ACINIC CELL CARCINOMA OF NASAL CAVITY: A RARE SITE FOR SALIVARY GLAND TUMOUR

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ABSTRACT

BACKGROUND

We are herewith reporting a case of acinic cell carcinoma arising in nasal cavity in a 52-year-old male patient. The diagnosis was confirmed by immunohistochemistry for DOG1, which is a novel marker for salivary acinic cell differentiation. Nasal cavity is a rare site for acinic cell carcinoma and pathologists and surgeons should include this entity also in the differential diagnosis of tumours of nasal cavity to avoid misdiagnosis.

KEYWORDS

Acinic Cell Carcinoma, DOG1, Nasal Cavity, Salivary Gland.

HOW TO CITE THIS ARTICLE: Jayalakshmy PS, Sebastian R, Feroze M. Acinic cell carcinoma of nasal cavity: a rare site for salivary gland tumour. J. Evolution Med. Dent. Sci. 2016;5(34):1954-1956, DOI: 10.14260/jemds/2016/461

INTRODUCTION

Salivary gland neoplasms are extremely rare in nasal cavity. The commonest benign tumour of salivary gland type in nasal cavity is pleomorphic adenoma and malignant, though rare is adenoid cystic carcinoma. Acinic cell carcinoma is uncommon in this location. The World Health Organisation defines acinic cell carcinoma as a malignant epithelial neoplasm of the salivary glands, in which at least some of the neoplastic cells demonstrate serous acinar cell differentiation characterized by cytoplasmic zymogen secretory granules.(1) Extensive search of English language medical literature showed only about 18 cases of acinic cell carcinoma previously described in sinonasal location.(2-4) DOG1/Anoctamin 1, a marker of gastrointestinal stromal tumour, a calcium activated chloride channel protein is also expressed in acinic cells of salivary gland and is useful for delineating acinic cell differentiation in these tumours.(5) We hereby report the clinicopathological features and the role of DOG1 immunomarker for diagnosis in a case of acinic cell carcinoma of nasal cavity.

CASE REPORT

A 52-year-old previously healthy man presented to our hospital with a 6 months history of nasal obstruction and recurrent epistaxis. Rhinoscopic examination revealed a single polypoid lesion filling right nasal cavity, which was sensitive to touch but did not bleed. CT scan of nose and paranasal sinuses showed right-sided single polypoid nasal mass filling and confined to the nasal cavity with mild right maxillary sinusitis (Figure 1). The mass was seen to arise from the right middle turbinate. No intracranial extension was noted in CT brain. The patient underwent endoscopic nasal mass excision biopsy. We received multiple grey brown and grey white soft tissue bits aggregate measuring 6x5x1 cm.Histopathological examination revealed fragments of tissue lined by respiratory type epithelium (Figure 2a) and a neoplasm composed of cells arranged in sheets (Figure 2b) and in acinar pattern with many microcystic spaces (Figure 2c). Individual cells were polygonal with abundant granular basophilic cytoplasm and basally located round to oval bland nuclei (Figure 2d). PAS stain done showed cytoplasmic granules in the neoplastic acinar cells (Figure 3a), which was diastase resistant. Immunohistochemistry (IHC) was done. The neoplastic cells showed strong diffuse positivity with Cytokeratin 7 (CK 7) (Figure 3b). IHC with DOG1 showed strong apical membranous positivity in the neoplastic cells, which is the pattern consistent with acinar cell differentiation (Figure 3c & 3d).

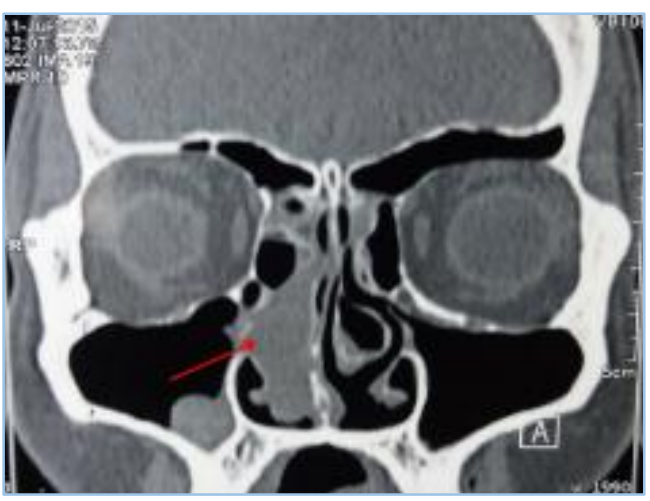

Fig. 1: CT Scan showing Right Nasal Mass

Financial or Other, Competing Interest: None.
Submission 12-03-2016, Peer Review 05-04-2016,
Acceptance 12-04-2016, Published 28-04-2016.
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DOI: 10.14260/jemds/2016/461

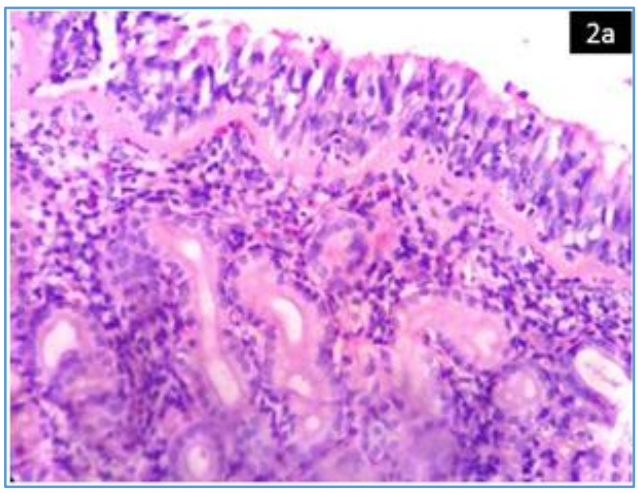

Fig. 2a: Tissue Lined by Respiratory Mucosa (H&E x100)

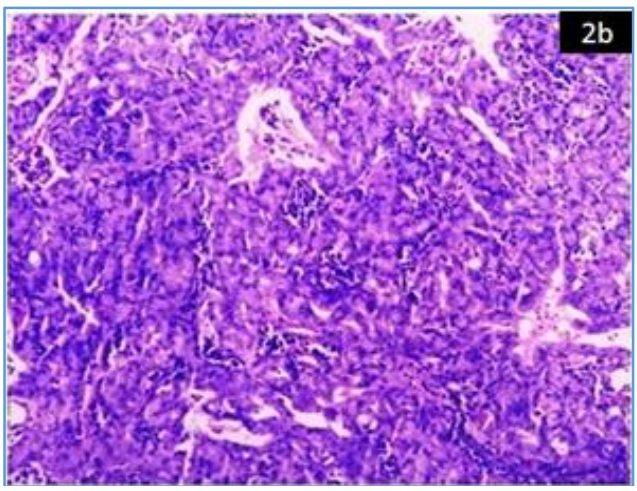

Fig. 2b: Neoplasm showing Solid Pattern (H&E x100)

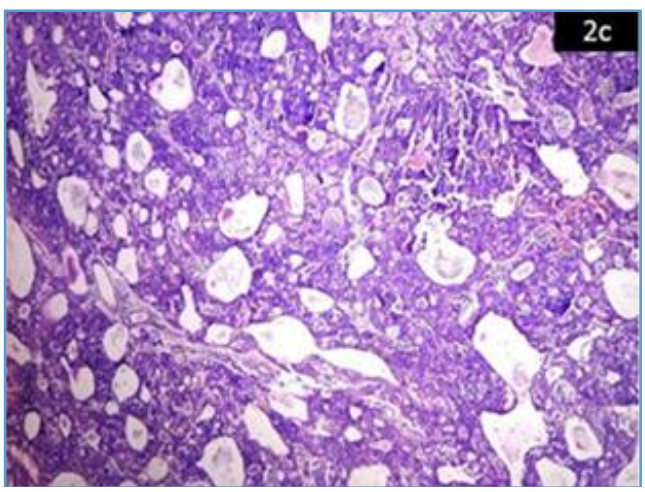

Fig. 2c: Neoplasm showing Acinar Pattern with many Microcystic Spaces (H&E x100)

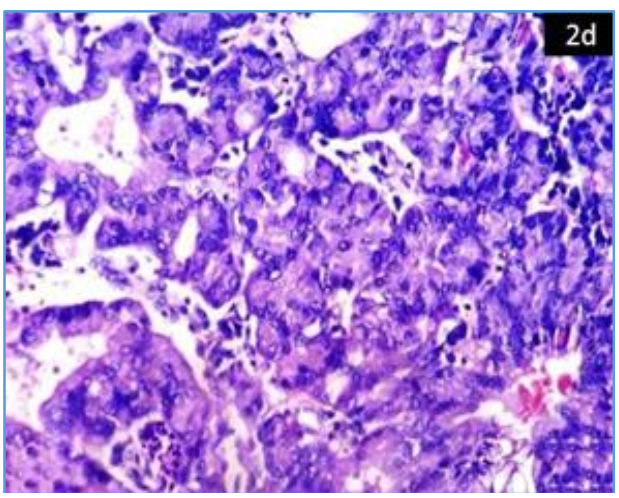

Fig. 2d: Neoplastic Cells with Basophilic Granular Cytoplasm and Basally Located nucleus (H&E x400)

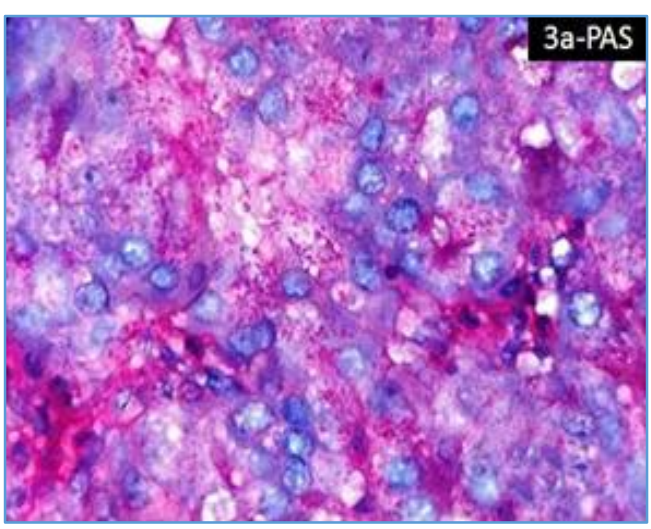

Fig. 3a: PAS Positive Granules in the Cytoplasm (x400)

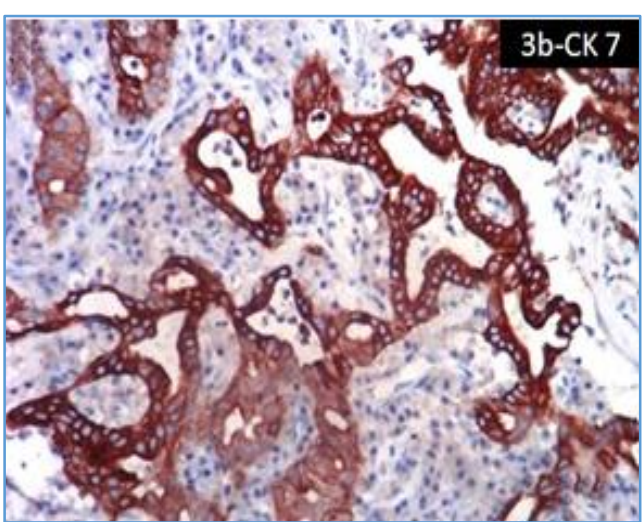

Fig. 3b: Cytokeratin 7 Positivity (x100)

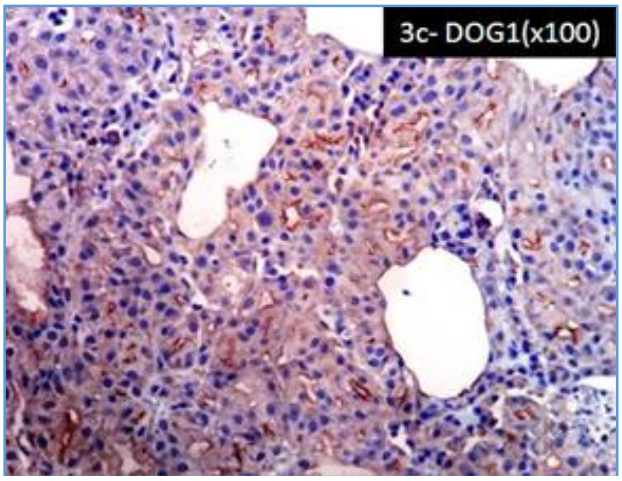

Fig. 3c: DOG1 Immunostain Positivity (x100)

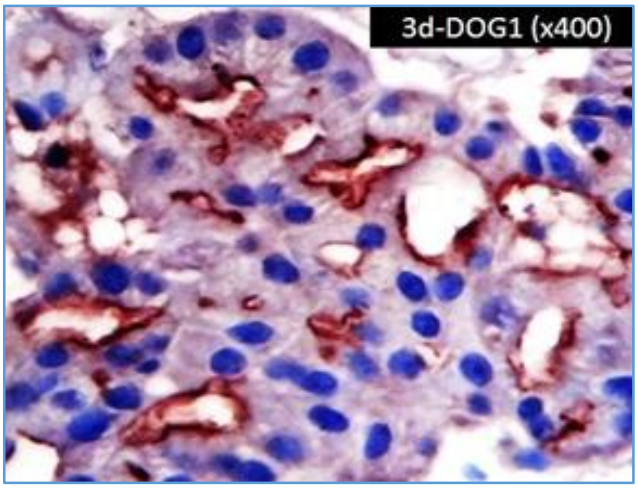

Fig. 3d: DOG1 Immunostain shows Apical Membranous Positivity (x400)

DISCUSSION

Acinic cell carcinoma constitute approximately 2-4% of all salivary gland neoplasms.[6] It mostly occurs in the parotid gland. Nasal cavity is an uncommon site. Manace and Goldman.[7] described the first case of acinic cell carcinoma in the sinonasal location in 1971. Age range in previous reported cases was from 42 to 76 years (Median 59 years). Acinic cell carcinoma is considered to occur due to neoplastic proliferation and aberrant cytodifferentiation of pluripotent reserve stem cells that is normally situated at the acinar intercalated duct junction and/or in the intercalated duct proper of salivary glands.[8]

Histopathologically, several growth patterns like solid, papillary-cystic, microcystic and follicular are observed. The identification of characteristic acinar cells and the granular basophilic cytoplasm is important. The cytoplasmic granules are PAS positive and because of the variability in the staining of the granules, it should never be used alone for diagnosis.[9]

Contradictory to the previous concept that IHC has limited role in the diagnosis of acinic cell carcinoma.[6] studies by Chenevert et al.[5] has showed that DOG1 staining can be utilized to support the diagnosis of acinic cell carcinoma. In a study of 14 cases of salivary gland acinic cell carcinoma by Ihab Shafek Atta et al, all ACCs (100%) revealed positivity with DOG1 staining and the authors concluded that DOG1 has a higher efficacy in the diagnosis of ACC than α-amylase.[10] The common pattern of DOG1 staining observed is that of intense apical membranous staining around lumina as in our case as well as complete membranous and variable cytoplasmic staining.[5]

CONCLUSION

Acinic cell carcinoma arising in nasal cavity is extremely uncommon. We would like to highlight the diagnostic utility of the immunomarker DOG1 in carcinomas of acinic cell differentiation contrary to the previous belief that immunohistochemistry has no diagnostic value in acinic cell carcinomas. The different patterns of DOG1 immunostaining in this tumour has to be studied further for proper interpretation. Since acinic cell carcinoma is tumour of low grade malignancy, complete surgical excision is curative; but this tumour is well known to produce local recurrence and distal metastasis even years after the excision of primary tumour. Hence, long-term follow-up is essential for these patients.

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