Case Report

Sebaceous Carcinoma of Submandibular Gland Presenting with Upper Airway Obstruction: A Case Report and Review of the Literature

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Abstract

Sebaceous carcinoma (SC) of the salivary gland is a very rare tumor occurring more in the parotid gland. It is extremely rare in the submandibular gland. Only four cases of submandibular gland SC have been reported worldwide in English literature. We present the first case of submandibular gland SC in our environment and the fifth to be reported in English literature. A 55-year-old male farmer presented to our facility with a 10-year history of progressive, painless left submandibular mass, which worsened 4 months before presentation, associated with dysphagia to solid, muffled voice, weight loss, and upper airway obstruction. He had emergency tracheostomy and biopsy of the left submandibular mass. Histopathological examination of the mass confirmed SC. He was referred for radiotherapy but said to have died few weeks later while still preparing to travel for the radiation therapy. The rarity of these cases made the clinicopathologic pattern to be poorly understood thus making the choice of treatment option difficult. More cases need to be reported in other to develop the best treatment modalities.

Keywords: Sebaceous carcinoma, submandibular gland, upper airway obstruction

Introduction

Sebaceous glands are holocrine adnexal components of the skin, usually found in close association with hair follicles.[1,2] They are predominantly found around the periocular region, especially the eyelid.[1-5] Sebaceous glands could also be found in salivary glands; about 11%–28% of sebaceous glands occur in the parotid glands, and 6% in the submandibular glands.[1-6] However, malignant changes of these glands are extremely rare.[1-7] Sebaceous carcinoma (SC) of the salivary gland occurs more in the parotid than in submandibular and sublingual glands.[1-7] The parotid gland is the second-most frequent site for SC in the head-and-neck region.[3-7] From the available literature search, only four cases of submandibular gland SC have been reported and none from Africa. Our case may likely be the 5th to be reported worldwide and the first in Africa. Because of the rarity of cases of submandibular gland SC, there has been the paucity of data on its etiology, pathogenesis, and management modalities. For the effective understanding of the clinicopathologic characteristics of these tumors vis-à-vis development of best treatment modalities, more data need to be reported on the existences of these cases, hence the rationale behind our report.

Case Report

IMM was a 55-year-old male farmer who was referred to our clinic with a 10-year history of left-sided, progressive, painless submandibular swelling, which worsened 4 months before presentation. There was associated dysphagia to solid, muffled voice, weight loss, and upper airway obstruction. General examination showed a chronically ill-looking middle-aged man, in obvious respiratory distress. Neck examination

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revealed a huge left submandibular swelling that crossed the midline, measuring 10 cm × 8 cm, firm, fixed to the underlying structures but not attached to the skin. There were multiple, firm, matted, level II-V ipsilateral cervical lymphadenopathy, the largest measured 7 cm × 4 cm [Figure 1a]. On the contralateral side, there were multiple, firm, matted, level II and III cervical lymphadenopathy, the largest measured 3 cm × 4 cm [Figure 1b]. No cranial nerve palsy. Indirect laryngoscopy revealed a huge mass at the base of the tongue which was more toward the left side, obscuring the view of the laryngeal inlet. Pooling of purulent discharge was also noted in the hypopharynx. Assessment of malignant left submandibular tumor (Stage IVb: $T_3N_{3a}M_x$) was made.

CT scan of the neck revealed a huge ill-defined heterogeneous predominantly isodense mass in the submandibular region bilaterally but more on the left, extending superiorly to the floor of the mouth with minimal displacement of the tongue [Figure 2a]. Posteriorly, it extends to the oropharynx and hypopharynx, as well as the upper half of the larynx, compressing, and obliterating the airway at that level [Figure 2b]. Osteolytic destruction of the hyoid bone was also noted. There were multiple discrete oval masses of varying sizes with few having hypodense area of fluid density and some having peripheral curvilinear calcifications, all noted at the lateral aspect of the neck as well as submandibular and parotid region bilaterally (representing lymphadenopathy) [Figure 3]. Minimal heterogeneous contrast enhancement of the mass was noted. The thyroid gland was displaced and distorted.

Abdominopelvic ultrasound showed features of bilateral renal parenchymal disease with the complex left renal cyst. Chest radiograph was normal. Complete blood count, electrolyte, urea, and creatinine were normal, but erythrocyte sedimentation rate was raised (126 mm/h). Fine-needle aspiration cytology (FNAC) of the left cervico-mandibular swelling yielded scanty hemorrhagic aspirate on macroscopy, while microscopic examination showed moderately cellular smear, composed of few clusters of epithelial cells that were mildly pleomorphic, having round-to-oval nuclei and moderate cytoplasm, numerous polymorphs, and few lymphocytes. These features were suspicious of malignancy.

He had emergency tracheostomy under general anesthesia and biopsy of the left submandibular mass was taken. A size 18G nasogastric tube was passed for feeding. Immediate postoperative condition was satisfactory.

Histologically, tissue sections composed of an epithelial neoplasm made up of nest and lobule of sebaceous epithelial cells separated by fibrocollagenous stroma composed of fairly uniform cells with clear cytoplasm surrounded by palisades of cells that have round to oval nuclei and eosinophilic cytoplasm, and peripherally exhibiting squamous metaplasia [Figure 4]. Frequent mitotic figures were noted including abnormal forms (3–4/HPF). Features were consistent with SC.

Our patient was referred for radiotherapy due to advanced disease (Stage IVb). However, he died while he was being prepared for radiation therapy.

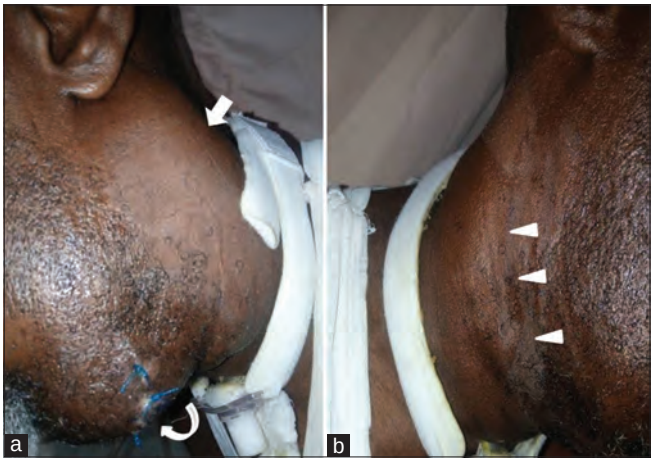

Figure 1: Clinical photograph of the patient showing (a) multiple levels II-V left cervical lymphadenopathy (straight arrow) and submandibular region fullness (curved arrow) and (b) multiple level II and III right cervical lymphadenopathy (arrow heads)

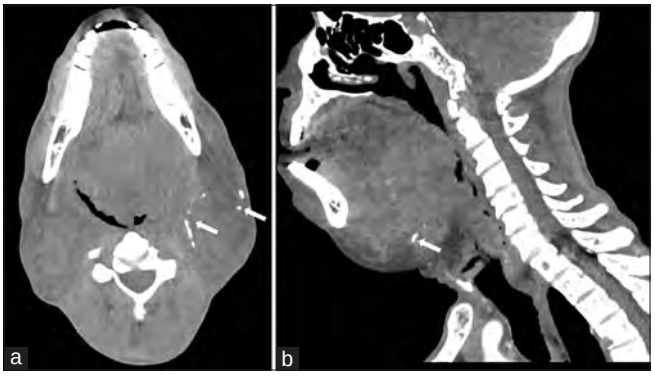

Figure 2: (a) Axial and (b) sagittal computed tomography scan of the neck showing a huge ill-defined heterogeneous predominantly isodense mass in the bilateral submandibular region more to the left and extends superiorly to the floor of the mouth. Curvilinear calcifications are noted (arrows)

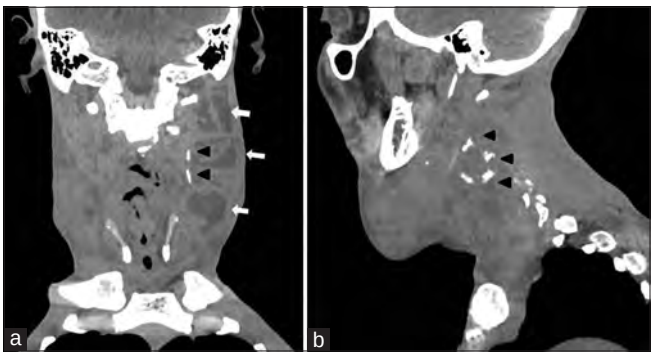

Figure 3: (a) coronal and (b) sagittal computed tomography scan of the neck showing multiple discrete oval masses of varying sizes in the lateral aspect of the neck and submandibular regions bilaterally with some having hypodense area of fluid density (arrows) and others show peripheral curvilinear calcifications (arrow heads) –representing lymphadenopathy

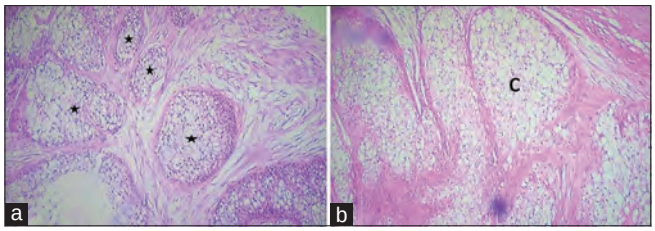

Figure 4: Photomicrograph; (a) section shows sebaceous cells arranged in a lobular pattern displaying mild pleomorphism – asterisks (H and E, ×100) and (b) the cells are fairly uniform having round to oval nuclei with clear eosinophilic cytoplasm – letter C (H and E, ×400)

Discussion

Sebaceous cells are found more in the eyelids but could also be found on the skin, major salivary glands (especially in the parotid glands), oral cavity, vallecular, epiglottis, and hypopharynx.[1-9] Tumors of sebaceous cells such as sebaceous adenoma, sebaceous lymphadenoma, SC, and sebaceous lymphadenocarcinoma are very rare.[3] They account for <0.2% of all major salivary gland tumors.[6,8] Though the origin of SC within the major salivary glands is unclear, SC has mainly been reported in the parotid glands with few reported cases in the submandibular glands.[1-9] Based on the available search online, only four cases of primary SC of the submandibular glands have been reported in English literature; two cases in Japan, one in France, and one in Korea.[6,9-13] The index case is the first to be reported in Nigeria and the continent of Africa.

The clinicopathological characteristics and histogenesis are not fully understood due to its rarity.[3] Human papillomavirus infection, dysregulated cytokine secretion, and mutations in tumor suppressor genes such as p53 might contribute to the development of sporadic cases of SC.[4] SC usually arises de novo, but it may also arise from previous lesions, such as nevus sebaceous of Jadassohn.[4,14] In the elderly, SC may develop either from benign or malignant epidermal/adnexal neoplasms, such as syringocystadenoma papilliferum, trichoblastoma, sebaceoma, and basal cell carcinoma.[4,14] The peak incidence of SC is in the second to third decades and seventh to eight decades of life with no gender predilection.[4-8] Our patient was a male and in his fifth decade of life.

Patients with submandibular gland malignancy often present with either a slow or rapidly growing mass in the submandibular triangle of the neck, with or without pain.[5,6,8,15] Clinically, they appear firm, lobulated, fixed to the skin, or deeper structures, and may be associated with paralysis of the marginal mandibular branch of the facial nerve, lingual nerve, or hypoglossal nerve.[6,15] Our patient presented with 10-year history of left-sided, painless, progressive submandibular swelling, which worsened 4 months before presentation, with associated dysphagia to solid, muffled voice, weight loss, and upper airway obstruction. This is the only case of the four reported cases of submandibular gland SC that presented with upper airway obstruction (which necessitated emergency tracheostomy) likely due to the extension of the mass to the floor of the mouth causing displacement of the tongue, its extension to the oropharynx and hypopharynx, as well as the upper half of the larynx, compressing, and obliterating the airway at that level. This could also explain the dysphagia that the patient presented with. The extension of the mass to the base of the tongue/oropharynx could explain the muffled voice in this patient.

Clinical and radiological examinations are not sufficient enough to make the diagnosis of submandibular gland SC or any other submandibular gland malignancy, thus the need for histological examination.[3,6,16] FNAC most especially done under ultrasound guidance has 80% and 97% sensitivity and specificity in differentiating between benign and malignant tumors, respectively.[15] However, it has limitations in differentiating the specific malignant subtype and grade of the tumor.[3,6,15] It is based on this limitation that recent studies suggest the role of core needle biopsy as a superior method to FNAC in diagnosing salivary gland malignancies; however, it has the risk of nerve injury, hematoma, and increased pain.[6,15,17] Incisional biopsy can be done most, especially in cases of minor salivary gland tumors in the oral cavity, but not recommended in the major salivary gland due to risk of nerve injury and tumor seeding.[15] Intraoperative frozen section can also be done, and has a sensitivity and specificity of 90% and 99%, respectively, in differentiating benign from malignant lesions.[15] In this patient, the FNAC of the left cervico-mandibular swelling showed moderately cellular smear, composed of few clusters of epithelial cells that were mildly pleomorphic, having round-to-oval nuclei and moderate cytoplasm, numerous polymorphs, and few lymphocytes. The histological findings obtained from the biopsy of the mass showed features in keeping with SC. Tumors of the salivary gland are uncommon with diverse histologic types, thus making diagnosis complex and difficult.[6,15] H and E staining is still the gold standard diagnostic method, while immunohistochemistry increases the accuracy of making diagnosis.[6,15,18] The hallmark of making the diagnosis of SC is the identification of sebocytes,[6] and this is in line with our histopathological findings.

The treatment of choice for submandibular gland SC has not been established due to its rarity and paucity of published data.[3,5-8] However, the recommended treatment option for the salivary gland malignancies is wide surgical excision with negative margins for low-grade tumors.[3,5-8,15] Adjuvant radiotherapy is indicated for advanced malignancies, cervical metastasis, perineural invasion, lymphovascular invasion, extraglandular extension, high differentiations, or positive margins.[3,5-8,15] Primary radiotherapy is usually recommended for unresectable tumors, distant metastasis and when the patient is a poor candidate for surgery.[15] Elective neck dissection should be considered in cases with marked cytologic atypia or when the facial nerve is involved.[5,6] Chemotherapy and biological targeted therapy are essentially effective in cases of lymphomas or when providing palliative care, but they are not standard treatment for the salivary gland malignancies.[6,15]

Comparing the survival outcomes between postoperative chemoradiation and radiotherapy alone in patients who have undergone resection of high-risk salivary gland carcinoma, no significant improvement has been shown, thus the need for more clinical research on this subject matter.[6,15,19] There is no available published data on the role of neoadjuvant chemotherapy in the management of the salivary gland SC; however, there are some reports on their benefit in improving patient's prognosis most, especially when used for conservative management in cases of advanced diseases or metastatic carcinomas of the salivary glands.[6,20] Subsequent concomitant chemotherapy along with radiotherapy is needed but no improvement on the survival rate was seen.[6,20] Surgery if considered in this patient may include complete tumor resection, partial glosso-pharyngo-laryngectomy with reconstruction and neck dissection. Salivary gland SC has a survival rate of about 62% which is lower than the survival rate of SC arising in the skin and orbit, which is 84.5%.[6,8] SCs rarely metastasize; however, it could recur.[6,8]

Conclusion

SCs of the submandibular gland are very rare tumors, presenting as a slow progressive mass, and could sometimes present with features of upper airway obstruction necessitating tracheostomy. Surgical excision is the mainstay of treatment for low-grade or early-stage tumors, while advanced tumors may require additional radiotherapy alone or with chemotherapy. Early diagnosis and prompt treatment are crucial in improving the survival rate of the patient.

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Patient's consent

All necessary consent has been obtained from the patient before writing this.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that their name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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