

Aggressive parotid gland and neck metastasis caused by cutaneous squamous cell carcinoma of the scalp: A Case Report.

Metástasis agresiva de glándula parótida y cuello causada por carcinoma cutáneo de células escamosas de cuero cabelludo: reporte de un caso.

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Abstract: Introduction: The head and neck are frequent sites for the development of cutaneous cancer and squamous cell carcinoma of the skin (SCC), one of the more frequent malignant non-melanoma skin neoplasms in Chile (436 per 100,000 inhabitants). Between 5-10% skin SCC progresses aggressively generating metastasis to parotid and cervical lymph nodes.

Case Report: A 82 years old male, presents painful increased volume lesion in the mandibular area. He has a history of chronic arterial hypertension, acute renal failure, SCC of the scalp, extra-pulmonary tuberculosis, chronic sun exposure and smoking. Extraoral examination showed a 4 cm lesion in the posterior third of the mandibular branch, with undefined edges, a firm consistency and painful on palpation. Intraorally, erythematous mucosa is observed, as well as lack of lubrication, tenderness and cortical bone expansion. Incisional biopsy is performed, imaging and histological exams are requested. The results indicate the presence of SCC, and therefore referral to secondary care. Many risk factors are associated with SCC development, with ultraviolet radiation the most relevant in this case, favoring its appearance on the scalp. The probability of metastasis is low, but when it happens, the majority of cases that started in the scalp, disseminate to the parotid and cervical region. **Conclusion:** The SCC has a good prognosis. However, there are antecedents, such as size and location, that must alert the professional to perform the monitoring, early screening, control of metastatic nodes in maxillofacial area.

Keywords: carcinoma squamous cell; parotid neoplasms; skin neoplasms; pathology oral; mouth neoplasm; neoplastic processes.

Resumen: Introducción: La cabeza y el cuello son sitios frecuentes de desarrollo de cáncer cutáneo y el carcinoma epidermoide de piel (CEC) es una de las neoplasias malignas sin melanoma más frecuentes en Chile (436 por 100.000 habitantes). Entre el 5% y el 10% del CCE cutáneo progresa de forma agresiva y genera metástasis en los ganglios linfáticos parótidos y cervicales. **Reporte de Caso:** Varón de 82 años, presenta lesión dolorosa de aumento de volumen en zona mandibular. Tiene antecedentes de hipertensión arterial crónica, insuficiencia renal

aguda, CCE del cuero cabelludo, tuberculosis extrapulmonar, exposición crónica al sol y tabaquismo. El examen extraoral mostró una lesión de 4 cm en el tercio posterior de la rama mandibular, con bordes indefinidos, consistencia firme y dolorosa a la palpación. Intraoralmente se observa mucosa eritematosa, así como falta de lubricación, dolor a la palpación y expansión del hueso cortical. Se realiza biopsia incisional, se solicitan exámenes de imagen e histológicos. Los resultados indican la presencia de CCE y, por tanto, derivación a atención secundaria. Son muchos los factores de riesgo asociados al desarrollo de CEC, siendo la radiación ultravioleta la más relevante en este caso, favoreciendo su aparición en el cuero

cabelludo. La probabilidad de metástasis es baja, pero cuando ocurre, la mayoría de los casos que comenzaron en el cuero cabelludo se diseminan a la región parotídea y cervical.

Conclusión: El SCC tiene un buen pronóstico. Sin embargo, existen antecedentes, como tamaño y ubicación, que deben alertar al profesional para realizar el seguimiento, cribado precoz, control de ganglios metastásicos en zona maxilofacial.

Palabra Clave: carcinoma de células escamosas; neoplasias de la parótida; neoplasias cutáneas; patología oral; neoplasia bucal; procesos neoplásicos.

INTRODUCTION.

The most frequent maxillofacial skin cancers occur in the scalp and face.¹ Cutaneous squamous cell carcinoma (SCC) is the second most common non-melanoma skin cancer of the keratinocyte type, with a 20% prevalence.² A recent study shows a 263% increase in incidence, between 1976-84 and 2000-10, associated with an increase and aging of the population.³

The mortality rate of SCC in the USA tends to be as high as that of renal and oropharyngeal carcinomas.⁷ Non-melanoma cancers may spread through lymph to other regions of the head and neck.^{1,4,5,6} The incidence of regional metastasis in patients affected by maxillofacial SCC is between 2% to 5%, with the parotid and neck lymph nodes the most affected.^{1,2,8}

In this case-report the clinical presentation, symptomatology, imaging and histological studies are described, which allowed the diagnosis of a rare metastasis of a scalp SCC in the parotid gland and neck.

CASE REPORT.

An 82-year-old male presented to the Dental Emergency Unit because of a growing mass in the right mandibular body which had developed during the previous three months (Figure 1A). The patient consulted because the lesion had become painful of late, with pain irradiating to the neck. Informed consent was obtained from the patient and ethics clearance was obtained from the institutional ethics committee.

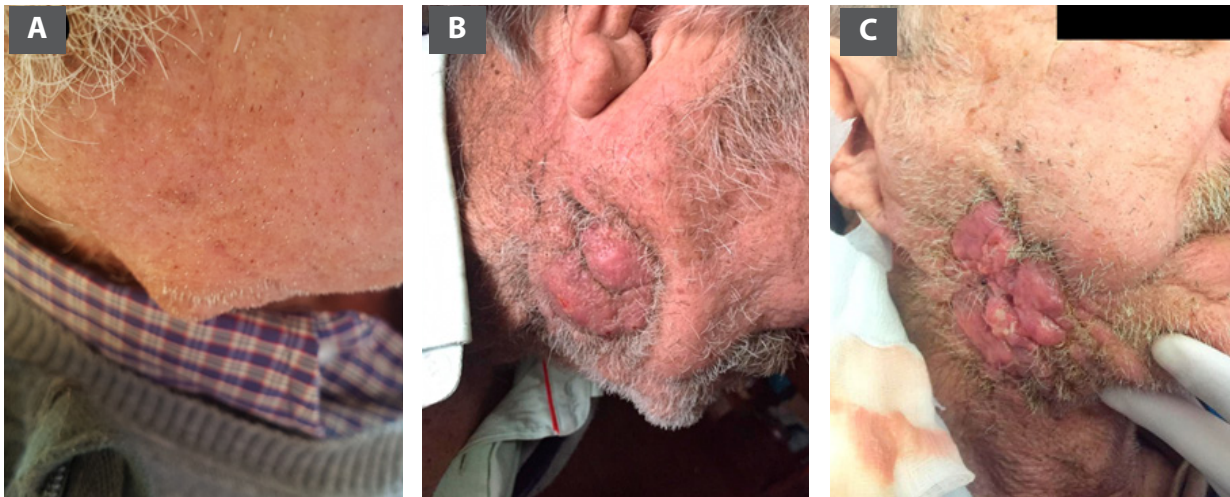
A history of chronic arterial hypertension and acute renal failure was detected, which had resulted in a partial nephrectomy of the right kidney, caused by an infection by *Mycobacterium tuberculosis*.

The patient, in addition to presenting a history of SCC in the scalp, was in the diagnostic stage T2N0M0, with a tumor of 2.6cm of major axis and with a histological subtype associated with healing processes, which was removed surgically 5 years prior. There was no medical story since then, as the patient had not attended follow-up medical control appointments. The lesion was 4cms in its major axis (Figure 1A). In the medical history, the patient reports adynamia, orofacial myalgia, cervical myalgia, long-standing headache and dysarthria.

During the intraoral physical examination, the presence of erythematous mucosa was observed with lack of lubrication, pain on palpation, slight expansion of bone tables and the only remaining tooth (1.5) presented severe periodontal disease. Taking the aforementioned into consideration, the referral to an oncologist was made and a Lateral Teleradiography (LT) and Xpert® assay test for tuberculosis was requested. The Xpert® test was negative for *Mycobacterium tuberculosis*. The LT showed a soft tissue mass lodged in the lower and lateral part of the right mandibular body, which presented a predominantly radiolucent density. The right mandibular cortical bone presented a notorious expansion (Figure 3A and Figure 3B).

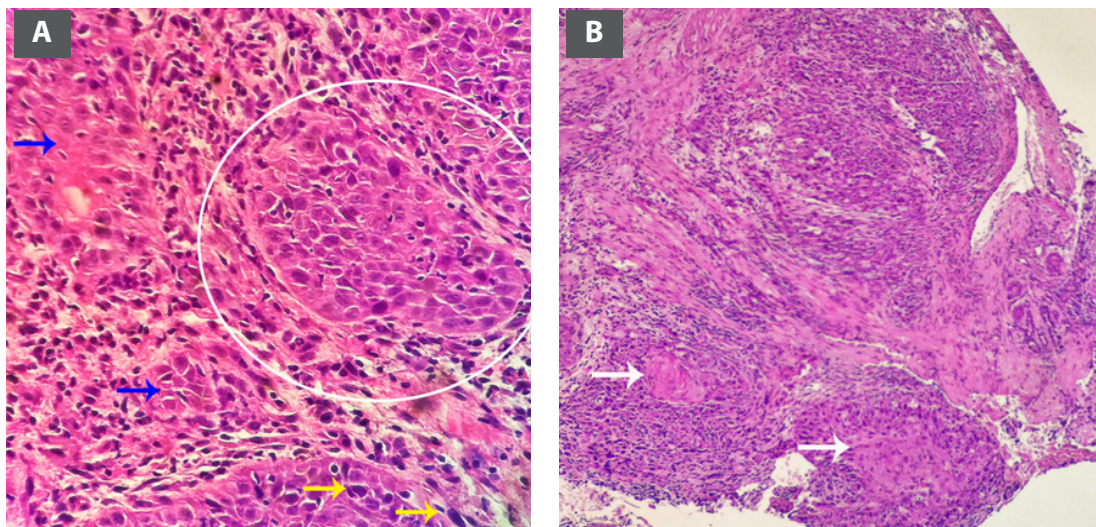
Because of the quick evolution (Figure 1B) and to gather more detail about the nature of the lesion, a Computed Axial Tomography (CT) scan was requested, which confirmed the presence of a primary tumor of 6.5 x 4.3 x 4.2cm dependent on the parotid gland that was distributed from the lower edge of the gland, both externally and internally of the right mandibular body to the hyoid bone, compromising the para-median space of the floor of the mouth and yuxta-pharyngeal space,

Figure 1. Clinical photographs taken during follow-up of the metastatic SCC tumor in the parotid gland and neck.



A: At the time of detection. B: At 4 months after detection C: At 6 months after detection.

Figure 2. Images of histological sections



A: Histopathological sample (40x magnification). Cutaneous squamous cell carcinoma, poorly differentiated section. Hyperchromatism (yellow arrows), intense cell pleomorphism (white circle), fusiform cells, abnormal mitosis (blue arrows) and absence of keratin production can be observed. B: Histopathological sample (4x magnification). Cutaneous squamous cell carcinoma, differentiated section. Aberrant clusters of keratin (keratin pearls, white arrows) can be observed. Both histopathological samples (A and B) belong to the same SCC tumor.

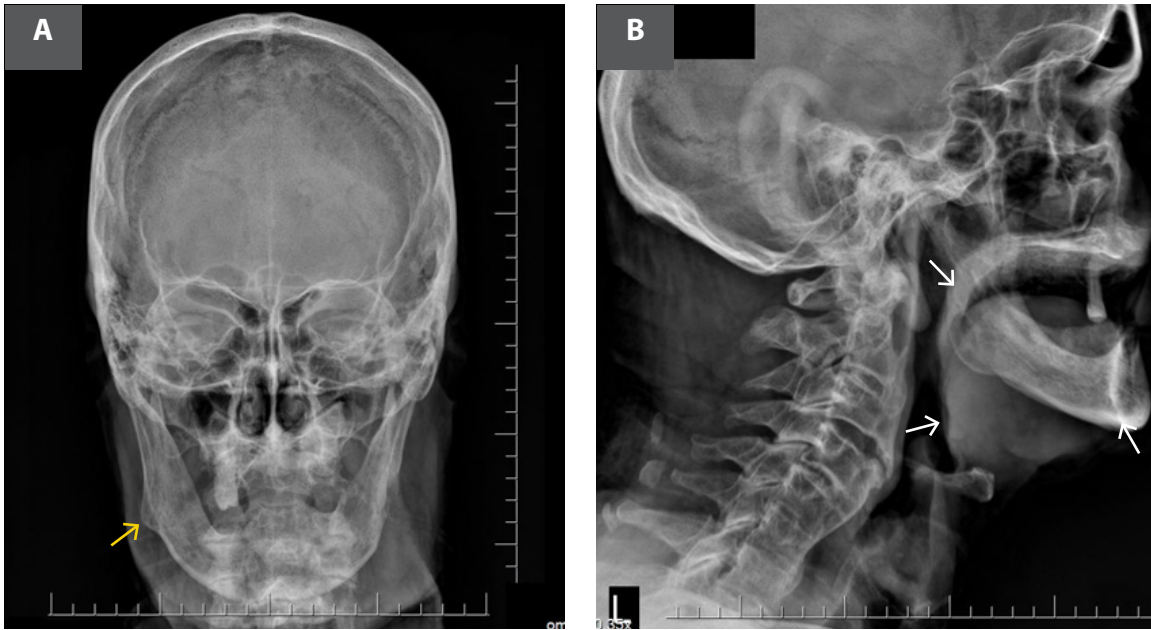
spreading through the adipose tissue and subcutaneous tissue. This presented hypoplastic formations with tenuous but homogeneous reinforcement of the submandibular gland. In addition to the above, multiple sub and paralingual adenopathies were observed in relation to the right carotid chain (Figure 4A and Figure 4C).

For additional information, an excisional biopsy was performed, and the presence of SCC was confirmed due to the loss of epithelial integrity, where no infiltration

of the epithelium into the submucosa was observed. However, within the same histopathological sample extracted for analysis, undifferentiated segments were also detected (Figure 2A and Figure 2B).

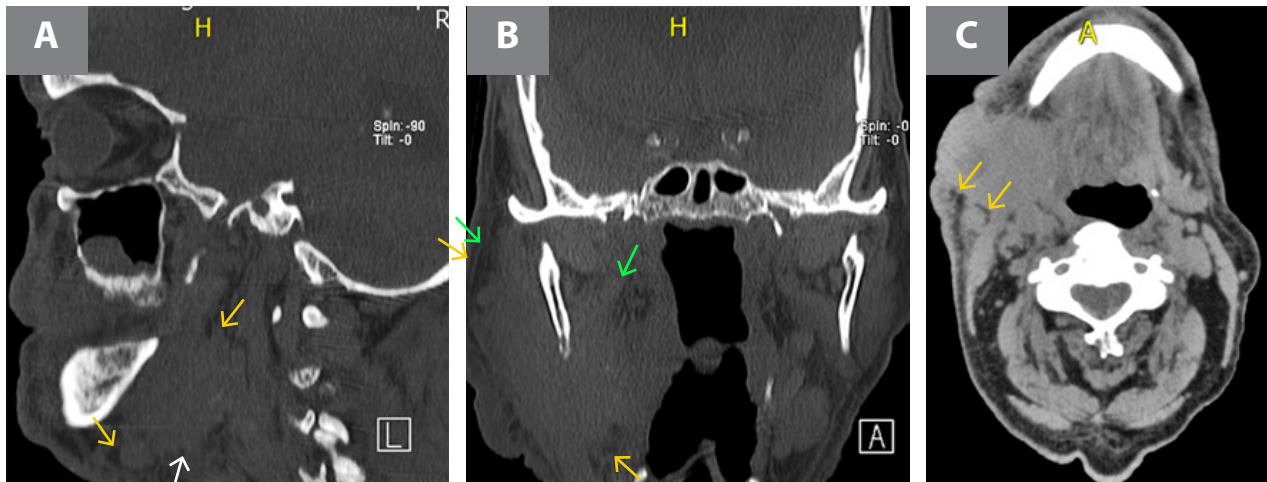
The stage of the tumor at the last medical follow-up, 6 months after detection, was T3N1MXP2, according to the official classification of the AJCC (8th Ed.), together with that proposed by O'Brien *et al.*,¹ This lesion was exophytic, painful and suppurating in the central

Figure 3. Radiographic records.



A: Frontal teleradiography after the first consultation. A clear expansion of right mandibular bone tables (yellow arrow) is noticed.
B: Lateral teleradiography after the first consultation. Radiopaque mass is evident that occupies part of the oral cavity and neck (white arrows).

Figure 4. Computed Axial Tomography record.



Computed axial tomography. The presence of a primary tumor of 6.5 - 4.3 - 4.2 cm³ in stage T3N2MXP1 is evidenced, according to the AJCC classification, adapted to O'Brien *et al.*,¹ This presents hypocaptant formations with tenuous but homogeneous reinforcement of the submandibular gland (white arrows) and parotid (green arrows). Multiple sub and paralingual metastases in relation to the right carotid chain (yellow arrows).

part (Figure 1C). Because of the poor prognosis, the oncologist suggested avoiding surgical interventions, chemotherapy and radiotherapy treatment, only indicating palliative drug treatment for pain management, to which the patient agreed.

It can be concluded that for the five years after the

scalp SCC extirpation, the pathology prevailed and the cancer cells lodged in the right parotid and cervical lymph nodes.

Due to the aggressiveness of the pathology, the patient died two months after the palliative treatment was initiated.

DISCUSSION.

Among the most significant risk factors that result in the development of a SCC are sun exposure, fair skin and increasing age, with an average at 60 years old at diagnosis. The maxillofacial SCC is more prevalent in men than women (3:1 ratio).^{2,8,9}

The mortality and incidence rate associated with SCC in the USA is difficult to obtain, since this type of disease is not found in the national tumor registry.^{2,7,8} However, different epidemiological prevalence studies in Europe show an association between gender and age of individuals affected by SCC, with an estimated incidence of 9-96 per 100,000 males and 5-68 per 100,000 females, between 2002 and 2007. In Denmark the mortality was estimated to be 3%-4% in individuals diagnosed with SCC in 1984.⁹ The highest incidence rate of SCC has been found in Australia, where 499 per 100,000 males, and 291 per 100,000 females presented this condition, with a mortality rate of 2 per 100,000 individuals.¹⁰

In Chile, the incidence rate of maxillofacial SCC is between 19.2 and 25.4/100.000 inhabitants, but no data about the incidence and mortality rate of parotid metastasis was found.¹¹ The present case shows a primary SCC that developed on the forehead scalp, associated with severe UV radiation exposure with recurring healing processes. This is corroborated by the literature, since one of the histological subtypes of SCC with the worst prognosis is associated with repetitive scarring processes, with a metastasis risk of 26%-45%.^{1,2,8} One of the most significant factors associated with recurrence, metastasis and high mortality rate is the tumor size. A tumor lesion greater than 2cm in diameter is highly associated with increased mortality, presenting a risk of recurrence two times higher and three times the risk of metastasis, when compared with smaller lesions.¹² The perineural condition is also associated with recurrence and metastasis in 47% and 35%, respectively.⁵

The patient in this case had both risk factors at different times: the lesion extirpated 5 years previously was over 2cm in diameter, as well as the metastasis in the parotid gland when he presented perineural involvement (Figure 1A). The compromise of the facial nerve produced the symptoms of paresthesia and dysesthesia reported by the patient. The abovementioned should alert the practitioner in their initial examination, because metastases to regional head and neck lymph nodes caused by SCC have a high cure rate only when they are

identified and treated early.²

The treatment for most cases of SCC with metastasis is surgery, radiotherapy or both. Surgical therapy in some cases can be radical, especially when the parotid gland condition involves the facial nerve and overlying skin.⁷ In these cases, total parotidectomy is the treatment of choice, with sacrifice of the facial nerve, skin or both. However, despite the great tissue loss, studies indicate that the survival rate in patients with SCC is 80% at three years after surgery, compared with 72% if combined therapy is applied, and 47% when radiotherapy is applied.⁷ On the other hand, surgical therapy is difficult in invasive pathologies, where deep organs of difficult access are compromised. In those cases, radiotherapy is the treatment of choice.^{8,14}

It has been observed in a retrospective clinical-pathological analysis of two years of follow-up that when the disease stage is advanced, even with parotid gland metastasis, the survival rate is 68% for all stages, with the survival rate being 80% in P1.¹² Regarding the regional lymph node metastasis, there is no statistically significant difference in survival rates between stage N0 and N1.^{1,7} Therefore, even in advanced stages of disease, like the one presented here, the treatment could be successful and the prognosis favorable. One of the limitations in this case is that the patient did not undergo follow-up exams in a prompt manner, and a long time passed before a treatment could be determined. Within a shorter time, with the evidence established here, the prognosis and treatment of choice could have been different.

CONCLUSION.

It is of primary concern that antecedent characteristics such as size, location and condition of peripheral nerves of tumors cannot be overlooked and should prompt the dentist to quickly start monitoring, allowing for detection in the early stages that could eventually lead to a metastasis in maxillofacial area. The new evidence about prognosis and survival rates of the treatments available has to be constantly reviewed.

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Ethics approval: Informed consent was obtained from the patient at the time of treatment.

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Authors' contributions: Curiqueo P: Direction of the research process, writing of the article and revision plus final approval of the manuscript. Romero P: Direction of the investigative process, writing of the article and revision plus final approval of the manuscript. Cea M: Direction of the investigative process, writing of the article and revision plus final approval of the manuscript.

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