

Case Report

Primary acinic cell carcinoma of the nasal septum: a case report and review of the literature

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Abstract: Acinic cell carcinoma arising in nasal cavity is a rare entity, and the number of reported cases is very limited in the English-language literature. The diagnosis is based entirely on histological evaluations. We report a primary acinic cell carcinoma in a 63-year-old female who had right nasal obstruction with hyposmia for the past 2 years. The tumor was found to be arising from the right posterior nasal septum and showed the classic feature of acinic cell carcinoma on light microscopic examination, and it was treated by surgical excision and regular follow-up. Although this tumor usually has a low grade behavior with the best survival rate of any salivary malignancy, the neoplasm not only may recur locally but may also metastasize. Awareness of these rarities is important to ensure the best patient care. Herein, the clinical, histopathological features, and the management of this lesion is presented with a brief review of the relevant literature.

Keywords: Acinic cell carcinoma, nasal septum, minor salivary gland, nasal obstruction, epistaxis

Introduction

Acinic cell carcinoma is an uncommon salivary tumor, which arises most frequently in the parotid gland and rarely in the minor salivary glands. Most of acinic cell carcinomas originating in minor salivary glands have been seen in the oral cavity [1]. Primary acinic cell carcinoma arising in the nose is exceptionally rare, and it is thought to account for 1-4% of malignant nasal neoplasms [2]. Comparing to other more common histological types, acinic cell carcinoma of the nasal cavity is very limited. To the best of our knowledge, only 17 cases of acinic cell carcinoma arising in nasal cavity have been previously reported in the English-language literature. Therefore, acinic cell carcinoma is clinically unsuspected in the initial evaluation of a patient presenting with a polypoid mass or nasal ulcer, and the diagnosis, clinical course, optimal treatment and prognosis have not been extensively studied. Herein, we report a case of primary acinic cell carcinoma of the nasal septum, including clinical and histopathological features, clinical prognosis, and diagnostic and therapeutic approaches, following a comprehensive literature review.

Case report

A 63-year-old female patient who presented with a history of right nasal obstruction with hyposmia since two years. Patient presented with a severity of epistaxis of one week duration, and nasal obstruction was gradually progressive. She had been treated during this time for a lesion that was diagnosed as a nasal polyp at a private ENT (Ears, Nose, and Throat) clinic. She was referred to our clinic for further care when she showed no improvement to the treatment taken previously.

Computed tomographic scan showed that tumor filled the right nasal cavity, but there was no evidence of erosion of the adjacent bone or of sinus involvement (**Figure 1**), and of any cervical lymph node enlargement. It clinically appeared to be a right nasal polyp. Rhinoscopic examination revealed that the right nasal cavity was obstructed by a reddish-gray fleshy mass having an irregular and easily bleeding surface (**Figure 2**).

Surgical removal of the mass was performed by endoscopic surgery, under local anesthesia. The macroscopic findings during the operation

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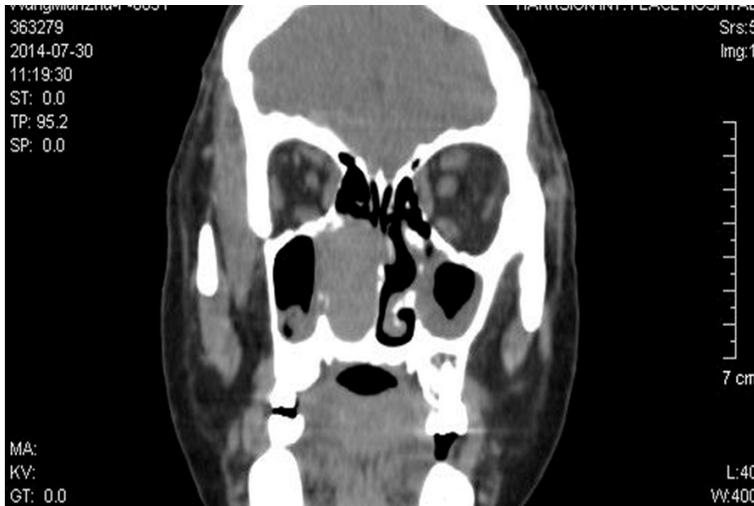


Figure 1. Computed tomographic (CT) images showed the tumor filled up the right nasal cavity, but there was no erosion of the adjacent bone and of sinus involvement.

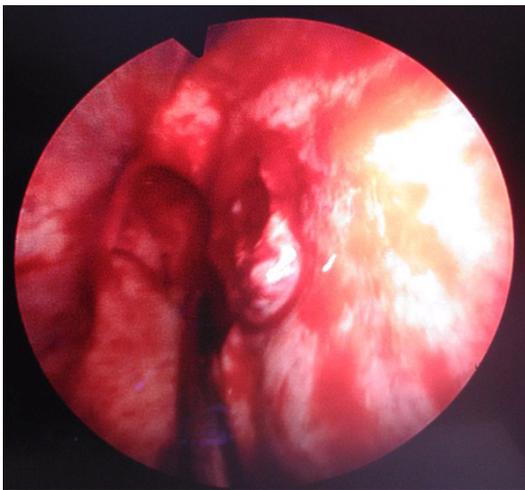


Figure 2. Rhinoscopic examination revealed occlusion of the right nasal cavity by tumor.

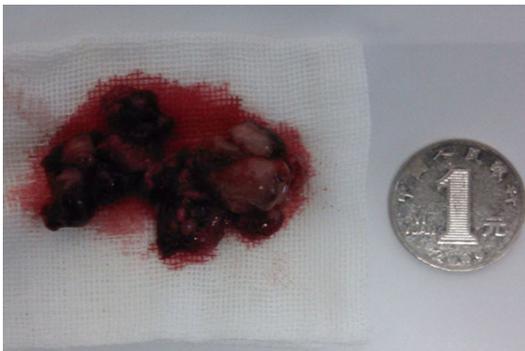


Figure 3. Gross appearance of the removed tumor, which had a soft polypoid form and was pale pink with dark red in color and smooth easily bleeding on surface.

suggested that the primary site of the mass was the right posterior nasal septum. The mass was excised total along with the area of the involved septum. In the absence of clinical or radiological evidence of cervical lymph node involvement, no prophylactic treatment was administered after operation. The post-operative period was uneventful. With a follow-up period of two years, no local recurrence or regional metastasis has been found.

Pathological examination

On gross examination, the excised specimen showed a polypoid mass located on the right posterior nasal septum measuring 5.5×4.0×1.5 cm. The mass was soft, pale pink with dark red in color and had a smooth easily bleeding surface (**Figure 3**). On cut sections, the mass appeared to be solid, homogeneous and hemorrhagic.

Microscopically, the tumor had the appearance of classic acinic cell carcinoma, and consisted of multiple lobulated nests of cells (**Figure 4A**), which were arranged in sheets, acinar pattern and trabecular pattern (**Figure 4B**). The tumor cells are round to polygonal in shape, have hyperchromatic round nuclei and abundant basophilic cytoplasm containing fine granules (**Figure 4C**). The granules were stained with PAS (**Figure 5**), not stained by the mucicarmine, and nuclei were uniform and were either centrally or peripherally placed according to the degree of cytoplasmic vacuolization. Moreover, nuclei frequently arranged in “regimented” rows, a characteristic feature of acinic cell carcinoma. Necrosis and mitoses were absent. All surgical resection margins were free of tumor.

Immunohistochemical staining showed the neoplastic cells were negative for ER, PR, CK, SMA, CEA, S-100, GFAP, Syn, CgA and CD68. The final histological diagnosis was primary acinic cell carcinoma of the nasal septum. Informed consent was obtained from the patient for the publication of this report.

Discussion

Acinic cell carcinoma is a rare, slow-growing, low-grade malignancy tumor of the salivary

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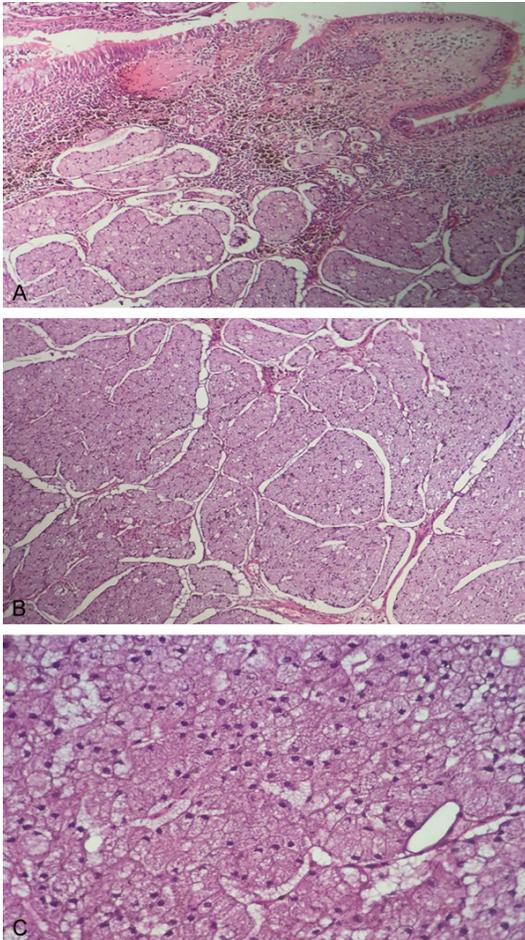


Figure 4. Photomicrographs of histology slides indicated a solid growth pattern and well-differentiated acinic cell carcinoma. A. Low power view showed multiple nests of tumor cells and sheets of well organized were seen beneath the nasal mucosal surface, which is lined by respiratory epithelium. (H&E stain, $\times 40$). B. High power view showed well differentiated acinar cells, with infrequent mitoses (H&E stain, $\times 100$). C. The cytoplasm is granular and lightly basophilic and nuclei are eccentrically positioned (H&E stain, $\times 400$).

gland, which composed of cells that resemble normal acinar cells and mainly affects the parotid gland, but occurs only rarely in minor salivary glands [3]. Acinic cell carcinoma comprises only 0.3% to 0.5% of all minor salivary neoplasms [1, 4], and usually occurs in the oral cavity, but the lesion that arising in the nasal cavity is extremely rare with few sporadically documented reports in the English literature; the previously reported cases are summarized in **Table 1** [4-19]. Very limited information was available for 4 patients. The ages of all the patients reported ranged from 42 to 76 years

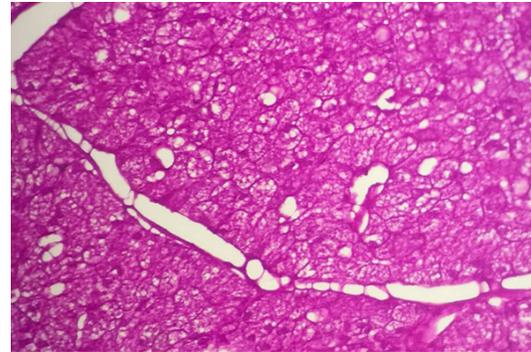


Figure 5. PAS staining showing positive of the granules in cytoplasm ($\times 200$).

(average, 56.9 years), indicating that the tumor has been principally found in elderly adults. In most studies, acinic cell carcinoma typically presented in the 5th decade of life and showed a predilection for women [2, 5, 6]. However, Manganaris [7] researched 15 documented cases of sinonasal acinic cell carcinomas, and showed acinic cell carcinoma of the nasal cavity appeared to be no sex predilection. Our literature research reveals significant sex predominance (12 women and 6 men). The nasal cavity is divided into 4 sub-sites: septum, floor, lateral walls, and vestibule. In previous reports, acinic cell carcinoma of the nasal cavity usually arised in the lateral nasal wall and turbinate [8, 9]. Reviewing of the literature, in order of reported frequency, the septum (5 cases) follow the turbinate (9 cases) and are, in turn, distantly followed by the lateral wall (one case) and vestibule (one case).

There are no tumor markers or imaging characteristics that allow a preoperative diagnosis, and all cases have been diagnosed after surgical resection. The diagnosis is based entirely on histopathological evaluations. Acinic cell carcinoma is thought to arise from the pluripotent intercalated duct cell itself or anywhere along its line of differentiation to the mature serous acinar cell. The cellular features are varies within the tumors, and mainly include five types: acinar, intercalated ductal, vacuolated, clear and nonspecific glandular [19]. The architectural growth patterns are categorized as solid, microcystic, papillary-cystic and follicular. The lesion in our case exhibited the typical features of acinic cell carcinoma, producing acinar structures and solid growth pattern. Batsakis [20] divided acinic cell carcinoma histologically

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Table 1. Clinicopathologic characteristics of previously reported cases of acinic cell carcinoma of the nasal septum

Author/References	Patient Age/Gender	Location	Clinical Symptoms	Treatment	Follow-up
Current case	63 Y/F	Rt nasal septum	Obstruction, hyposmia and epistaxis	S	2 Y
Gangadhara et al [10] 2014	65 Y/F	Rt nasal lateral wall	Obstruction, Epistaxis	S	1 Y
Hammami et al [9] 2010	47 Y/F	Rt nasal septum	Obstruction, hyposmia	S+RT	4 Y
Manganaris et al [7] 2010	51 Y/F	Lt nasal Vestibule	Localized Pain	S	3 Y
Neto et al [11] 2005	60 Y/F	Rt superior meatus	Obstruction	S	17 Y
Neto et al [11] 2005	42 Y/F	Lt inferior turbinate	Obstruction	S	7 Y
Neto et al [11] 2005	65 Y/M	Rt inferior turbinate	Obstruction	S	4 Y
Neto et al [11] 2005	50 Y/M	Nasal Cavity	Obstruction	S+RT	12 Y recurrence
Sapci et al [12] 2000	47 Y/M	Lt nasal septum	Obstruction, Epistaxis	S	1.5 Y
Michael et al [8] 1999	44 Y/F	Nasal septum	N/S	S	2.5 Y
Von Biberstein et al [4] 1999	76 Y/F	Rt middle turbinate	Nasal polyp	S	3 Y
Schmitt et al [13] 1994	60 Y/M	Rt inferior turbinate	Obstruction	N/S	N/S
Valerdez-Casasola et al [14] 1993	47 Y/M	Lt nasal Cavity	Obstruction, Epistaxis	S+RT	10/12
Takimoto et al [15] 1989	60 Y/F	Middle and inferior turb	Nasal polyp, Epistaxis	S	2 Y
Hanada et al [16] 1988	68 Y/M	Rt inferior turbinate	Obstruction	S+RT	3 Y
Finkelhor et al [17] 1987	45 Y/F	Rt nasal septum	Obstruction	S	N/S
Ordonez et al [18] 1986	60 Y/F	Rt superior meatus	Nasal polyp, Epistaxis	S	7 Y
Perzin et al [19] 1981	75 Y/F	Lt inferior turbinate	Obstruction, Epistaxis	S	N/S

M, male; F, female; Rt, right; Lt, left; S, surgery; RT, radiotherapy; N/S, not specified; Y, years.

into high- and low-grade lesions. High-grade lesions demonstrate aggressive local invasion, extra-parenchymal invasion and prominence of undifferentiated cells. In our case, the lesions had not infiltrated as widely, extending only to the level of the underlying right nasal septum. Therefore, the final diagnosis was acinic cell carcinoma of the nasal septum, low-grade.

The histopathological differential diagnosis of acinic cell carcinoma mainly depends upon the basophilia of the cytoplasm. Since a typical acinic cell tumor is reported to be generally PAS-positive, diastase-resistant secretory granules in their cytoplasm [16]. In our case, almost all tumor cells demonstrated these granules. Early symptoms in most sinonasal tumours differ very little from benign sinonasal disease. Common presenting symptoms include nasal obstruction, epistaxis, hyposmia, nasal discharge and recurrent infection. According to review of the literature, the commonest presenting complaint was unilateral nasal obstruction (82%), followed by epistaxis (41%) and hyposmia (12%).

Usually, survival mainly depends on the feasibility of complete resection, tumor size, location, and morphologic grading. Shigeishi [21] research showed several clinicopathological factors, including histological grade, tumor size,

lymph node metastasis and clinical stage, were identified as critical for disease-specific mortality in salivary glands carcinoma. However, age and surgical resection margin were not identified as significant predictors. In particular, lymph node metastasis and tumor size were independent prognostic factors indicating worse survival. Moreover, their research results suggested that not only a high grade of malignancy, but also a larger tumor size are significantly associated with tumor recurrence, which indicating the significance of complete removal of the lesion before it grows to a large-sized tumor. However, a number of studies of acinic cell carcinoma arising in minor salivary glands indicate that these tumors are much less aggressive than those that occur in the major salivary glands [22-26]. Tumors in the minor salivary glands rarely metastasize and rarely lead to death [27]. Our literature review reveals only one case presented with local recurrence after the initial resection. Recently, cancer of the nasal cavity has been added to the AJCC staging system [28]. Under the section for tumors of the paranasal sinuses, nasal cavity and ethmoid sinus tumors are classified separately. According to the staging system, our case was interpreted as T1N0M0.

As definitive treatment, surgery is the primary goal of treatment and if attempted, should be

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complete with the total removal of the primary tumor and enough adjacent normal tissue [29]. Some reports have suggested that radiation therapy is beneficial; however, the evidence has not been conclusive. Grae [30] indicated that irradiation was of no value in treating acinic cell carcinomas, which have a low radio-sensitivity. In contrast, Eneroth [31] reported one case that responded well to irradiation and discussed the possible response of this tumor to radiation therapy. Therefore, post-operative radiation is not routinely advocated for these low-grade salivary malignancies but may be used for advanced or high grade tumors [32] or recurrent tumors, tumors with positive surgical excision margins or tumors with extensive perineural and/or lymphovascular invasion [33]. Chemotherapy for acinic cell carcinoma is considered ineffective, but the newer angiogenesis inhibitor drugs are promising. In our case, the tumor was dissected with adjacent normal tissue. There was no evidence of residual cancer present in the final definitive surgical procedure, also no regional or distant metastasis, and the tumor was a low-grade lesion, no further treatment was given. Our patient has been disease-free for the past two years.

Conclusion

A nasal cavity polypoid mass with acinar cells and containing abundant basophilic cytoplasm should raise the suspicious of acinic cell carcinoma. Acinic cell carcinoma is rarely diagnosed in minor salivary glands, especially minor salivary glands of the nasal septum. Although most series report a low-grade behavior for acinic cell carcinomas, these neoplasms not only may recur locally but may also metastasize. Hence, these tumors require a long-term follow-up.

Disclosure of conflict of interest

None.

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