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Leiomyosarcoma of the Esophagus Metastatic to the Eyelid

A Clinicopathologic Report

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Purpose: To report a case of gastrointestinal sarcoma with leiomyosarcomatous differentiation metastatic to the eyelid.

Methods: Clinical data including a comprehensive ophthalmologic examination, histologic findings, a bone scan, and hospital records were reviewed.

Results: A 56-year-old woman with a history of esophageal cancer had a rapidly growing lesion on her right upper eyelid that was initially treated as a chalazion. A biopsy specimen of the lesion was consistent with a gastrointestinal sarcoma with leiomyosarcomatous differentiation. The esophageal tumor was reclassified after histopathologic evaluation of the eyelid specimen. Bony metastasis developed soon after excision of the eyelid lesion. The patient died 3 months after proper diagnosis of the eyelid lesion.

Conclusions: This is a rare case of a metastatic leiomyosarcoma of the eyelid. To our knowledge, only two other cases of eyelid leiomyosarcoma have been described in the literature. The importance of correct histopathologic diagnosis of eyelid lesions is underscored in this case report.

Metastatic eyelid lesions are rare, accounting for less than 1% of all eyelid malignancies.[1] Leiomyosarcoma metastatic to the eyelid, to our knowledge, has only been reported in two other patients.[2,3] We report the clinical and pathologic features of a case of epithelioid leiomyosarcoma metastatic to the upper eyelid from the gastroesophageal region in a middle-aged woman.

CLINICAL PRESENTATION

A 56-year-old Hispanic woman had a rapidly growing lesion of the left upper eyelid, which was diagnosed as a chalazion and drained by her local ophthalmologist. Her medical history was significant for the discovery of an esophageal mass 5 months before development of the eyelid lesion. A double-contrast barium swallow had revealed the esophageal mass to involve the distal esophagus with extensive associated ulceration extending for approximately 6 cm toward the esophageal junction. A biopsy specimen of the mass had been taken and originally diagnosed as poorly differentiated adenocarcinoma with clinically positive regional lymph nodes. The patient had been receiving systemic chemotherapy at a tertiary care cancer hospital since the diagnosis of the esophageal malignancy.

The lesion in the upper eyelid recurred 2 weeks after it was drained. The patient was referred to the Ophthalmology Clinic at our cancer hospital. On examination, there was a large ulcerative lesion in the left upper eyelid (Fig. 1). The rest of the eye examination was essentially normal. The clinical diagnosis was probable metastatic lesion of the upper eyelid. The lesion was resected with frozen section diagnosis and control of the margins.

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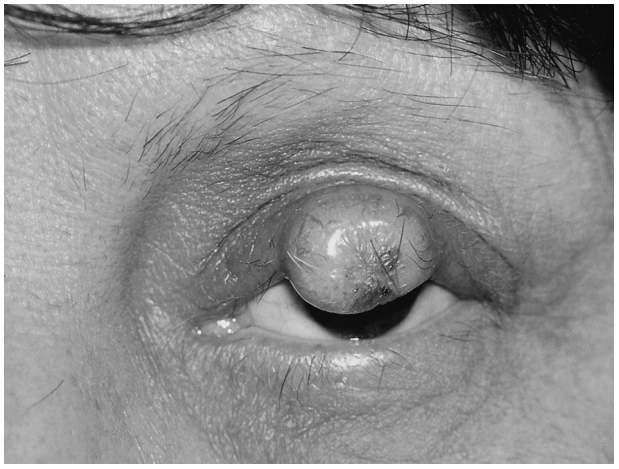

FIG. 1. Clinical photograph: Mass in left upper eyelid.

PATHOLOGIC FINDINGS

On pathologic examination, an ulcerated, poorly differentiated epithelioid neoplasm was found (Fig. 2, A and B). It was characterized by large, polygonal cells arranged in cords and small nests within an inflamed fibrous stroma. Immunohistochemical studies on this specimen were performed with the use of standard techniques. The tumor cells from the eyelid specimen failed to express cytokeratin (with the cocktail AE1: AE3, CAM5.2, MNF116, Zym 5.2), S100, *c*-kit, CD34, EMA, Desmin, CD45, or CD30 (Fig. 3A). There was focal expression of smooth muscle actin (Fig. 3B). The slides from the primary esophageal mass were obtained and reviewed. The eyelid lesion was found to be morphologically similar to the esophageal specimen (Fig. 4). Immunoperoxidase studies were also performed on additional sections of distal esophageal biopsy. Tumor cells expressed smooth muscle actin (focally) and vimentin but no keratin, CD34, or *c*-kit. Therefore, the histopathologic diagnosis of the gastrointestinal lesion and the eyelid lesion was that of an epithelioid gastric sarcoma with leiomyosarcomatous differentiation.

FOLLOW-UP CLINICAL DATA

After complete resection of the eyelid mass, the patient did well for a few weeks, and further chemotherapy was planned. However, a bone scan revealed widespread bony metastasis. She received external beam radiotherapy for the bony metastasis but she could not tolerate any additional chemotherapy. She died approximately 3 months after resection of the eyelid mass.

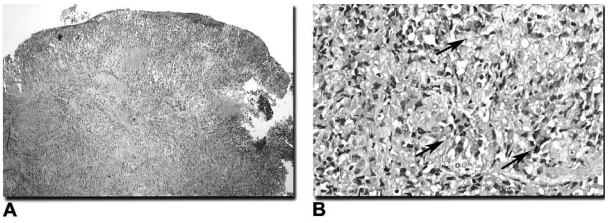

FIG. 2. Histologic examination of eyelid lesion (hematoxylin-eosin stain). A, Sections show ulcerated lesion. B, Tumor cells display pleomorphic, large nuclei with abundant cytoplasm (arrows).

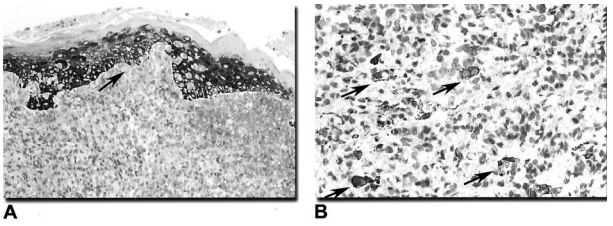

FIG. 3. Immunohistochemical analysis of eyelid lesion. A, Tumor cells do not express cytokeratin (overlying epithelium is labeled) (arrow). B, Focal expression of smooth muscle actin by tumor cells (arrows).

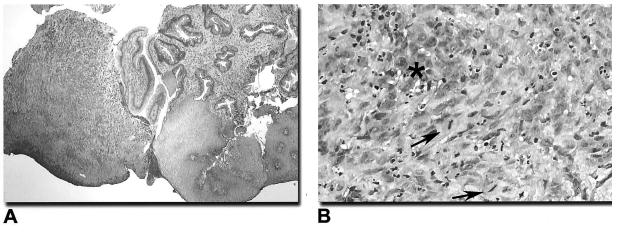

FIG. 4. Histologic examination of primary tumor (hematoxylin-eosin stain). A, Ulcerated area at gastro-esophageal junction. B, Tumor cells are large, epithelioid, forming cods and small nests (asterisk). Mitotic figures are present (arrow). Morphology is similar to eyelid lesion (Fig. 2).

DISCUSSION

Gastrointestinal sarcoma metastatic to the eyelid is rare. A review of the literature identified only two cases of metastatic leiomyosarcoma to the eyelid or ocular adnexa. One case was mentioned in a series of metastatic eyelid lesions reported from the Armed Forces Institute of Pathology by Mansour and Hidayat.[2] The morphology and immunoreactivity of this tumor or the location of the primary tumor was not specified in that report. A second case has been reported in the German literature.[3]

Traditionally, the primary mesenchymal spindle cell tumors of the gastrointestinal tract have been almost uniformly classified as smooth muscle tumors (leiomyomas, cellular leiomyomas, or leiomyosarcomas), and tumors with epithelioid cytologic features have been

designated as leiomyoblastomas or epithelioid leiomyosarcomas. The current classification of the World Health Organization tumor series and the Armed Forces Institute of Pathology for the tumors of the esophagus and stomach refer to these tumors collectively as smooth muscle/stromal tumors.[4,5] The term gastrointestinal stromal tumor (GIST) is used for a major subset of gastrointestinal mesenchymal tumors that histologically, immunohistochemically, and genetically differ from typical leiomyomas, leiomyosarcomas, and schwannomas. Perhaps the most specific and practical diagnostic criteria for GIST is the immunohistochemically determined *c*-kit (CD117) expression.[6] Most GISTs (70% to 80%) are also positive for CD34, including benign and malignant GISTs from esophagus to rectum.

Given the negative immunoreactivity for keratin and lack of gland formation in the eyelid tumor and the gastroesophageal tumor in our patient, the diagnosis of adenocarcinoma or spindle cell carcinoma was unlikely. Focal positive immunoreactivity for smooth muscle actin, with a negative *c*-kit and CD34 staining, suggests the diagnosis of epithelioid leiomyosarcoma rather than GIST.

Leiomyosarcomas of the esophagus are rare and account for less than 0.5% of all esophageal malignancies.[7] The greatest incidence occurs in the fourth and fifth decades of life. These tumors are thought to originate from the muscular layers of the esophageal wall and are localized predominantly in the middle and distal third of the esophagus. Dysphagia is the most common symptom, although it is seen late in the course of the illness. The most effective therapy consists of complete surgical resection of the tumor. If total surgical resection is accomplished, the 5-year survival may be 30% to 40%. Once metastasis to the liver or other distant sites develops, the prognosis is poor because response to systemic chemotherapy is limited.

Metastatic eyelid disease has been frequently misdiagnosed, as was the case in our patient. Metastatic eyelid tumors often can be mistaken for a chalazion because of their location and possible associated inflammatory signs. Most metastatic lesions to the eyelid are carcinomas with breast and lung as the most common sites for the primary lesion.[8,9] Ophthalmologists should have a high index of suspicion for the possibility of metastatic disease when dealing with rapidly growing lesions of the ocular adnexa, especially when there is a known history of malignancy elsewhere in the body. This case also underscores the importance of submitting specimens for histologic diagnosis. In our patient, immunohistochemical analysis of the eyelid lesion led to reclassification of the primary esophageal tumor as a leiomyosarcoma as opposed to a poorly differentiated adenocarcinoma. The traditional incision and drainage technique used for inflammatory eyelid lesions without histologic assessment of the contents of the tumor can lead to a delay in diagnosis.

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