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Case Report

Primary squamous carcinoma of the submandibular gland: A case report ☆

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ABSTRACT

The uncommon occurrence of primary squamous carcinoma of the submandibular gland makes it a challenge to diagnose and treat. Clinical as well as histopathological assessments are key elements for the diagnosis. Although no clear treatment guidelines exist, surgical excision with a neck dissection is the cornerstone of the treatment with or without adjuvant therapy. In this paper, we report a rare case of a primary squamous carcinoma in an 82-year-old lady with no history of smoking or alcohol use, who presented with a right sided cervical swelling of 3-month duration. An ultrasound guided fine needle aspiration cytology was negative, as well as a panendoscopy with systemic biopsy of the base of tongue and the homolateral palatine tonsil. In addition, a blind fine needle aspiration cytology from the mass during the panendoscopy was performed and was positive for squamous cell carcinoma. A PET scan showed hypermetabolism of the right submandibular gland with no distant lesions. Therefore, a submandibular gland excision was performed with a frozen section histopathological examination in favor of squamous cell carcinoma, therefore the intervention was completed by a selective neck dissection. High clinical suspicion should be present while dealing with this rare entity, as well as not underestimating the poor outcomes associated with it.

Introduction

Primary squamous cell carcinoma (PSCC) of major salivary glands accounts for less than 1% of salivary gland tumors, predominating in the parotid gland [1]. Even more rare, PSCC of the submandibular gland accounts for 2% of all squamous cell carcinoma of major salivary glands. When present in the submandibular gland, PSCC is usually more aggressive with poor outcomes [2]. This could be explained by the fact that these tumors do not present with major symptoms other than swelling in the submandibular region, hence, patients are usually diagnosed at an advanced stages [3]. Clinical suspicion should be present with swellings in the submandibular region,

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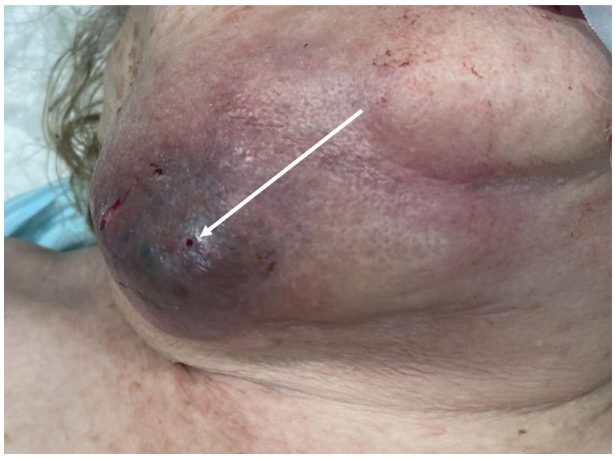

Fig. 1 – The tumor (white arrow) in the left submandibular region with inflammatory cutaneous reaction.

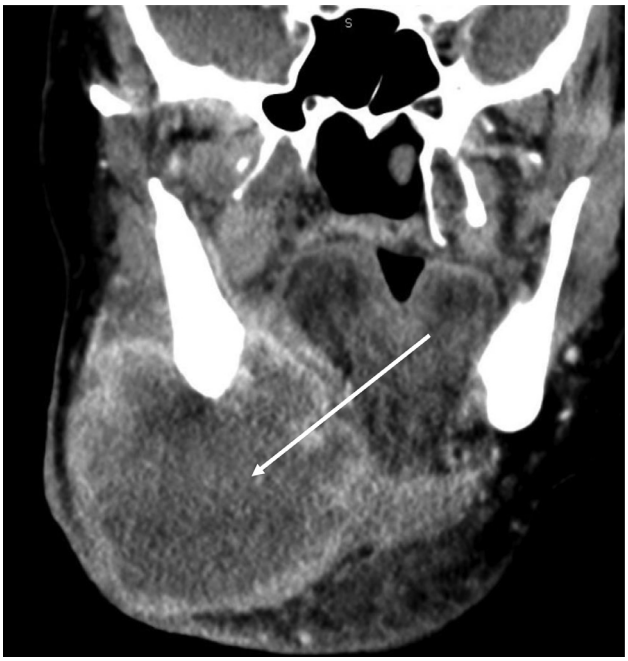

Fig. 2 – CT scan with contrast enhancement (coronal view) showing the right well circumscribed submandibular gland mass (white arrow) with peripheral contrast uptake and central hypodense necrosis.

especially with patients with prior history of radiotherapy exposure, which has been linked to such tumors [1]. Diagnostic workup usually includes an ultrasound with a fine needle aspiration cytology (FNAC), coupled with imaging by CT scan as well as an MRI to explore the lesion. PET scan is not routinely used, as it is reserved for cases with diagnostic difficulty [2]. In this paper, we aim to share our experience with such entity, in order to raise clinical suspicion while facing similar presentations.

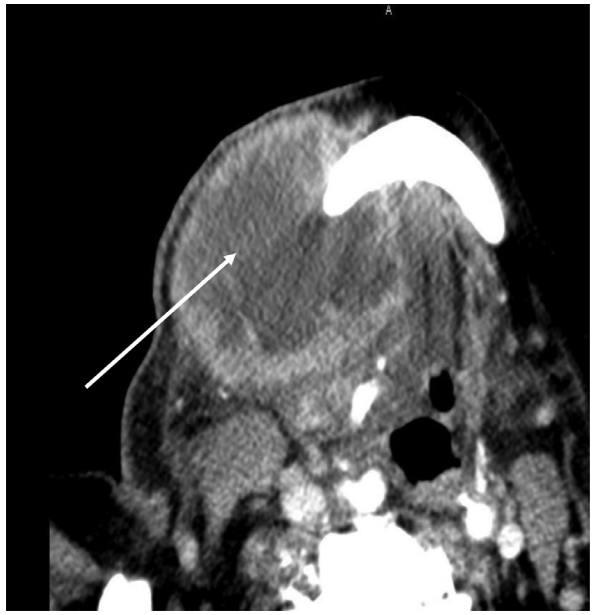

Fig. 3 – CT scan with contrast (axial view) of the right submandibular gland mass (white arrow) with peripheral contrast uptake and central necrosis.

Case report

An 82-year-old lady presented to our ENT outpatient clinic with a history of a right submandibular swelling of 3 months' duration associated with recent pain and weight loss. She had denied history of smoking, alcohol use, or any prior exposure to radiotherapy. She didn't present dysphagia or odynophagia. The clinical examination showed a 5 cm mass, tender to palpate in the right submandibular angle with a cutaneous inflammatory reaction (Fig. 1). The examination of the oral cavity was normal as well as the nasofibroscopic examination. An ultrasound guided fine needle aspiration cytology (FNAC) was performed and was negative for malignancy. A CT scan of the cervical and thoracic regions showed a well circumscribed mass within the right submandibular gland that measured 46 × 39 × 36 mm with central necrosis and peripheral contrast enhancement without distant lesions (Figs. 2 and 3). A panendoscopy under general anesthesia didn't show any anomalies or mucosal lesions, therefore systemic biopsy of the base of tongue as well as the homolateral palatine tonsil was performed, in addition to a blind fine needle aspiration of the mass. The biopsy from the palatine tonsil and base of the tongue was negative for malignant cells. However, the blind fine needle aspiration from the mass was positive for keratinizing squamous cell carcinoma which was p16 negative. A PET scan showed an intense hypermetabolism of the right submandibular gland with no distant lesions. Tumor board decision was in favor of surgical intervention along with an intra operative frozen section histopathological examination. The excision of the submandibular gland was performed, and the frozen section was in favor of a squamous cell carcinoma, therefore the act was completed by a supra omohy-

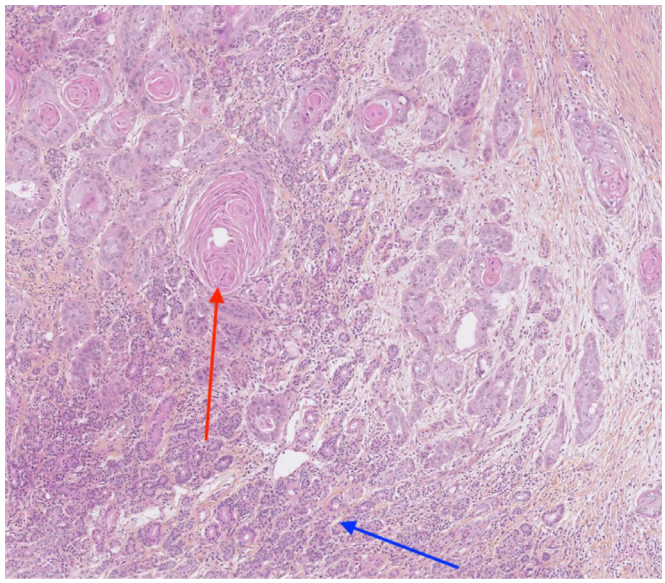

Fig. 4 – Microscopic image of the tumor with hematoxylin-eosin saffron (HES) staining, x5 magnification, showing the tumor cells (red arrow) within the normal submandibular gland (blue arrow).

oid selective neck dissection. The definitive histopathological examination showed a keratinizing, well differentiated superficially, moderately differentiated profoundly squamous cell carcinoma of the submandibular gland (Fig. 4). There were neoplastic emboli and rare perinervous invasion. Immunohistochemical studies showed absence p16, positive PD-L1 in some tumoral cells, and a combined positive score (CPS) = 16. The excision margin was less than 0.5 mm laterally, whereas the other margins were negative. The neck dissection showed 18 lymph nodes from groups (2, 3, and 4) with absence of lymph node invasion in any of the 18 lymph nodes. Tumor board decision after the histopathological results was in favor of adjuvant radiotherapy, which the patient is currently undergoing.

Discussion

PSCC of the submandibular gland has been reported to account for 2% of malignant submandibular tumors, with a male predominance (male to female ratio of 2:1), and occurrence between the sixth and eighth decade [1]. The major risk factor identified is prior exposure to radiation, with a median time between the exposure and development of the tumor of 15.5 years [4]. Another risk factor demonstrated was genetic alteration with activation of Wnt/β-catenin which is linked to development of aggressive squamous cell carcinoma of the salivary glands [5]. The typical risk factors in other head and neck squamous cell carcinomas (SCC) might be less evident in PSSC of major salivary glands. A retrospective analysis has shown that smoking history was associated only in 41.6% [2], whereas tobacco use was associated with 75% of other head and neck SCC in Europe or the United States [6]. This can explain why in our case the patient had no previous history of smoking.

PSCC of the major salivary glands is a clinico-pathological spectrum ranging from slow growing low grade well differentiated tumors with less frequent loco-regional metastasis, to poorly differentiated fast growing tumors, with more frequent loco-regional metastasis and being chemo-resistant [7,8].

Due to how rare PSCC is in the submandibular gland, is important to eliminate a primitive lesion with metastasis to the gland. It has been reported that there is 1% of submandibular gland metastasis in the case of oral cavity SCC [9].

There are no specific guidelines for the treatment of PSCC of the submandibular gland, however there is a general consensus that the surgical treatment is opted for in primary intention. Neck dissection in addition to primary tumor resection is necessary due to the high risk of nodal involvement which has been reported to be as high as 56% for SCC of the major salivary glands [10].

Adjuvant therapy can be debatable as the general consensus is towards having an adjuvant therapy which is described in numerous case reports [1,3]. On the other hand, it has been reported that there is no statistically significant difference in local control between patients treated by surgery alone versus surgery and adjuvant therapy (by radiotherapy alone or chemoradiotherapy) [10]. In our case the decision of adjuvant radiotherapy was taken as the tumor excision margins were not all clear.

Conclusion

PSCC of the submandibular gland is a challenging entity due to its rarity and the fact that diagnosed by exclusion. A high clinical suspicion, in addition to histopathological examination is key for the diagnosis. The cornerstone of management of such cases is the surgical intervention with or without adjuvant therapy.

Authors' contributions

Dhari Al Burshaid: Writing - Original Draft, Conceptualization. Catherine Douchet: Writing - review & editing. Ambre Charlery Adele: Supervision, Validation.

Patient consent

I, Dhari Al Burshaid, the corresponding author of the case report titled "*Primary squamous carcinoma of the submandibular sgland: A case report*." state that the patient has given us full consent for publishing her case for medical research purposes.

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