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Dedifferentiated Acinic Cell Carcinoma of Parotid and its Treatment: A Rare Case Report

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Abstract
Acinic cell carcinoma is a rare variant of neoplastic lesions in the parotid gland. It is more frequent in women and commonly seen in the 4th-5th decades of life. The most common presentation of the condition is a painless and slow growing mass over the parotid gland. Majority of the acinic cell carcinomas are located on the superficial lobe of the gland. Primary treatment modality is surgery and the prognosis of the tumour is generally favorable. Histological grading should be kept in mind in the treatment of the condition. Histological subtypes of the tumour are papillary, cystic, and follicular and other variants have good prognosis. A rare form of the tumour is dedifferantiated variant which can be transformed into high grade tumours. The differantiated acinic cell carcinoma is more aggressive than the other forms and recurrent perineural and perilymphatic invasion and, therefore, systemic metasthasis are more common. In this article, the management of a 77-year-old case of dedifferentiated acinic cell carcinoma, who was admitted with the complaint of mass over the right parotid gland for one year, is presented along with the relevant literature.
Key Words: Acinic Cell Carcinoma; Parotid Gland; Salivary Gland Neoplasms; Parotidectomy.

Parotisin Dediferansiye Asinik Hücreli Karsinomu ve Tedavi Yaklaşımı: Nadir Bir Olgu Sunumu

Özet:
Asinik hücreli karsinom parotis bezinde nadir görülen bir neoplazidir. Kadınlarda ve sıklıkla 40-50 yaşları arasında görülmektedir. Klinikte genellikle ağrısız yavaş büyüyen kitle şeklinde bulgu verir. Asinik hücreli karsinomların büyük kısmı parotisin yüzeyel lobunda yerleşir. Tedavisi cerrahi olup, iyi prognoza sahip tümörlerdir. Bu tümörlerin tedavisinde histolojik evreleme göz önünde bulundurulmalıdır. Histopatolojik olarak papiller, kistik, folliküler ve iyi prognozlu çeşitleri bulunmaktadır. Çok nadir olarak yüksek dereceli tümörlere dönüşen dediferansiye formu bulunmaktadır. Dediferansiye türleri klasik türlerine göre daha agresiftir; rekürrens, perinöral ve perilenfatik invazyon ile bunlara bağlı sistemik metastazlar daha sıktır. Bu yazıda sağ parotis bezinde bir yıldır olan kitle yakınması ile başvuran ve dediferansiye asinik hücreli karsinom tanısı koyulan 77 yaşındaki bir hasta ve yönetimi sunularak konu literatür bilgileri eşliğinde tartışıldı.
Anahtar Kelimeler: Asinik Hücreli Karsinom; Parotid Bezi; Tükrük Bezi Neoplazileri; Parotidektomi.

INTRODUCTION

Acinic cell carcinoma (ACC), which accounts for 6-10% of all salivary gland malignancies and 3-13% of parotid tumours, is a rare pathology (1, 2). 86.3% of acinic cell carcinomas are located in the parotid gland. While they are sometimes seen in the submandibular glands, they can rarely be located in other minor salivary glands as well (2). Unlike other salivary gland malignancies, ACC can be seen in all ages including childhood. However it is more common in the 4th-5th decades of life and in women (1, 2). When they have low grades and are well differentiated, salivary gland ACCs mostly share a low growth rate and most often they are painless masses that grow slowly over the years (2). Although surgical excision is an adequate treatment for ACCs, it has been reported that even 10-20 years after the surgery patients may have local and systemic metastases (1-3). In these tumours, which are all well differentiated, 10-year survival has been reported to be 70-85% (3). The transformation to high-grade tumours through loss of cell differentiation, which is defined as "dedifferentiation," is scarcely seen in ACCs. Dedifferentiated ACCs have more aggressive clinical course compared to regular ACCs. Moreover, recurrence, perineural and perilymphatic invasion, and related systemic metastases are also more frequent in dedifferentiated ACCs (4). This paper presents the case of a 77-year-old patient, who presented with a stable mass in the right parotid gland he had had for one year and diagnosed with dedifferentiated ACC, along with the treatment methods in the light of the relevant literature.

CASE REPORT

A 77-year-old female patient was admitted to our clinic with a non-progressive swelling on the right side of her cheek that had been there for about a year. Apart from hypertension and joint rheumatism, the patient's background did not have any remarkable medical or surgical diseases or interventions. Physical examination showed a 4x5cm multi-lobulated, non-fluctuating, hard mass in the right parotid region (Figure 1).

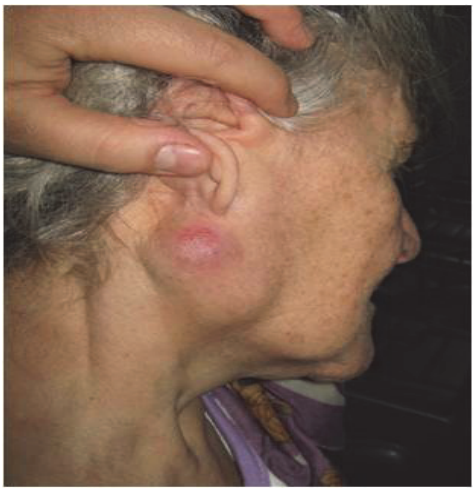

Figure 1. A 4x5cm multi-lobulated, non-fluctuating, hard mass in the right parotid region with hyperemia on the skin.

The mass was partially mobile and did not show adhesion to the skin. The patient had no pain or palpation sensitivity. The examination of the neck for palpation did not show any signs of pathological lymphadenopathy. The head and neck examination did not reveal any abnormalities in the other salivary glands.

The ultrasonography (USG) reported the presence of a 40x45mm round, liquid necrotic, large, heterogeneous, hypoechoic, and solid mass in the centre of right parotid gland that had an easily marked centre. Head and neck magnetic resonance imaging (MRI) determined an intraglandular hypo-intense mass in the right parotid gland on T1 images. T2 images showed a 45x50mm mass with heterogeneous signals, partially cystic areas, extensions towards the stylomastoid foramen (Figure 2).

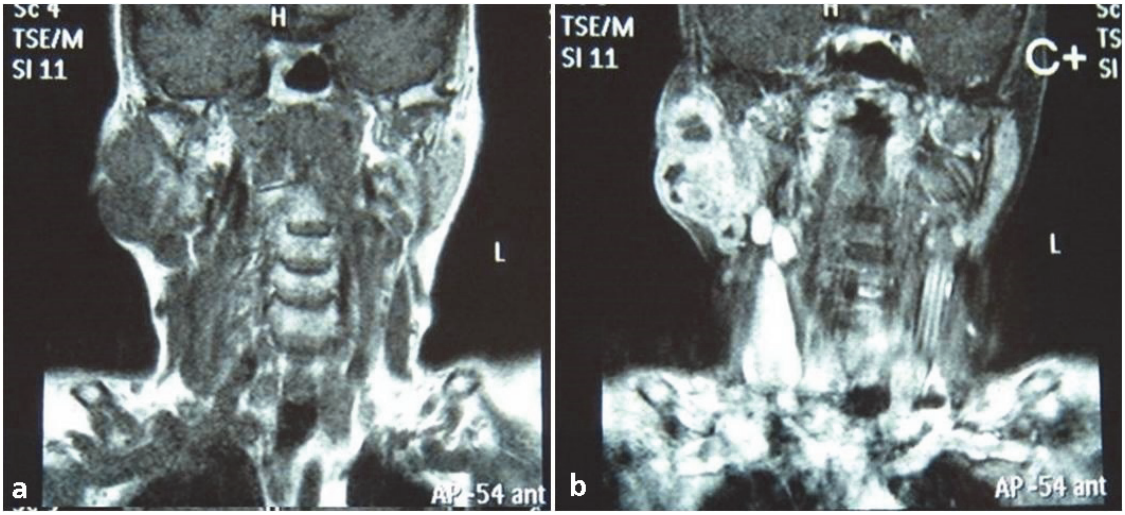

Figure 2. Head and neck magnetic resonance imaging (MRI) showing the intraglandular hypo-intense mass in the right parotid gland on T1 images; T2 images show a 45x50mm mass with heterogeneous signals, partially cystic areas, and extensions towards the stylomastoid foramen.

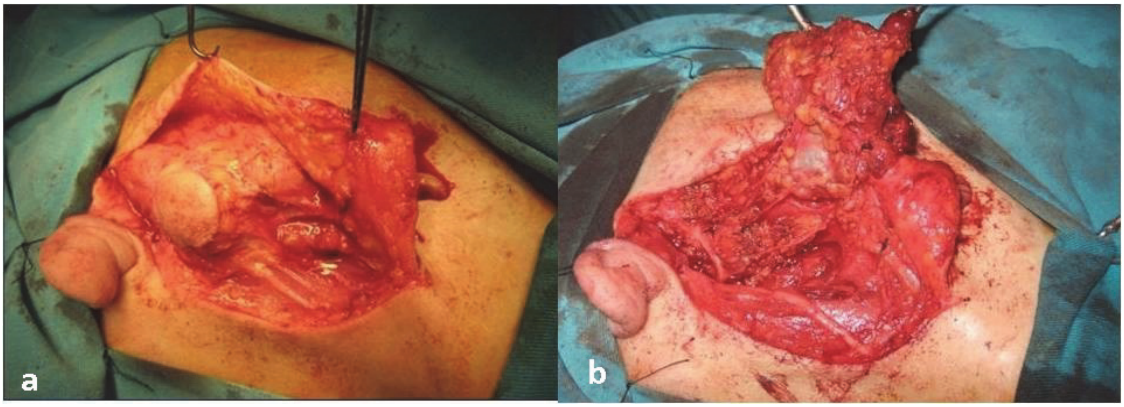

Figure 3. Intraoperative images of the 6x5x3cm mass with elastic consistency and lobular contours in the superficial parotid lobe; (a) the incision in which the tumour and the infiltrated skin is included to the specimen; (b) facial nerves and nerve extensions after the total parotidectomy.

We also located a few lymph nodes in pathological dimensions in the right cervical lymphatic region on MRI. In the light of these findings, we applied fine needle aspiration cytology (FNAC) and the result was reported to be cellular pleomorphic adenoma. After informing the patient and her family with the preliminary diagnosis of the salivary gland tumour and obtaining their full consent, we took the patient to the operating room with an operational plan of right superficial parotidectomy. During the operation, we observed a 6x5x3cm mass with elastic consistency and lobular contour in the superficial parotid lobe and excised the whole mass by preserving facial nerves (Figure 3-4).

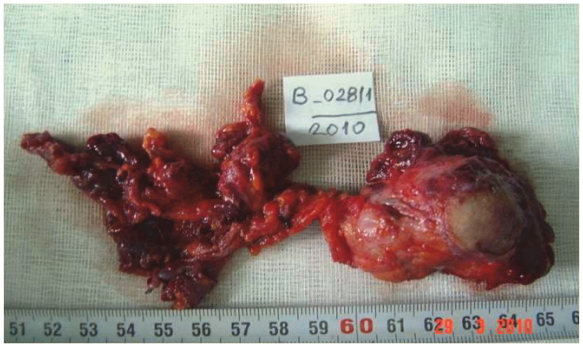

Figure 4. Macroscopic view of the mass which was excised along with the superficial parotid gland.

The frozen section was reported the mass to be malignant upon which we applied "right total parotidectomy + right functional neck dissection." The postoperative exact pathology result revealed a dedifferentiated ACC with high grade transformation (Figure 5).

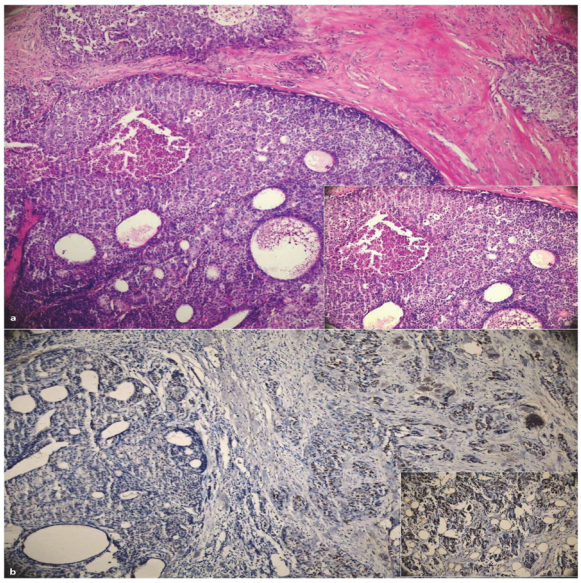

Figure 5. (a) Histopathological view of the dedifferentiated area with pleomorphic nuclei (smaller image) (hematoxylin & eosin x 400); (b) Ki-67 staining in immunohistochemical analysis (large image: x200; small image: x400).

Immunohistochemically, Ki-67 was positive. In addition, we also observed intraglandular lymph-nodes involvement and lymphovascular-perineural tumour invasion. The histopathology of the tumour showed more than 5 mitosis and widespread necrosis in every area. Surgical margins were clean. The patient recovered uneventflully in the postoperative period and, by the decision of the tumour council, we decided to administer postoperative radiotherapy. Patient was tumour free in the 1st, 3rd, 6th, 12th, or 24th month follow-ups.

DISCUSSION

Dedifferentiated ACC is an extremely rare salivary gland malignancy characterized with poor prognosis. Since Stanley et al.'s first case report in 1988, there are only 35 cases with dedifferentiated ACC in the parotid gland in the international literature while there is no such cases in the Turkish national literature (5-6). Unlike common salivary gland ACCs, dedifferentiated ACC's histology shows carcinomatous components with high malignancy, large cytoplasms, and polymorphous nuclei and these components develop outside the acinic cells in varying proportions (4). Again, unlike conventional ACCs, dedifferentiated ACCs show Ki-67 and Cyclin D1 staining in the immunohistochemical analysis and this is helpful in diagnosis.

In a similar way to conventional ACCs, dedifferentiated ACCs are also usually located in the parotid gland (4-6). Tumours may be originating from the superficial or deep lobe of the parotid and Costa et al.'s survey has shown that dedifferentiated ACC rooted in the deep lobe has worse prognosis and higher mortality (6). In our patient, the tumour was located in the superficial lobe and we did not observe any recurrence in the early and late follow-up, which is an indicator of good prognosis of the ACCs originated from the superficial lobe. Dedifferentiated tumours tend to occur in older ages unlike traditional ACCs. While the average age for traditional ACC is 44, it is 58 in dedifferentiated tumours (7). Henley et al.'s study reports that dedifferentiated tumours are more common in elderly men and it has poor prognosis with a presence of lymph node metastases in up to 60% of the patients at diagnosis (4). Apart from the lymph nodes, distant metastases especially in the lung, abdomen, and brain can be recognised at diagnosis. In our case, we did not observe any distant metastases throughout the metastases scanning prior to radiotherapy.

Other salivary gland neoplasia must be excluded in the differential diagnosis. Fast growing parotid masses are noteworthy in dedifferentiated ACC. More common neoplastic lesions such as mucoepidermoid carcinoma and pleomorphic adenoma may present with large parotid masses however, in this case, it generally takes a long time for the mass to reaches a large size. Ductal carcinoma, poorly differentiated adenocarcinoma, papillary cystadenocarcinoma, mucoepidermoid carcinoma, and metastatic follicular thyroid cancer should be considered in pathological differential

diagnosis. While the absence of pleomorphic cell clusters differentiates ACC from ex-pleomorphic adenocarcinoma, the absence of three-dimensional stromal chondromyxoid and intracytoplasmic mucin differentiates ACC from mildly differentiated adenocarcinoma. Again, the absence of irregular, multi-layered epidermoid cell clusters help differentiate ACC from mucoepidermoid carcinoma. Specific immunohistochemical markers can also be used in differential diagnosis. Ska'lova et al.'s 9-case dedifferentiated ACC series reports that eight of the patients did not show androgen receptor positivity in the immunohistochemical analysis. The study also relates that all nine patients underwent beta-catenin staining and each of them had high levels of Cyclin D1 staining and elevated Ki-67 staining (8).

There is a limited number of sources in the literature with regards to findings about ACCs located in the head and neck. Acinic cell carcinomas often show nonspecific features similar to pleomorphic adenomas and Warthin's tumours. In their study comparing the ultrasound and tomographic images of primary ACCs, Li et al. have claimed that, since ACCs have well-defined margins, they show characteristics of benign tumours which makes it difficult to radiologically distinguish benign, malignant, metastatic tumours (9). Suh et al. have stated that a potential ACC diagnosis should be considered in the presence of solid lesions with focal low-attenuation (regardless of the presence of visible calcification) and solitary cystic lesion in salivary glands (regardless of the presence of any pathologic lymph nodes) (10).

Superficial or total parotidectomy is usually sufficient in the treatment of patients with traditional ACC and the 5-year disease-free survival rate in these patients is reported to be between 88% and 92% (1, 2, 11). However, most of the time, tumour recurrence takes place within the first 5 years of treatment. Hickman et al. have reported a recurrence rate of 35% and a mortality rate of 16% in the ACC patients who underwent surgery (12). Since they are rarely reported in the literature, there is no common treatment algorithm for dedifferentiated ACCs. On the other hand, due to the aggressive nature of the tumour, an aggressive treatment manner that would include radical neck dissection in addition to total parotidectomy followed by adjuvant radiotherapy should be assumed (4, 5). Chemotherapy should be added to the therapy in patients with distant metastasis. Despite the assumed aggressive methods, tumour recurrence and mortality rates are higher in dedifferentiated cases compared to conventional ACCs. In this paper, we aimed to share a case of dedifferentiated ACC, a subgroup of ACC, which is a rare tumour of the parotid gland, with our colleagues. When diagnosed, a combined multi-modality treatment should be applied in this kind of ACCs since they are more aggressive and different from other salivary gland tumours. Besides, patients should be informed about early and late recurrence and, keeping in mind that recurrence is still possible even after 10-20 years, dedifferentiated ACC patients should be closely followed over long periods of time.

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REFERENCES

1. Hoffman HT, Karnell LH, Robinson RA, Pinkston JA, Menck HR. National Cancer Data Base report on cancer of the head and neck: acinic cell carcinoma. Head Neck. 1999;21:297-309.
2. Kim SA, Mathog RH. Acinic cell carcinoma of the parotid gland: a 15-year review limited to a single surgeon at a single institution. Ear Nose Throat J. 2005;84(9):597-602
3. Harbo G, Bundgaard T, Pedersen D, Søgaard H, Overgaard J. Prognostic indicators for malignant tumours of the parotid gland. Clin Otolaryngol Allied Sci. 2002;27(6):512-6.
4. Henley JD, Geary WA, Jackson CL, Wu CD, Gnepp DR. Dedifferentiated acinic cell carcinoma of the parotid gland: a distinct rarely described entity. Hum Pathol. 1997;28(7):869-73.
5. Stanley RJ, Weiland LH, Olsen KD, Pearson BW. Dedifferentiated acinic cell (acinous) carcinoma of the parotid gland. Otolaryngol Head Neck Surg. 1988;98(2):155-61.
6. Costa AF, Altemani A, Hermsen M. Current concepts on dedifferentiation/high-grade transformation in salivary gland tumors. Patholog Res Int. 2011;2011:325965.
7. 7. González-Peramato P, Jiménez-Heffernan JA, López-Ferrer P, Vicandi B, Viguer JM. Fine needle aspiration cytology of dedifferentiated acinic cell carcinoma of the parotid gland: a case report. Acta Cytol. 2006;50(1):105-8.
8. 8. Ska´lova´ A, Sima R, Vanecek T, et al. Acinic cell carcinoma with high-grade transformation: a report of 9 cases with immunohistochemical study and analysis of TP53 and HER-2/neu genes. Am J Surg Pathol. 2009;33:1137–45.
9. 9. Li J, Gong X, Xiong P, Xu Q, Liu Y, Chen Y, Tian Z. Ultrasound and computed tomography features of primary acinic cell carcinoma in the parotid gland: A retrospective study. Eur J Radiol. 2014;83(7):1152-6.
10. 10. Suh SI, Seol HY, Kim TK, Lee NJ, Kim JH, Kim KA, Woo JS, Lee JH. Acinic cell carcinoma of the head and neck: radiologic-pathologic correlation. J Comput Assist Tomogr. 2005;29(1):121-6.
11. 11. Cha W, Kim MS, Ahn JC, Cho SW, Sunwoo W, Song CM, Kwon TK, Sung MW, Kim KH. Clinical analysis of acinic cell carcinoma in parotid gland. Clin Exp Otorhinolaryngol. 2011;4(4):188-92.
12. 12. Hickman RE, Cawson RA, duffy SW. The prognosis of specific types of salivary gland tumors. Cancer 1984;54:1620-4.

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