Epithelial-myoepithelial carcinoma metastasis to the thoracic spine

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ARTICLE INFO

Article history:
Received 15 July 2015
Accepted 18 July 2015

Keywords:
En bloc
Epithelial-myoepithelial carcinoma
Gross total resection
Instrumented fusion
Spinal cord compression

ABSTRACT

Epithelial-myoepithelial carcinoma (EMC) is a very rare salivary gland malignancy accounting for less than 1% of salivary gland tumors, and classically arises from the parotid gland in females. Spinal cord compression caused by EMC metastasized from the parotid gland has only been described once in the literature to our knowledge. We report the first case of a patient with parotid EMC spinal metastasis undergoing a gross total resection with instrumented fusion. This case illustrates that an *en bloc* resection with a planned transgression through the spinal canal may be a reasonable option for EMC metastasized to the spine.

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1. Introduction

Epithelial-myoepithelial carcinoma (EMC) is a rare "biphasic" malignancy, classically arising from the parotid gland in females [1–8]. Spinal cord compression caused by EMC metastasized from the parotid gland has only once been described to our knowledge [7]. We report the first case of a patient with parotid EMC spinal metastasis undergoing a gross total resection (GTR) with instrumented fusion.

2. Case report

2.1. Pre-operative course

A 41-year-old woman with history of left (diagnosed at 12, resected at 28) and right (diagnosed at 40, resected at 41) parotid gland masses presented to our institution with back pain. MRI demonstrated a large enhancing heterogeneous T10 vertebral body lesion causing spinal cord compression (Fig. 1). Biopsy revealed a metastatic adenocarcinoma of unknown primary. She received radiation with 54 Gy and subsequent MRI showed interval progression. She underwent repeat biopsy, with presumed diagnosis of chondrosarcoma. Stereotactic radiosurgery was performed, but after continued growth she presented to our institution neurologically intact seeking surgical intervention.

2.2. Operation

She underwent a planned GTR and instrumented fusion via a single-stage posterior approach. After subperiosteal dissection, pedicle screws were placed from T7–T8 and T12–L2 and the ribs were resected bilaterally. The retropleural space was dissected circumferentially from T9–T11, clipping segmental vessels to free tumor from the underlying great vessels. Rods were placed to stabilize the spine in preparation for the *en bloc* resection. A Silastic sheath (Dow Corning, Midland, MI, USA) was placed to separate the anterior great vessels and lung from the posterior spinal cord. T9 to T11 laminectomies were performed and the T10 and T11 pedicles were amputated bilaterally. The entire dorsal elements were rotated off the spinal canal, allowing dissection under the epidural space and Tomita threadwire saws were used to perform an *en bloc* T9–T11 vertebrectomy below the T9 and T11 pedicles. This involved a planned transgression through the spinal column ring, which contained tumor. The vertebrectomy defect was reconstructed using a titanium expandable cage filled with demineralized allograft bone. Additional rods and a posterior fibular strut graft were placed. T9 pedicle screws were placed, a posterolateral T7 to L2 arthrodesis was performed, hemostasis was obtained, and the wound was closed with bilateral paraspinous muscle flaps (Fig. 2).

2.3. Postoperative course

Postoperatively, the patient was moving all extremities and remained neurologically intact upon discharge on postoperative day 6. Postoperative CT scan and plain anteroposterior and lateral radiographs confirmed good position of the instrumentation (Fig. 2). Positron emission tomography/CT scan demonstrated no evidence of recurrent tumor 6 months postoperatively.

2.4. Pathological findings

Surgical pathology revealed a metastatic carcinoma with mixed ductal and myoepithelial components (Fig. 3). The epithelial component was positive for epithelial membrane antigen, c-Kit, and cytokeratin AE1/AE3 immunostains. The myoepithelial component was highlighted by immunostains for S100 and p63 (Fig. 3). The biphasic nature of the tumor was consistent with an EMC and pointed to the salivary gland as the likely primary site.

3. Discussion

EMC is a very rare salivary gland malignancy accounting for less than 1% of salivary gland tumors, and patients are expected to have a long survival despite the presence of metastatic spread [1–8]. We demonstrate, to our knowledge, the first reported case of metastatic spinal EMC treated with GTR and instrumented fusion in a patient with a 29 year history of a primary parotid mass presenting with back pain caused by high grade epidural spinal cord compression. This case illustrates that an *en bloc* resection with a planned

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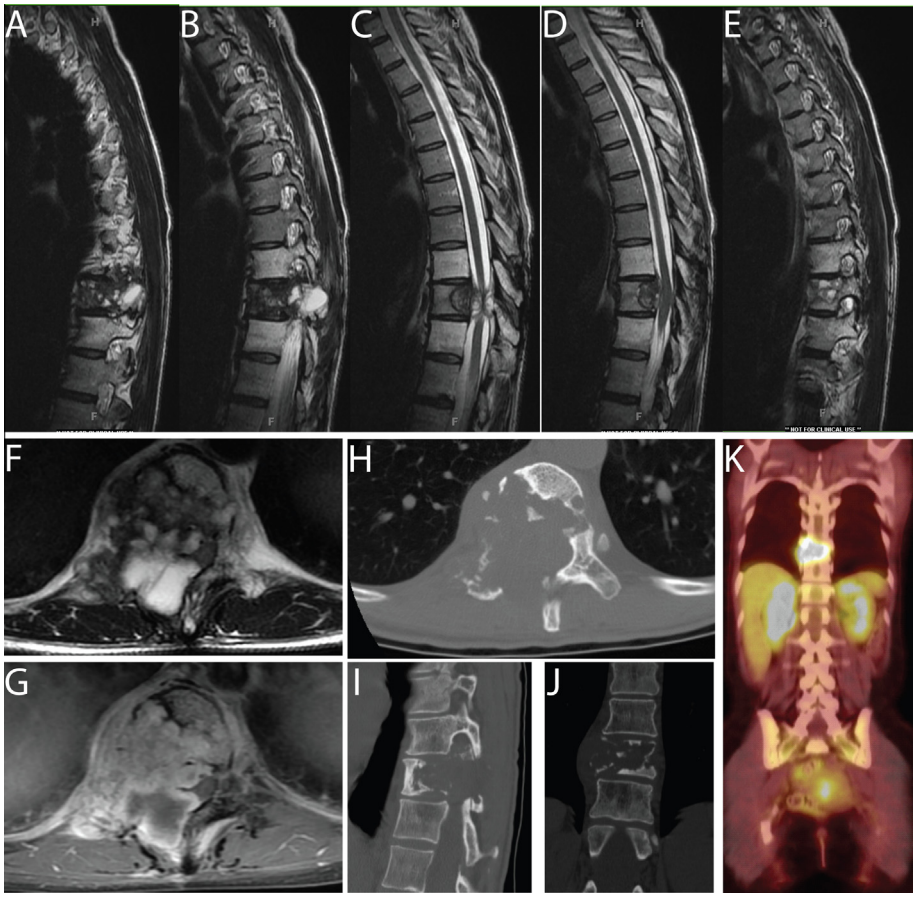

Fig. 1. (A–E) Preoperative imaging. Sequential (right to left) T2-weighted sagittal MRI demonstrating a heterogeneous T10 vertebral body lesion with extension into the posterior elements and epidural spinal cord compression. (F) Pre-contrast and (G) post-contrast axial T1-weighted MRI demonstrating enhancement of the T10 vertebral body lesion. (H) Axial, (I) sagittal, and (J) coronal CT imaging demonstrating bony destruction of the T10 vertebral body and posterior elements. (K) Positron emission tomography/CT imaging demonstrating increased fluorodeoxyglucose uptake at T10 consistent with the known thoracic lesion.

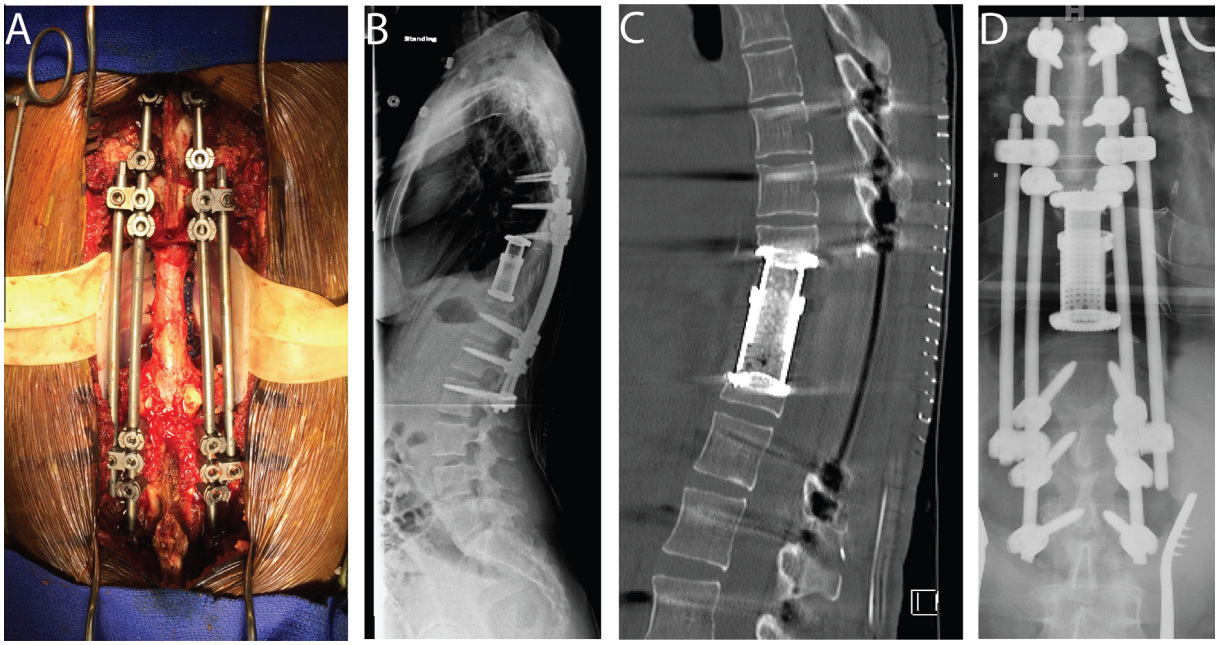

Fig. 2. Intraoperative and postoperative imaging. (A) Photograph demonstrating *en bloc* resection of the lesion centered at the T10 vertebral body with posterolateral arthrodesis from T7–L2 with anterior titanium expandable cage. Silastic sheath (Dow Corning, Midland, MI, USA) in place to protect great vessels and lung anterior to the spinal canal. (B) Lateral plain radiograph, (C) sagittal CT scan and (D) anteroposterior plain radiograph demonstrating instrumentation.

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