CASE REPORT

Multidisciplinary Management of Acinar Cell Carcinoma of the Parotid Gland with Free Flap Reconstruction- A Case Report

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ABSTRACT

Background: Acinic cell carcinoma (AciCC) is a rare malignancy of the salivary glands, primarily affecting the parotid gland. It is a low-grade tumor with an indolent course and a favorable prognosis. Despite its slow progression, early diagnosis and appropriate treatment are essential for optimal outcomes.

Case Summary: We present a case of a 56-year-old male with a five-year history of a progressively enlarging ulceroproliferative growth on the right cheek. Imaging and histopathological examination confirmed AciCC of the parotid gland. The patient underwent neoadjuvant chemotherapy with Paclitaxel and Carboplatin, followed by wide local excision, right modified radical neck dissection, and reconstruction using a left free radial forearm flap with split-thickness skin grafting. The postoperative period was uneventful, and the patient showed no recurrence during follow-up.

Conclusion: This case highlights the importance of a multidisciplinary approach, integrating chemotherapy, surgery, and reconstruction, to achieve successful oncologic and functional outcomes in AciCC of the parotid gland.

Keywords: Acinic cell carcinoma, Salivary glands, Parotid gland, Diagnosis.

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INTRODUCTION

Acinic cell carcinoma (AciCC) is a rare malignancy of the salivary glands, accounting for approximately 10% of all major salivary gland tumors.[1-4] It predominantly affects the parotid gland, which is involved in nearly 90% of epithelial salivary gland cancers.[5,6] AciCC is classified as a low-grade carcinoma with an indolent course, and it has a favorable prognosis, with a reported five-year survival rate of 97%.[7,8] The disease is more frequently diagnosed in females, with a median age of 52 years at the time of diagnosis.[9] Clinically, AciCC often presents as a slow-growing, painless mass, most commonly located within the tail of the parotid gland.[8,10] While the exact etiology remains unclear, previous radiation exposure and genetic predisposition have been suggested as potential risk factors. Due to its slow progression, AciCC may remain asymptomatic for an extended period, making early detection through clinical and radiological evaluation essential for optimal patient management. Surgical excision remains the primary treatment modality, and in most cases, it results in good long-term outcomes. Here we present a case of AciCC of the parotid gland managed with a multidisciplinary approach leading to favorable outcomes.

Case presentation

A 56-year-old male presented with a progressively enlarging ulceroproliferative growth on the right cheek that had been present for five years. He had no significant past medical history, no known family history of malignancies, and had not received any prior treatment or interventions for the lesion. Clinical examination revealed a localized ulceroproliferative growth over the right cheek, without any evidence of regional lymphadenopathy or systemic involvement. To establish a diagnosis, the lesion was evaluated radiologically, which confirmed parotid gland involvement. Histopathological examination and immunohistochemistry studies identified the tumor as acinar cell carcinoma of the parotid gland, with positivity for Pan cytokeratin and DOG.[1] Given the nature of the tumor, a multidisciplinary approach was taken for management.

The patient was initiated on neoadjuvant chemotherapy with two cycles of paclitaxel and carboplatin to reduce tumor burden before surgical intervention. Following chemotherapy, he underwent definitive surgical management on November 7, 2024, which included wide local excision of the tumor along with a right modified radical neck dissection to ensure

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complete oncologic clearance. Given the extent of the resection, reconstruction was performed using a left free radial forearm flap, and the donor site was covered with a split-thickness skin graft (SSG) harvested from the left thigh. The surgery was performed successfully without intraoperative complications (Figure 1).

The patient's postoperative period was uneventful, with stable vitals and good flap viability observed. There were no signs of surgical site infections, hematoma, or graft rejection. By postoperative day 10, the patient had achieved adequate wound healing and was fully allowed oral intake. Throughout the course of treatment, differential diagnoses such as Warthin tumor, pleomorphic adenoma, mucoepidermoid carcinoma, adenoid cystic carcinoma, and oncocytoma were considered but ultimately ruled out based on histopathological findings (Figure 2).

At the time of discharge, the patient was in stable condition with no immediate complications. Follow-up assessments have shown no evidence of recurrence, and he continues to be monitored for long-term oncologic outcomes.

DISCUSSION

Acinic cell carcinoma (AciCC) of the parotid gland is a rare malignant epithelial tumor that primarily affects the major salivary glands.[1] It is often slow-growing and presents as a painless mass, although cases with aggressive clinical features have been reported. Our case is a 56-year-old male with a progressively enlarging ulceroproliferative growth on the right cheek for five years, ultimately diagnosed as AciCC of the parotid gland based on histopathology and immunohistochemistry findings (Pan cytokeratin and DOG-1 positivity). A multidisciplinary approach was employed for management, starting with neoadjuvant chemotherapy using paclitaxel and carboplatin to reduce tumor burden. This was followed by wide local excision with right modified radical neck dissection and reconstruction using a left free radial forearm flap with split-thickness skin grafting from the left thigh. The patient's postoperative recovery was uneventful, and follow-up assessments have shown no evidence of recurrence, emphasizing the efficacy of a multimodal treatment approach in preventing disease progression.

Figure 1: Pre-operative status. A-Lateral view, B- Anteroposterio view

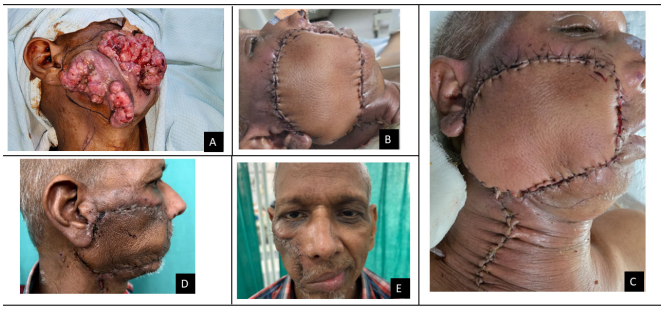

Figure 2: Wide local excision with right modified Radical neck dissection with free radial forearm flap with SSG cover from donor area. A - surface marking; B - Post-Operative condition at Post-operative day 5; C - Post-Operative condition at POD-10; D,E - Condition of flap at discharge (Anteroposterior and Lateral view)

Several cases in the literature highlight different clinical presentations and management strategies for AciCC. Sun *et al.*[10] reported a rare case of scapular metastasis from AciCC in a 51-year-old male, emphasizing the potential for distant metastases and the need for thorough follow-up and systemic treatment. Similarly, Poutoglidis *et al.*[11] described a case of AciCC metastasizing to the abdominal wall in a 56-year-old male, reinforcing the importance of maintaining clinical suspicion for atypical metastatic presentations. In another case, Sepúlveda *et al.*[12] discussed an incidental detection of AciCC in the deep parotid lobe, which was incompletely resected, necessitating adjuvant radiotherapy to prevent recurrence.

In cases where aggressive recurrence is noted, additional treatment modalities have been explored. De Luca *et al.*[13] reported a case of recurrent AciCC with lateral skull base invasion, requiring extensive surgical resection followed by neutron radiotherapy. Their findings highlight the challenges of treating locally aggressive recurrences and the uncertain role of adjuvant therapy in preventing further progression. Haweramy *et al.*[14] presented an unusual case of AciCC arising in an accessory parotid gland, initially misdiagnosed as a benign pleomorphic adenoma, demonstrating the importance of histopathological confirmation. Ahmed *et al.*[15] described a case of AciCC undergoing high-grade transformation, leading to pulmonary metastases despite surgical excision and radiation therapy, underscoring the need for vigilant long-term surveillance in patients with high-risk features.

Our case highlights the significance of a well-structured, staged approach in the management of acinic cell carcinoma (AciCC) of the parotid gland. Given the ulceroproliferative nature of the tumor and its prolonged presence without intervention, initiating treatment with neoadjuvant chemotherapy was a crucial step. The use of paclitaxel and carboplatin helped in reducing the tumor burden, which facilitated a more effective and controlled surgical resection. This approach not only enhanced the feasibility of achieving negative surgical margins but also minimized intraoperative complications, thereby improving overall prognosis. Chemotherapy before surgery is particularly beneficial in cases where tumors are large or involve critical structures, as it allows for a less invasive

resection while preserving essential anatomical and functional components. In our patient, this strategy ensured optimal tumor control and prepared the surgical field for successful oncologic clearance.

Wide local excision with right modified radical neck dissection was performed to achieve complete removal of the tumor, ensuring negative margins and reducing the likelihood of recurrence. Due to the extent of tissue resection required, reconstruction was a necessary component of the treatment plan. A left free radial forearm flap was used to restore the structural and functional integrity of the facial region, while a split-thickness skin graft from the left thigh was utilized to cover the donor site. This reconstructive approach helped maintain both the cosmetic and functional aspects of the patient's facial structure, allowing for better postoperative recovery and quality of life. The successful viability of the flap and the absence of postoperative complications reaffirm the effectiveness of integrating reconstructive techniques into surgical management. Long-term follow-up is essential in AciCC cases, as reported instances of recurrence and distant metastases emphasize the need for vigilant surveillance. While our patient showed no signs of recurrence at discharge, continued monitoring through imaging and clinical evaluations remains a critical part of the treatment plan.

CONCLUSION

Our case underscores the importance of a multidisciplinary approach in managing AciCC of the parotid gland. The integration of neoadjuvant chemotherapy, meticulous surgical excision, and advanced reconstructive techniques contributed to a favorable oncologic and functional outcome. Literature reports highlight the potential for recurrence and distant metastases, reinforcing the necessity for long-term follow-up. By employing a strategic combination of treatments, we were able to achieve successful disease control while preserving the patient's quality of life. This case serves as a valuable example of how early intervention, personalized treatment planning, and coordinated multidisciplinary care can optimize outcomes in patients with AciCC of the parotid gland.

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