideline recommends for premalignant esophageal lesions to be followed with esophagoga stroduodenoscopy (EGD) for 1-3 years.[16] Progression of the lesion or increase in diameter of a melanocytosis requires biopsy, especially in cases with chronic inflamed mucosa and melanosis with hypertrophy of the mucosa.

Because of the potential for malignant transformation, endoscopic resection can be offered as an alternative treatment, especially in patients with limited melanocytosis in the esophageal lumen and who are not willing enough for close endoscopic follow-up. Some authors recommended radiofrequency ablation or complete resection by laser and mucosectomy, especially in cases of melanocytosis localized to a limited area.[14,17]

In conclusion, it would be appropriate to keep this entity in mind during the evaluation of esophageal biopsy material and to follow-up on these cases clinically and endoscopically.

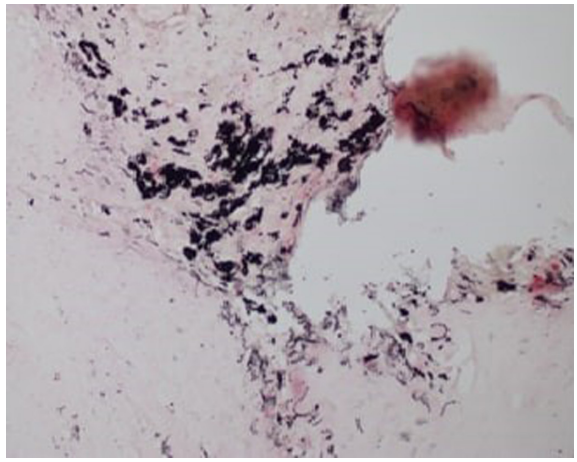

Figure 4. Microscopic demonstration of esophagus biopsy specimen with Masson Fontana staining.

Conclusion

Esophageal melanocytosis is a rare entity presenting with hyperpigmented lesions. It has been suggested that these lesions, which are thought to be benign, may be precursors of PMME; therefore, once detected, close endoscopic follow-up is required. In some patients for whom close follow-up is not appropriate, endoscopic mucosal resection methods can be evaluated considering possible risks.

Informed Consent: Written informed consent was obtained from the patient who participated in this study.

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