Case Report
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Salivary Secretory Carcinoma in a Patient with Immature Ovary Teratoma

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Abstract

Introduction:

Secretory carcinoma, previously known as mammary analog secretory carcinoma, is a rare malignancy of salivary glands. It has a diversity of microscopic patterns and is similar to other salivary gland tumors.

Case Report:

This report presents the case of a 32-year-old female patient with a painless swelling of the upper lip and a history of recent surgery for an immature ovarian teratoma. The microscopic sections revealed a circumscribed neoplasm composed of macrocystic, papillary-cystic, and microcystic patterns with bland vesicular nuclei and vacuolated cytoplasm. Tumoral cells were strongly positive for mammaglobin, SOX10, GATA3, S-100, and vimentin. The diagnosis of salivary gland secretory carcinoma was made. After 22 months, there has been no recurrence.

Conclusions:

As secretory carcinoma is a relatively new entity, it is necessary to understand its characteristics. Although the overall incidence of second primary cancer in patients with salivary gland cancers is low, the possibility of its presence in such patients should be considered.

Keywords: Mammary Analogue Secretory Carcinoma, Lip, Oral cavity, Salivary gland carcinomas, Secretory carcinoma.

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Introduction

In 2010, Skálová et al. (1) reported that some lesions previously diagnosed as acinic cell carcinoma (AciCC) exhibited the ETV6-NTRK3 fusion gene, leading to their reclassification as mammary analogue secretory carcinoma (MASC). Subsequently, the World Health Organization of head and neck tumors officially named it secretory carcinoma (SC) of the salivary glands in 2017. The parotid gland is the most common location for SC, although there have been limited reports of minor salivary gland SC cases (2,3). The majority of SC cases are considered low-grade malignancies (3).

SC exhibits diverse histopathological patterns, often displaying a lobular arrangement and limited invasion. Microcystic, tubular, and solid structures can be observed within the same neoplasm. Sometimes, a small portion of SC presents multiple multilocular macrocysts, either with or without other patterns (4). The neoplastic cells demonstrate uniformity with bland round or oval vesicular nuclei, finely granular chromatin, and inconspicuous central nucleoli. The treatment of choice for SC is surgery, which generally leads to a favorable prognosis (2).

A second primary cancer (SPC) is a new malignancy that develops in a different location than the initial neoplasm. The SPC may be detected within six months of diagnosing the primary tumor (synchronous) or later (metachronous). Various risk factors, including age, race, immunosuppression, genetics, viral infection, dietary habits, smoking, and alcohol consumption, can influence its occurrence (5). While numerous studies have investigated the incidence of SPCs in patients with head and neck squamous cell carcinoma, limited information is available about SPCs in patients with salivary gland carcinomas (SGC) (5-7).

Here, we present a case of synchronous SC involving the upper lip and an immature ovarian teratoma in a 32-year-old female.

Case Report

A 32-year-old female presented a painless, well-defined submucosal mass in the upper lip, covered by intact mucosa and exhibiting a soft to elastic consistency. The duration of the mass was at least two weeks, and it measured ≤1cm (Fig 1). There was no presence of cervical lymphadenopathy.

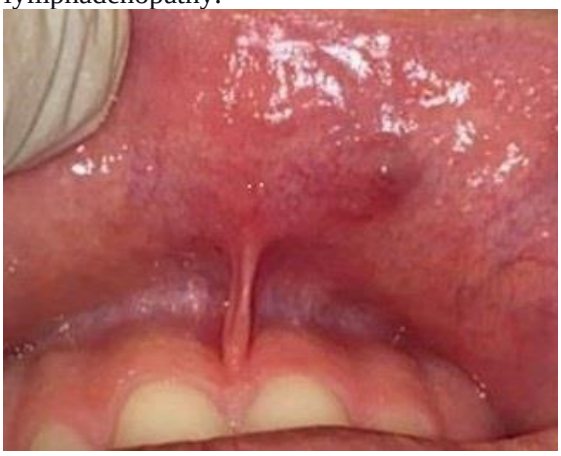

Fig 1: Well-defined submucosal mass in the upper lip.

The patient's medical history revealed a right ovarian cyst that had increased in size during pregnancy by approximately >8cm, with both cystic and solid components. The cyst was excised one month ago following a cesarean section, and the histopathologic diagnosis of the ovarian biopsy was "low-grade immature teratoma with a ruptured capsule" (Fig 2). Her left ovary was found to be normal, and she has also received chemotherapy treatment.

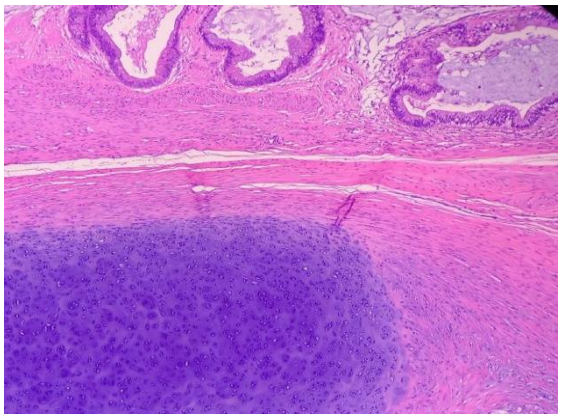

Fig 2: Histopathologic section of ovarian biopsy shows ductal structures and chondroid tissue (H&E ×100).

Differential diagnoses for her current lip lesion included pleomorphic adenoma, benign mesenchymal neoplasm, and metastatic tumor. Under local anesthesia, an excisional biopsy was performed. The gross appearance of the lesion was well-defined. The specimen was placed in a 10% buffered formalin solution and submitted for microscopic studies.

Histopathologically, a well-defined neoplasm, which consisted of macrocystic, papillary-cystic, and microcystic patterns, was observed (Fig 3A). The neoplastic cells displayed bland, vesicular nuclei surrounded by vacuolated cytoplasm, with no evidence of mitotic activity, necrosis, or perineural invasion (Fig 3B).

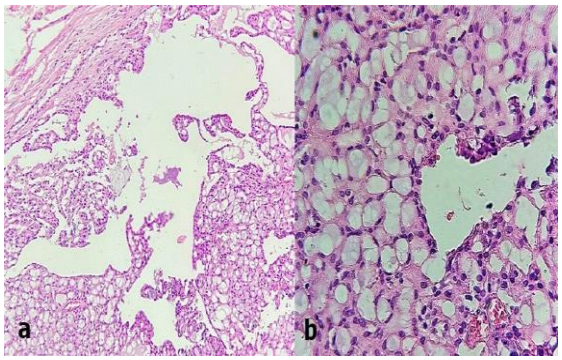

Fig 3: Histopathologic section of lip biopsy display (A) a well-defined tumor composed of macrocystic and microcystic pattern (H&E ×100). (B) Tumoral cells show bland, vesicular nuclei with vasculated cytoplasm (H&E ×400).

The tumoral cells showed diffuse immunoreactivity for mammaglobin (Fig 4A), GATA3 (Fig 4B), SOX10, S-100, and vimentin. The lip lesion was found not to be related to the ovarian teratoma. Based on all the findings, the diagnosis of "secretory carcinoma" of the upper lip was established as a second primary neoplasm. The patient was referred to an oncologist for further evaluation, and the tumor was staged as T1N0. According to the oncologist's decision and the complete removal of the tumor, adjuvant therapy was not indicated. The patient underwent regular follow-up, and 22 months later, there has been no recurrence.

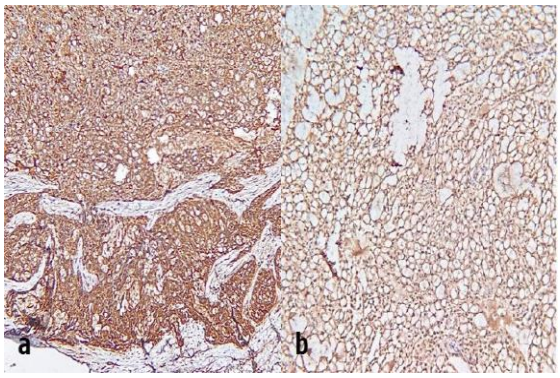

Fig 4: (A) Tumoral cells show strong and diffuse positivity for mammaglobin (IHC ×100). (B) Strong and diffuse staining for GATA3 (IHC ×100).

Discussion

SC constitutes approximately 5% of all salivary gland malignancies (2). It tends to occur in the fourth decade of life, and compared to other salivary carcinomas, the average age of onset is lower (3). Although it has a male predilection, most cases under 30 years of age are reported in women (8). In our case, the patient is a woman in the early fourth decade of life. SC tends to occur in the parotid gland (73.7%), with the second most common location being the submandibular gland (6.5%). The most frequent intraoral regions affected are the lips, soft palate, and buccal mucosa (2). The ratio of SC occurrence between the upper and lower lip is reported as 2.4:1. Typically, SC presents as a slow-growing, painless swelling, and patients may be aware of the lesion for months or even years. Discomfort, tenderness, or facial paresthesia may develop (2). The lesions are usually smaller than 1 cm in size (9). In our present case, a small painless swelling was also observed.

SC of the salivary gland shares significant morphological, immunophenotypic, and molecular similarities with breast SC (9). A common characteristic of SC is its lobular arrangement with well-defined borders (4, 8). The tumor can exhibit microcystic, tubular, or infrequently solid patterns. Tumoral cells often display a pale pink granular and vacuolated cytoplasm and round to ovoid vesicular nuclei that may contain PAS-positive bubbly secretions (8). Additionally, they may show an apocrine appearance (2). Unlike AciCC, SC does not have serous cells (8). SC is generally not highly infiltrative, particularly in predominantly macrocystic cases. Perineural invasion is rare, although lymph node metastasis appears more common in SC than in AciCC (2). SC of the salivary gland shares histopathologic features and immunohistochemical (IHC) markers with other salivary gland tumors, including AciCC, polymorphous adenocarcinoma (PAC), intraductal carcinoma (IDC), and mucoepidermoid carcinoma (MEC) (4, 8). SCs are typically positive for mammaglobin, vimentin, S-100, and CK7, CK8, CK18, while being negative for DOG1, CK5/6, p40, and p63 (2). DOG1, which is positive in AciCC, helps differentiate between AciCC and SC (8). Conversely, MEC is strongly positive for p63

and CK7 and negative for S100, DOG1, and mammaglobin (2). Moreover, Weil et al. (10) found SCs positive for GATA3 and SOX10 but negative for androgen receptor and myoepithelial markers. In the present case, there was also strong positivity for mammaglobin, GATA3, S100, and SOX10. Mammaglobin A has been suggested as a specific marker for diagnosing tumors with origins in the breast, ovary, uterus, or salivary glands (11). Taverna et al. (4) also mentioned that MUC4 or combined expression of MUC4 and mammaglobin are reliable markers in differentiating SC from other tumors with similar morphology. Xu et al. (12) proposed a two-tiered grading system for SC, with low-grade SC defined by cases with <5 mitoses/10 high-power fields and no tumor necrosis and cases with ≥5 mitoses/10 high-power fields and/or necrosis classified as high-grade SC.

The primary treatment for SC is surgical excision, which can vary from simple excision to radical resection with or without neck dissection. Adjuvant radiotherapy and systemic chemotherapy may also be considered depending on the case. While targeted therapy is not standard for this cancer, NTRK targeted therapy may benefit high-grade neoplasms and refractory cases if NTRK rearrangement is present (8). SC generally has a favorable prognosis, although instances of local recurrence, distant metastasis, or death have been reported (2).

The overall incidence of SPC in patients with SGC is estimated to be 8.2% (5). Several salivary gland tumors have been reported to be associated with SPC (13-15). According to Kwon et al. (5), the most common regions of SPC in patients with SGCs are the thyroid, colorectal tract, and breast. In the present case, the patient was diagnosed with both salivary gland SC and immature ovarian teratoma, which highlights the occurrence of synchronous SPCs in some individuals.

Yang et al. (13) emphasized the importance of long-term follow-up for patients with salivary malignancies, as the risk of SPC remains elevated for up to 120 months after the primary diagnosis of SGC (13).

Conclusion

In conclusion, oral and maxillofacial clinicians must become familiar with the salivary gland SC. Therefore, reporting clinical information and treatment approaches, and providing long-term follow-up data for these patients is essential. The high tendency of minor salivary gland SC to occur in the upper lip should be considered in the differential diagnosis of salivary tumors in this region, such as pleomorphic adenoma and canalicular adenoma. Although the overall incidence of SPC in patients with SGC is low, the possibility of SPC in these patients should be considered.

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