Case Report

Spinal metastasis at the cervicothoracic junction from acinic cell carcinoma of the parotid gland: Case report

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INTRODUCTION

Acinic cell carcinomas (ACCs) account for only 1% of all parotid neoplasms.1-7 The treatment typically consists of surgery and adjuvant radiotherapy, especially in cases where incomplete resections have been performed, or surgical margins are questionable.6 The first series about acinic cell carcinoma of the salivary glands reported only 8 cases with distant metastasis.3 Metastases of parotid carcinoma/ACCs to the spine are extremely rare; we were only able to identify three such cases. Here, we present a 23-year-old patient with D1/D2 metastatic ACC of the parotid gland that was successfully treated with circumferential decompression/fusion and postoperative radiotherapy.
CASE REPORT

At the age of 19, the patient underwent the partial resection of a malignant left parotid gland tumor diagnosed as ACC. One year later, at the age of 20, the patient required repeated resection of a recurrent parotid lesion. The surgery pathology report stated: recurrent ACC of the parotid gland with surgical margins involve; the patient was next managed with 10 cycles of conformational radiotherapy.

Now, 4 years later, at the age of 23, the patient newly presented with 3 months of cervical pain. Notably, she remained neurologically intact. The thoracic magnetic resonance imaging (MRI) showed a D1/D2 pathological compression fracture with anterior epidural extension of tumor compressing the cord [Figure 1b and 1c]. The computed tomography (CT) confirmed the pathological fracture of D1 [Figure 1a] (i.e. lytic and blastic characteristics) and further documented a 75% loss of height with retropulsion of the posterior wall of the vertebra into the spinal canal; at D2 level, there was blastic neoplastic infiltration involving the vertebral body, but no accompanying vertebral collapse.

Surgery

The patient had a Spinal Instability Neoplastic Score of 11 points.[2] Given the instability and extent of cord compression, the patient underwent a two-staged 360° decompression/fusion of the cervicothoracic junction. First, an anterior approach required the addition of a median manubriotomy to perform a for piecemeal resection of the D1 and D2 vertebral bodies and anterior epidural tumor. This was followed by placement of an autologous tricortical iliac crest bone graft from the C7 to D3 levels with anterior plate fixation [Figure 2a]. The second stage, performed 7 days later, included a cervicothoracic D1-D2 laminectomy. Cervical lateral mass screws were placed from C4 to C6 and pedicle screws from D3 to D6 [Figure 2b]. The CT obtained 4 days later confirmed adequate decompression/fusion at the respective surgical levels [Figure 3a].

Postoperative status

Neurological function normalized postoperatively, and axial pain significantly decreased. The patient subsequently received 10 radiotherapy cycles centered at the cervicothoracic junction as the pathology report documented an ACC involvement of the resected vertebrae (D1 and D2). Six months later, X-rays confirmed that the construct had remained intact, while the MRI showed adequate cord decompression without signs of local tumor recurrence [Figure 3b and c]. Telemedicine follow-up by phone call performed 35 months postoperatively revealed that the patient was doing well without axial pain or any neurological symptoms.

DISCUSSION

ACCs account for 1% of all parotid gland neoplasms.[1] The mean age at the time of diagnosis is 55.3 years old. These are rare neoplasms that pose significant risks for metastasis as well as local recurrence.[6,4] The mortality rates range from 1.3% to 26%, local recurrences from 8.3% to 45%, and distant

![Figure 1: (a) Computerized axial tomography showing pathological fracture at D1 and D2 vertebrae. (b) T2 sequence with fat suppression of magnetic resonance imaging of the cervicothoracic spine showing neoplastic infiltration into D1 and D2 vertebrae, associated to epidural component generating spinal cord compression.](image-url)
metastasis from 2.6% to 14%, with 82% of secondary lesions appearing within 5 years of treatment.

Treatment of metastatic acinic parotid cell carcinomas

We identified three prior reports of similar cases treated surgically [Table 1]. An L4 lumbar metastasis treated with corpectomy/anterior and posterior fixation with adjuvant radiation therapy, died within 10 months due to pulmonary metastases. A second patient with metastases to the lymphatic glands, both lungs, sphenoid bone, and D4 vertebrae with an accompanying neurological deficit, underwent a D4 laminectomy with posterior D3-D5 fusion; however, despite adjuvant radiotherapy and chemotherapy, the lesion recurred in the sphenoid bone, and the patient developed a left-sided lagophthalmos. The third case involved a 41-year-old male with a metastatic osteoblastic lesion involving the D4 vertebral body and pulmonary metastases; he underwent a radical resection with a D4 spondylectomy and was still alive 48 months later. In our patient, the patient developed spinal metastases to the D1/D2 levels 4 years following the original surgery/adjuvant radiotherapy indicating the markedly malignant behavior of these neoplasms. As the anticipated life expectancy in this patient ranged from just 6 to 48 months, we perform a conventional anterior D1/D2 corpectomy/fusion supplemented by posterior stabilization.

Table 1: Three previous case reports of ACC.

| Case report authors | Location          | Surgical management | Medical management | Follow-up                                      |
|---------------------|-------------------|---------------------|--------------------|-----------------------------------------------|
| Zook et al.[7]      | Lumbar spine (L4) | ACF L4; SCP PSF L2 to L5 | RT                | Died 8 months postop (lung/liver metastases) |
| Vidyadhara et al.[6] | Dorsal spine (D4) | Lam D4 PSF D3–D5 vertebrae | Chemo 9 cycles of cisplatin, 5-flourouracil, and epirubicin + ST | 6 months (left sided lagophthalmos due to sphenoid bone osteolytic lesion. No information about the outcome) |
| Sangsin et al.[3]   | Dorsal spine (D4) | RR EBS+FTBBG        | LM periodic RA     | 48 months postop disease free                 |

ACF: Anterior corpectomy/fusion, SCP: Strut, cage placement, PSF: Posterior lumbar pedicle screw fixation, RT: Radiotherapy, Lam: Laminectomy, RR: Radical resection, EBS: En bloc spondylectomy, FTBBG: Frozen tumor-bearing bone graft, LM: Lung metastases, RA: Radiofrequency ablation, Postop: Postoperatively, Chemo: Chemotherapy, ST: Steroids
CONCLUSION

Patients with spinal metastases from ACC of the parotid gland contributing to spinal cord compression/instability should undergo circumferential surgical decompression/fusion plus adjuvant radiotherapy as needed.

Declaration of patient consent

Patient's consent not required as patients identity is not disclosed or compromised.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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