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CASE REPORT | ESOPHAGUS

Dedifferentiated Liposarcoma Presenting as Dysphagia and Weight Loss: Common Symptoms but an Uncommon Diagnosis

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ABSTRACT

A 76-year-old woman was referred for 6 months of progressively worsening dysphagia and unintentional weight loss. An esophagogastroduodenoscopy demonstrated an area of extrinsic compression in the lower esophagus measuring 7 cm in greatest dimension. Contrast-enhanced computed tomography revealed a solid homogeneous mass in the lower middle/posterior mediastinum, laterally displacing the esophagus. Endoscopic ultrasound-guided fine-needle biopsy showed a hypocellular infiltrate of pleomorphic cells in a loose collagenous matrix. By immunohistochemistry, neoplastic cells were negative for epithelial, vascular, neural, and melanocytic markers. Fluorescent in situ hybridization detected *MDM2* amplification, compatible with a diagnosis of dedifferentiated liposarcoma.

KEYWORDS: Dedifferential Liposarcoma, Esophagus, Pleomorphic cells, Fluoresceint In Situ Hybridization, MDM2 amplification

INTRODUCTION

Liposarcoma is a malignant soft-tissue tumor that frequently occurs in extremities and the retroperitoneum, but only uncommonly affects the gastrointestinal tract. We report a rare case of dedifferentiated liposarcoma affecting the esophagus with manifestation of dysphagia and early satiety. The diagnosis was suggested by histologic evaluation and confirmed by fluorescent in situ hybridization for *MDM2* amplification.

CASE REPORT

A 76-year-old woman without significant medical history was referred for 6 months of progressively worsening dysphagia for solids and liquids, early satiety, and unintentional weight loss. She denied acid reflux symptoms, regurgitation, odynophagia, or chest pain. She never smoked cigarettes nor consumed alcohol. Physical examination did not show cervical, supraclavicular, or axillary lymphadenopathy. An esophagogastroduodenoscopy showed an area of moderate-to-severe extrinsic compression in the lower esophagus from 31 to 38 cm from the incisors (Figure 1). There was no endoscopic evidence of esophagitis or focal intrinsic stricture in the entire esophagus. A contrast-enhanced computed tomography scan of the chest revealed a 6×7 cm solid homogeneous mass in the lower middle/posterior mediastinum, laterally displacing the esophagus and descending thoracic aorta, with anterior displacement of the heart (Figure 2). No pathological lymphadenopathy was seen. Endoscopic ultrasound showed a hypoechoic and homogeneous mass with smooth borders (Figure 3). Fine-needle biopsy was performed for pathological diagnosis. Histopathology of the mass demonstrated a hypocellular infiltrate of pleomorphic cells in a loose collagenous matrix. Although there was no overt evidence of lipogenic differentiation and mitotic activity as inconspicuous (Figure 4), this histologic pattern, when present in soft tissue, suggests the diagnosis of dedifferentiated liposarcoma (DDL). As is typical of this lesion, immunohistochemical analysis of the neoplastic cells was negative for epithelial, vascular, neural, and melanocytic markers. By contrast, fluorescent in situ hybridization detected *MDM2* amplification in the formalin-fixed, paraffin-embedded tumor sample (Figure 5), confirming the histologic impression. One month after her diagnosis, a chest, abdominal, and pelvic computed tomography scan showed progression of the

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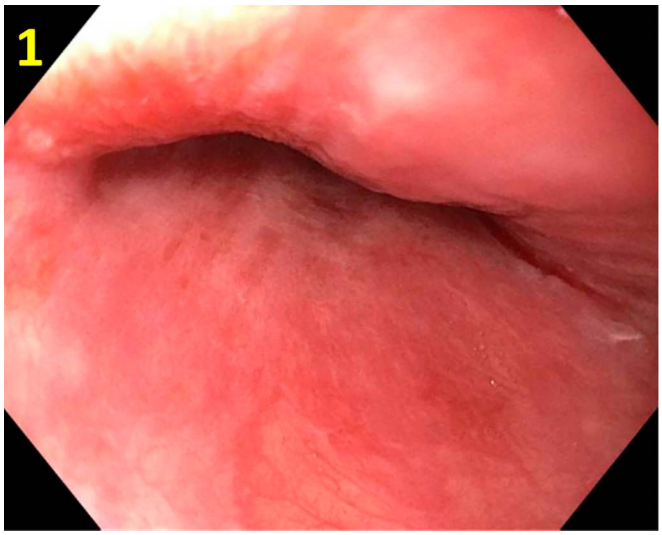

Figure 1. Esophagogastroduodenoscopy shows extrinsic compression in the lower esophagus.

mediastinal mass to 8.1 cm, as well as nodules in the abdominal wall, consistent with metastasis (American Joint Committee on Cancer Stage IV). The patient is currently receiving doxorubicin-based systemic therapy and under close clinical surveillance.

DISCUSSION

Liposarcoma is the most common sarcoma, accounting for 20% of all sarcomas in adults. The 2020 World Health Organization classification of tumors of soft tissue and bone divides liposarcomas into the following major subtypes: myxoid pleomorphic liposarcoma, pleomorphic liposarcoma, myxoid liposarcoma, atypical lipomatous tumor (ALT)/well-differentiated liposarcoma (WDL), and DDL.[1,2] ALT/WDL and DDL together comprise the largest subgroup of liposarcomas and constitute a histologic and behavioral spectrum of 1 disease. These lesions typically occur in middle-aged to older adults and most commonly arise in the retroperitoneum and extremities. DDL typically has the appearance of undifferentiated pleomorphic or spindle cell sarcoma and typically does not resemble a lipogenic neoplasm, although residual ALT/WDL, from which the DDL ostensibly arises, may still be present.

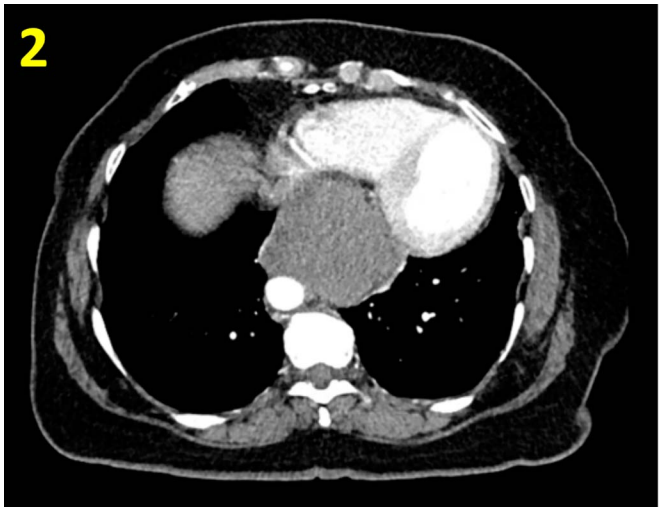

Figure 2. Computed tomography shows solid homogeneous mass in the lower middle/posterior mediastinum.

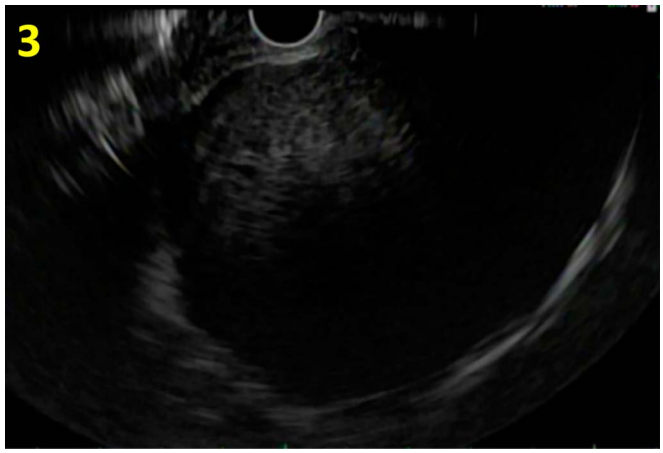

Figure 3. Hypoechoic and homogenous mass with smooth borders (endoscopic ultrasound).

Esophageal lipomatous tumors as a group are uncommonly encountered, accounting for less than 1% of all esophageal neoplasms.[3] As in other sites, liposarcoma arising in or affecting the esophagus are typically within the ALT/WDL-DDL spectrum. They are extremely rare, although the more recent recognition that the so-called giant fibrovascular polypoid lesion of the proximal esophagus is also an *MDM2*-amplified liposarcoma expands the number of recognized cases.[4] The most robust systematic review of reported cases of esophageal liposarcoma showed that 73% of these lesions involve the cervical esophagus and that DDL comprises 10% of this group.[5] To the best of our knowledge, a DDL located in the mediastinum adjacent to and laterally displacing the esophagus has previously yet been reported.

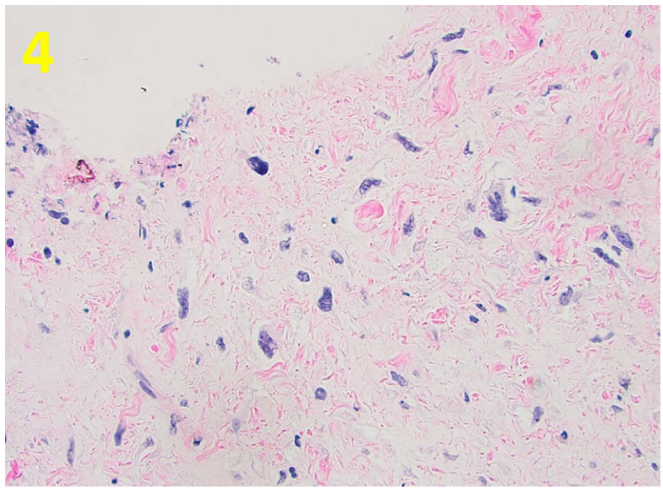

Figure 4. Hypocellular infiltrate of pleomorphic cells in a loose collagenous matrix.

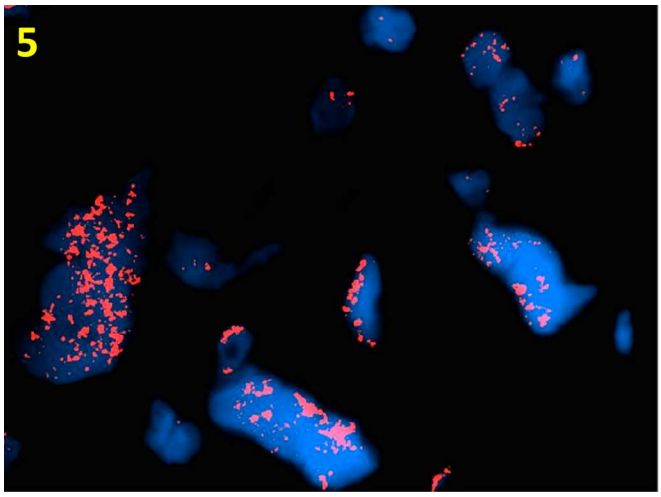

Figure 5. Fluorescent in situ hybridization detected MDM2 amplification in the formalin-fixed, paraffin-embedded tumor sample.

DDL of the esophagus is associated with an aggressive clinical behavior, with local recurrence reported in >80% of cases. DDL has also demonstrated a capacity for metastasis.[6,7] As a result, the overall mortality of this disease is 30% at a 5-year follow-up.[7]

The rarity of the disease, heterogeneity of reported data, and precise and complex histopathological assessment and classification have limited investigations into optimal therapeutic approaches to esophageal liposarcoma. The lack of specific symptoms can also lead to delay in diagnosis where potential curative therapeutic intervention is applicable. Hence, experience with successful treatment in esophageal liposarcomas is still limited. Systemic therapy with doxorubicin remains the treatment mainstay, and patients should be assessed for their responsiveness to doxorubicin to gauge whether an anthracycline should be used as part of first-line therapy or whether other agents should be considered first.

In summary, we report a very rare case of dedifferentiated liposarcoma affecting the esophagus. This case highlights how an uncommon disease can be masked by common gastrointestinal symptoms. Although there are many unanswered questions regarding the optimum treatment of these patients, early recognition and diagnosis of the disease is critical for optimal clinical outcome.

DISCLOSURES

Author contributions: L. Pham: conception and drafting of the article. PE Swanson: pathological interpretation and revision of the article for narrative consistency and intellectual content. Y. Tomizawa: critical revision of the article for important intellectual content and final approval of the article. Y. Tomizawa is the article guarantor.

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Informed consent was obtained for this case report.

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