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Editor
Nancy E. Epstein, MD
Clinical Professor of Neurological Surgery, School of Medicine, State U. of NY at Stony Brook

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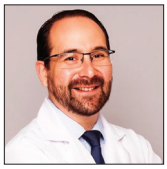
Case Report

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

Ruy Camilo Gil Rohrmoser[1], Manuel Diaz Borras[2], Giovanni López Laínez[3], Julio Briz Eisen[3], Luis Linares Martinez[4], Joaquin Barnoya[5]

[1]Department of Neurosurgery, General Hospital of Diseases - Guatemalan Institute of Social Security, Departments of [2]Neurosurgery and [3]General Surgery, General Hospital of Accidents "Ceibal" - Guatemalan Institute of Social Security, [4]Department of Radiation Oncology, HOPE International, [5]Department of Epidemiology, Integra Cancer Institute, Guatemala City, Guatemala.

E-mail: *Ruy Camilo Gil Rohrmoser - ruycgr@gmail.com; Manuel Diaz Borras - drdiazborras@yahoo.com; Giovanni López Laínez - giovannilopezlainez@yahoo.com.es; Julio Briz Eisen - juliobriz@gmail.com; Luis Linares Martinez - drllinares@hotmail.com; Joaquin Barnoya - jbarnoya@hotmail.com



***Corresponding author:**
Ruy Camilo Gil Rohrmoser, Department of Neurosurgery, General Hospital of Diseases - Guatemalan Institute of Social Security, Guatemala City, Guatemala.

ruycgr@gmail.com

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ABSTRACT

Background: Acinic cell carcinoma (ACC) accounts for only 1% of all parotid neoplasms. Spinal metastases of these tumor are extremely rare.

Case Description: A 21-year-old patient had two prior partial resections of an ACC of the parotid gland followed by radiotherapy. Two years later, the patient presented with a 3-month history of cervicothoracic pain. The cervical spine magnetic resonance imaging revealed a pathological vertebral fracture secondary to metastatic infiltration of the D1 and D2 vertebral bodies contributing to spinal cord compression. The patient underwent a two-staged approach to resect the D1/D2 infiltrated vertebral bodies and to stabilize the cervicothoracic junction. The histopathological diagnosis was consistent with metastatic ACC. The patient subsequently received 10 cycles of adjuvant radiotherapy. Six months later, the patient was neurologically intact and radiographically exhibited adequate fusion without new tumor recurrence. At the telemedicine follow-up 35 months postoperatively, the patient was doing well without axial pain or any neurological symptoms.

Conclusion: A 23-year-old patient following circumferential decompression/fusion of a D1/D2 metastatic parotid carcinoma ACC was neurologically symptom free and radiographically stable without evidence of residual/recurrent tumor.

Keywords: Acinic cell carcinoma, Parotid gland, Parotid neoplasm, Spinal metastases

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 [5]

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/D1 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

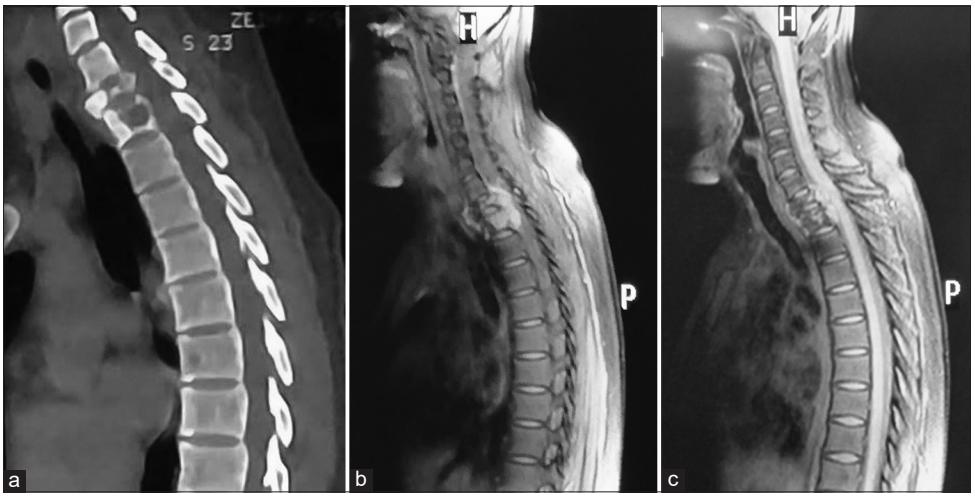

Figure 1: (a) Computerized axial tomography showing pathological fracture at D1 and D2 vertebrae. (b) T2 sequence with fat suppression of magnetic resonance imaging of the cervicothoracic spine showing neoplastic infiltration into D1 and D2 vertebrae, associated to epidural component generating spinal cord compression.

metastasis from 2.6% to 14%,[6] with 82% of secondary lesions appearing within 5 years of treatment.[6]

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.[7] 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 lagoftalmos.[6] 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.

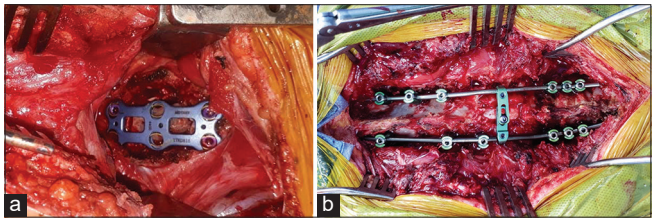

Figure 2: (a) Anterior cervical approach with median manubriotomy showing the anterior fixation plate already in place. (b) Posterior cervicothoracic approach showing the laminectomy area at D1 and D2 vertebrae and the cervicothoracic instrumentation from C4 to T6 vertebrae.

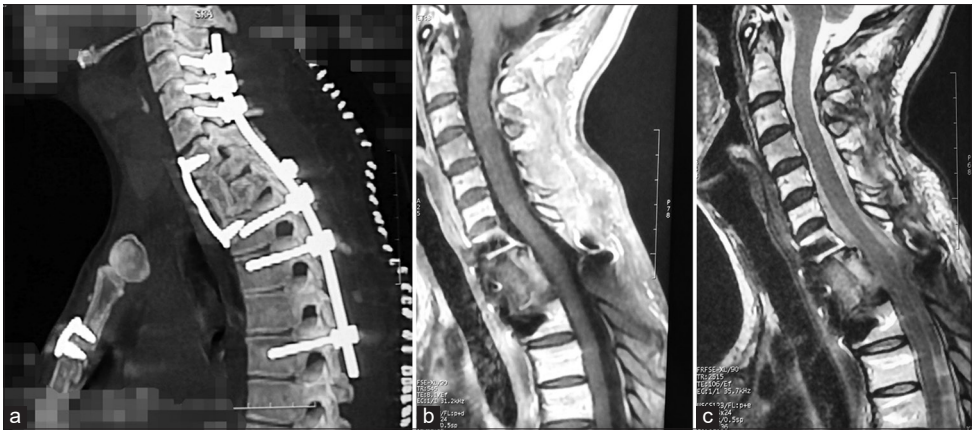

Figure 3: (a) Final postoperative tomography control showing the corpectomy area at D1 and D2 vertebrae, the 360° cervicothoracic fixation, and the osteosynthesis plate on the sternum manubrium. (b) Postoperative magnetic resonance imaging of T1 and (c) T2 sequences showing adequate spinal decompression and no signs of neoplastic recurrence.

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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