VIDEO CASE REPORT

Endoscopic submucosal dissection of esophageal metastatic melanoma

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A 65-year-old man underwent surgical excision with lymph node dissection for a scalp melanoma in 2011. In 2018, he presented to his melanoma oncologist for routine follow-up and subsequently underwent an upper endoscopy for reflux symptoms. His upper endoscopy revealed a pigmented lesion in the esophagus, biopsy specimens that showed malignant melanoma. Positron emission tomography/CT and magnetic resonance imaging of the brain revealed no evidence of distant metastases. He was referred for further endoscopic evaluation and treatment.

Upper endoscopy (Figs. 1A-C) revealed a 5-mm brown elevated lesion (Figs. 1A and B) accompanied by a flat pigmented area (Fig. 1C) in the mid-esophagus, 30 cm from the incisors. EUS with a 20-MHz miniprobe revealed a hypoechoic mass confined within the mucosal layer without submucosal invasion (Fig. 2).

On the basis of these findings, endoscopic submucosal dissection (ESD) was performed to remove the lesion (Video 1, available online at www.VideoGIE.org). First, thermal marking was performed with a needle-type ESD knife (DualKnife; Olympus America, Center Valley, Pa, USA). Then, a horizontal mucosal incision was performed along the distal margin of the lesion. Following the horizontal mucosal incision at the proximal side of the lesion, submucosal tunneling was performed. Finally, ESD was completed by dissecting bilateral sides of the submucosal tunnel. The total procedure time was 41 minutes from lesion marking to completion of ESD. The defect site was

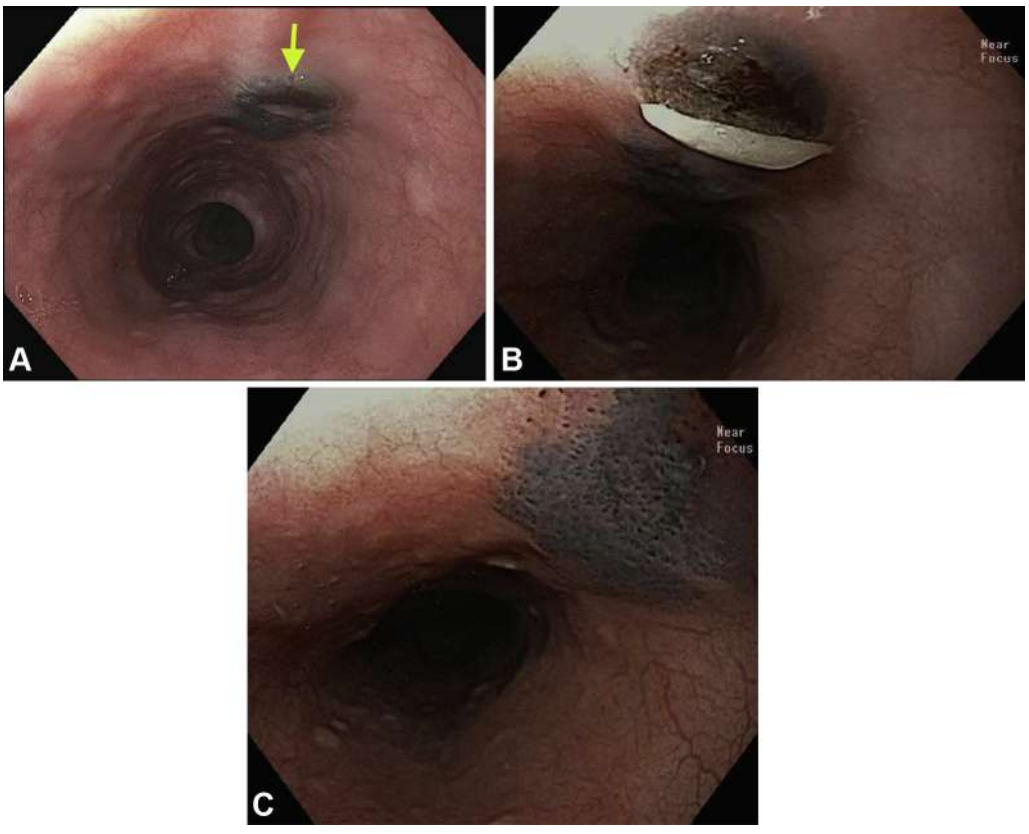

Figure 1. Upper endoscopic view showing a 5-mm darkly pigmented elevated lesion (**A, B**) accompanied by a flat pigmented area (**C**) in the mid-esophagus, 30 cm from the incisors.

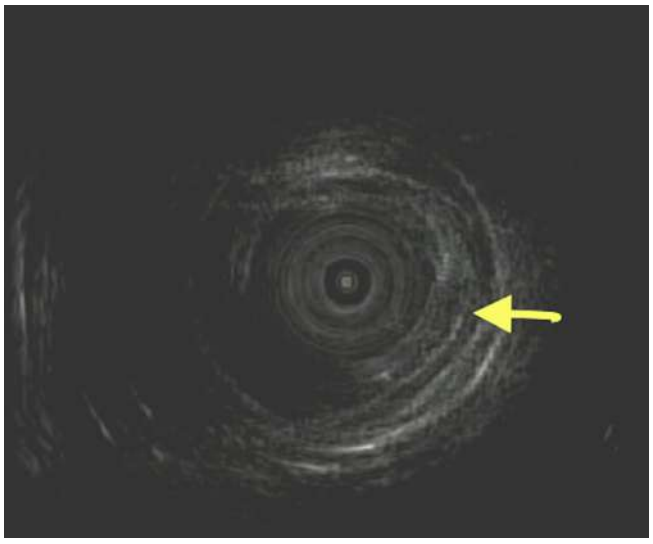

Figure 2. EUS view showing a hypoechoic mass confined to the mucosal layer (layers 1 and 2) with no evidence of submucosal invasion.

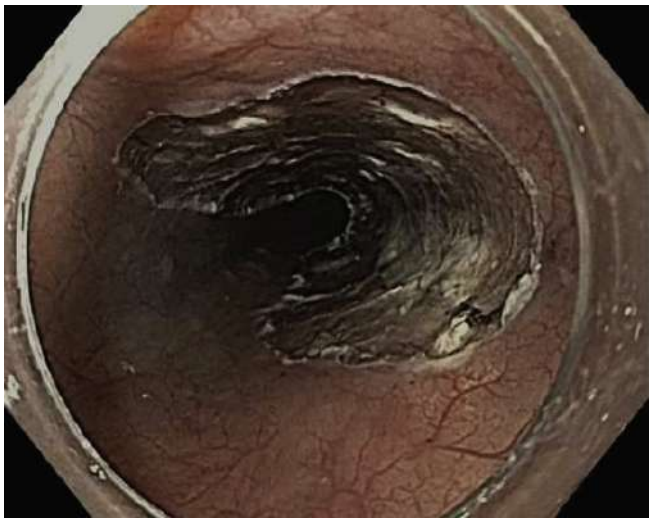

Figure 3. Mucosal defect after endoscopic submucosal dissection showing no evidence of perforation. The resection bed was subsequently injected with triamcinolone.

inspected, and small visible vessels were cauterized with coagulation forceps (Coagrasper; Olympus America). Finally, the area was injected with triamcinolone to prevent stricture formation (Fig. 3). The specimen measured 35 mm (Figs. 4A-C).

Pathologic examination confirmed malignant melanoma confined to the mucosal layer, with surrounding melanosis involving the lamina propria. Both lateral and vertical margins were negative on histologic evaluation (Figs. 5A-C). Anti-PD1 immunotherapy with nivolumab was then started by the patient's melanoma oncologist.

DISCUSSION

Melanoma is the 5th most common malignancy in the United States, with an increasing incidence over the past 20 years. It is estimated that there will be 96,480 new cases in 2019, contributing to an estimated 7230 deaths.[1,2] Although treatment of localized melanoma relies heavily on lesion resection, disseminated metastatic melanoma, which often has a poor prognosis, is usually treated with systemic immunotherapy. The most common sites of distant metastasis from melanoma involve bone, brain, lungs, and liver.[3] Metastasis to the GI tract is not uncommon[4,5] and can present with abdominal pain, GI bleeding, and small-bowel obstruction.[6] Both primary and metastatic melanoma of the esophagus are rare entities; primary esophageal melanoma accounts for less than 1% of all primary esophageal malignancies, and esophageal metastatic melanoma accounts for less than 5% of all melanomas metastatic to the GI tract.[7-9] The distinction between primary and metastatic melanoma involving the esophagus can be challenging. In this case, the patient had a history of malignant melanoma of the skin; the esophageal nodule was discrete without any adjacent melanocytosis (which is usually seen in primary esophageal melanoma) and was therefore considered secondary involvement of the esophagus by the prior cutaneous primary after extensive pathologic review.

Complete excision of localized metastatic melanoma (metastasectomy) can result in prolonged overall and relapse-free survival and is recommended for carefully selected patients.[10-12] Although successful endoscopic removal of early-stage primary esophageal malignant melanoma with EMR[13,14] and ESD[15] have been reported, to our knowledge this is the first case report of a metastatic melanoma to the esophagus for which complete resection was performed with ESD. In this case, ESD was chosen to remove the lesion in en-bloc fashion with wide horizontal and vertical margins. EMR can be considered to remove small esophageal melanomas; this may carry a high risk for incomplete resection and positive margins. On the other hand, surgery can result in high morbidity and mortality.[16-19]

CONCLUSION

Metastatic melanoma to the esophagus is rare. EMR may not provide adequate negative margins, whereas esophagectomy can be associated with significant morbidity. ESD can provide complete resection with negative margins for precise pathologic assessment and better quality of life.

DISCLOSURE

Dr Thompson is a consultant for Olympus America and Boston Scientific. Dr Aihara is a consultant for Olympus America, Boston Scientific, and Fujifilm Medical Systems. All other authors disclosed no financial relationships relevant to this publication.

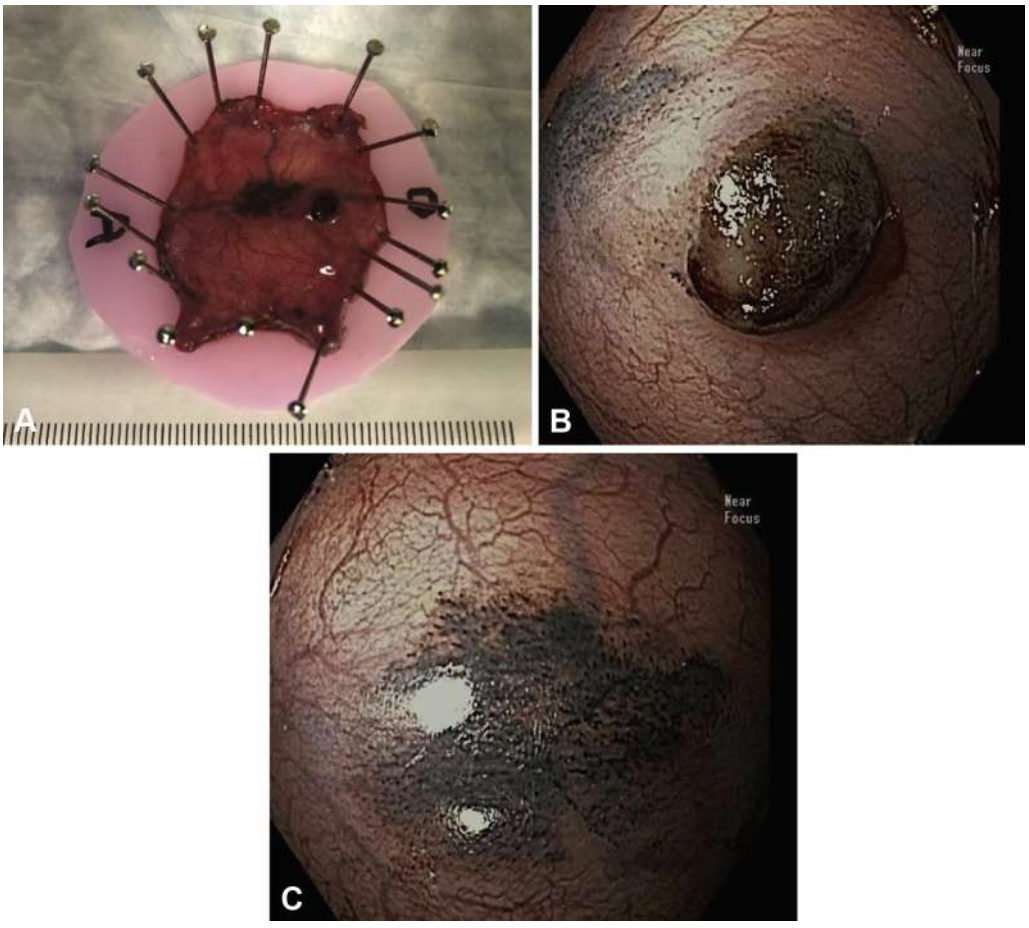

Figure 4. A, Resected specimen measuring 35 mm in diameter. **B,** Elevated portion of the lesion. **C,** Flat area showing diffuse pigmentation involving the intrapapillary capillary loop.

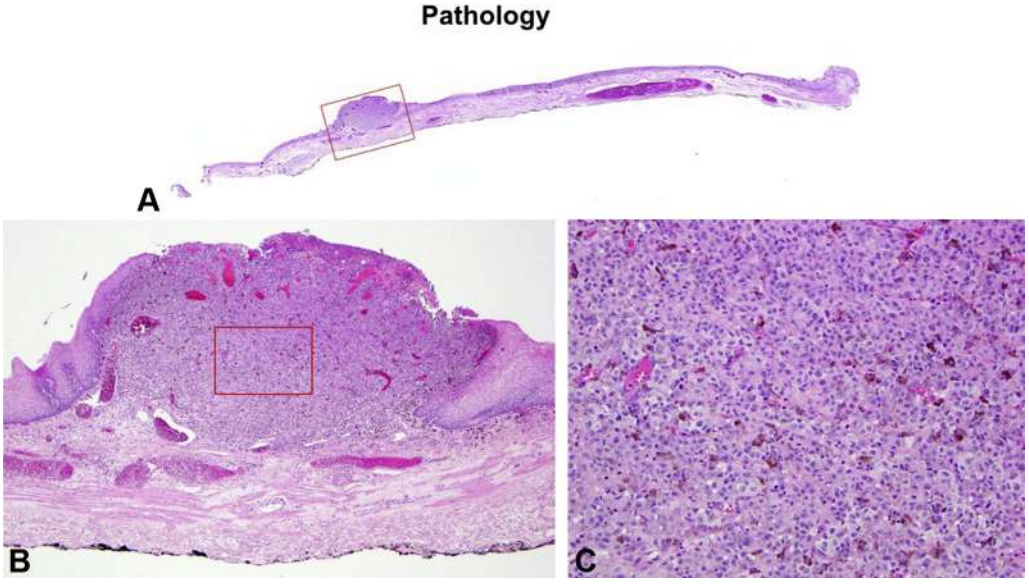

Figure 5. A, Melanoma tumor nodule, highlighted by *red box*, with squamous mucosa on either side (H&E, orig. mag. ×1). **B,** Discrete tumor nodule with superficial ulceration (H&E, orig. mag. ×100). **C,** Tumor cells are epithelioid in shape and show prominent nucleoli and melanin pigment. (H&E, orig. mag. ×200).

Abbreviation: ESD, endoscopic submucosal dissection.

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