


Case Report

Mammary analogue secretory carcinoma of salivary gland – A case report of new entity

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Abstract

Mammary analogue secretory carcinoma (MASC) is a recently described salivary gland tumor. Few cases are reported in the literature. We have reported here this case for its rarity.

Key words

Mammary analogue secretory carcinoma, Salivary gland, Tumor.

Introduction

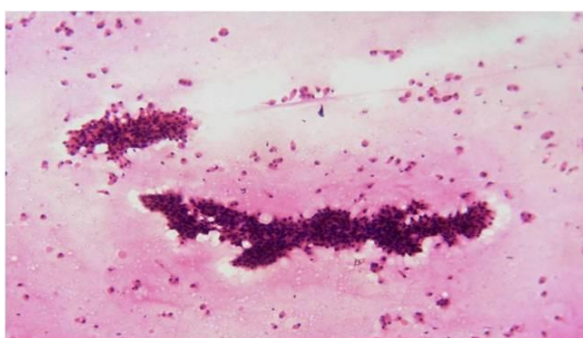
Mammary analogue secretory carcinoma (MASC) is a recently described salivary gland tumour which has morphological resemblance to secretory carcinoma of the breast. Earlier it was misdiagnosed as acinic cell carcinoma [1]. Skalola, et al. in year 2010 based on molecular alterations distinguished MASC from acinic cell carcinoma [2]. A typical translocation involving Chromosome 15 and 12, t(15,12)(p13;q25) has been used for differentiating MASC from other salivary gland carcinoma [2, 3]. To date, less than 100 cases of MASC are reported [4]. We have reported here this case for its rarity.

Case report

18 year female presented with right sided post auricular swelling since 2 months. She had history of cough and fever since 7-8 days. On examination, the swelling was 2x2 cm, non tender, and soft to firm. Patient was advised Fine Niddle Aspiration Cytology (FNAC) which yielded whitish blood tinged material. FNAC smears showed round to oval cells with moderate to abundant amount of eosinophilic cytoplasm with bland nuclear features arranged in sheets, clusters and papillae on a proteinaceous background. (Figure - 1a, 1d) Few cells showed intra cytoplasmic vacuolations. (Figure - 1b)

Focally cells showed hobnailing of nuclei. (Figure - 1c) The diagnosis of benign salivary gland neoplasm was rendered. Patient underwent superficial parotidectomy. On gross, an ill circumscribed, firm, whitish tumour with focal congestion was noted. (Figure - 2) The histopathology slides showed an infiltrative tumour with solid, tubular, macrocystic-papillary areas. The tubular and cystic areas showed abundant intra luminal eosinophilic secretions. (Figure - 3a, 3b, 3c, 3d) The cells showed mild to moderate pleomorphic nuclei and moderate amount of eosinophilic cytoplasm. (Figure - 4a, 4b) At places, cells showed hobnailed appearance. (Figure - 4c) Focally cribriform and clear cell patterns were noted. (Figure - 3d, 4d) There was no evidence of mitosis, necrosis or anaplasia. The diagnosis of low grade carcinoma of salivary gland with three differentials was given i.e. Acinic cell carcinoma, Polymorphous low grade adenocarcinoma and MASC. On IHC, the tumour cells were positive for S100, vimentin and mammaglobin; while negative for p63, CK7 and DOG-1. The final diagnosis of MASC of parotid gland was rendered.

Figure - 1a: FNAC smears showed cells arranged in sheets and papillae on a proteinaceous background. (40X, H&E)



Discussion

MASC of salivary gland is a low grade malignancy with limited experience about its prognosis. The patients with this tumour have a slightly aggressive clinical course than the patient with acinic cell carcinoma [5]. Mostly adults are affected ranging from 13-77 years of

age with male: female ratio is 1.4: 1 [2, 4, 6]. It is commonly found in parotid and submandibular glands. Microscopically, it shows a lobulated appearance with various patterns like solid, papillary-cystic, glandular, microcystic, macrocystic and cribriform etc. The cells have low grade vesicular nuclei, pale eosinophilic or vacuolated cytoplasm and intraluminal or intracellular secretions. On IHC, MASC is most of the times diffusely positive for vimentin and S100 [7]. Other markers are HMWCK, GCDFP 15, Mammaglobin and adipophilin [8]. MASC is usually immunonegative with ER,PR, HER 2 Neu, Epidermal Growth Factor Receptor and p63. In our case, the tumour cells were positive for S100, Vimentin and mammaglobin; while negative for p63, CK7 and DOG-1.

Figure - 1b: FNAC smears showed round to oval cells with intra cytoplasmic vacuolations (100X, H&E)

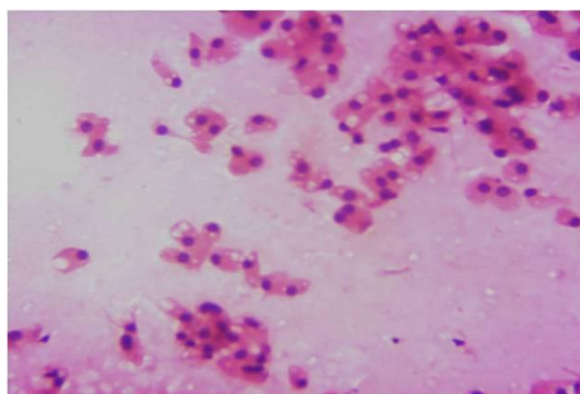


Figure - 1c: FNAC smears showing papillae. Note the hobnailing of nuclei (100X, H&E)

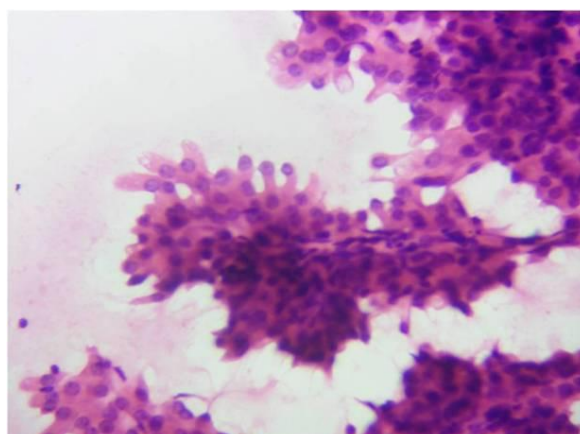


Figure - 1d: FNAC smears showed round to oval cells with moderate to abundant amount of eosinophilic cytoplasm with bland nuclear features arranged in sheets. (400X, H&E)

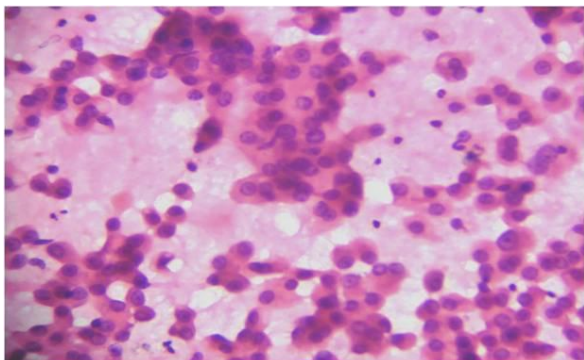


Figure - 3b: Microphotograph showing tumor with solid and macrocystic- papillary areas. Note the abundant intraluminal eosinophilic secretions (100X, H&E)

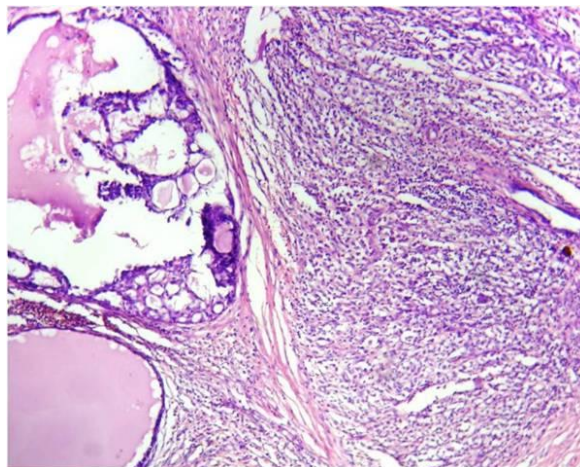


Figure - 2: Gross photograph showing an ill circumscribed, firm, whitish tumor.



Figure - 3c: Microphotograph showing tumor with macrocystic- papillary area with abundant intraluminal eosinophilic secretions (100X, H&E)

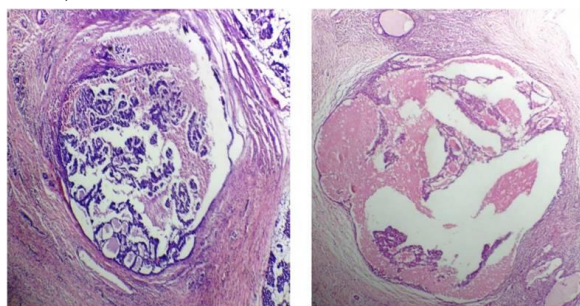


Figure - 3a: Microphotograph showing an infiltrative tumour with solid, tubular and macrocystic -papillary areas. The tubular and cystic areas showed abundant intra luminal eosinophilic secretions (40X, H&E)

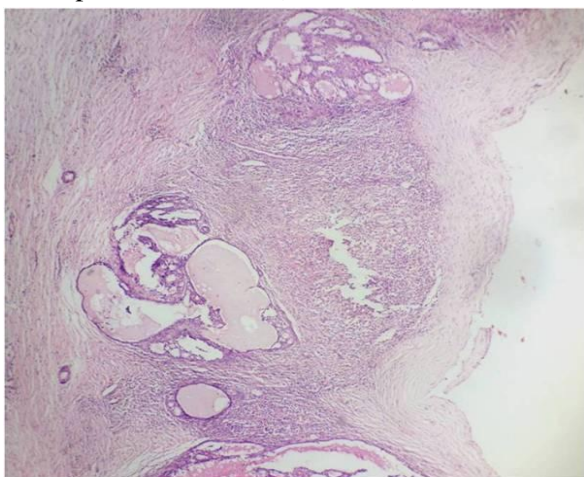
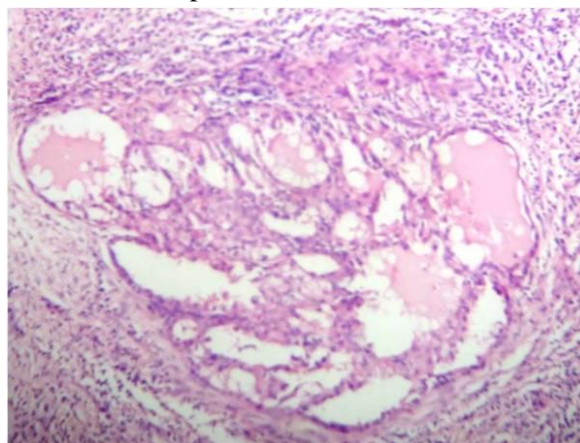


Figure - 3d: Microphotograph showing tumor with cribriform pattern (100X, H&E)



Due to morphologic similarities, the various differential diagnosis of MASC are Acinic cell carcinoma, Adenocarcinoma/

cystadenocarcinoma, mucoepidermoid carcinoma and signet ring carcinoma [8]. It is frequently misdiagnosed as ACC due to histological similarity of variable growth patterns like solid, lobular, papillary-cystic, microcystic, macrocystic, and follicular; and several cell types including cells with granular, vacuolated and clear cytoplasm [1, 9]. But ACC cells show zymogen granules in their cytoplasm as compared to MASC in which cells are devoid of these granules. However, granule poor variant of ACC is difficult to differentiate from MASC. IHC and genetic studies demonstrating typical genetic translocation $t(15, 12)(p13; q25)$ with formation of ETV6-NTRK3 fusion gene in MASC can accurately solve the problem [2, 3].

Figure - 4a: Microphotograph showing cells with mild to moderate pleomorphic nuclei and moderate amount of eosinophilic cytoplasm with tubular pattern. (400X, H&E)

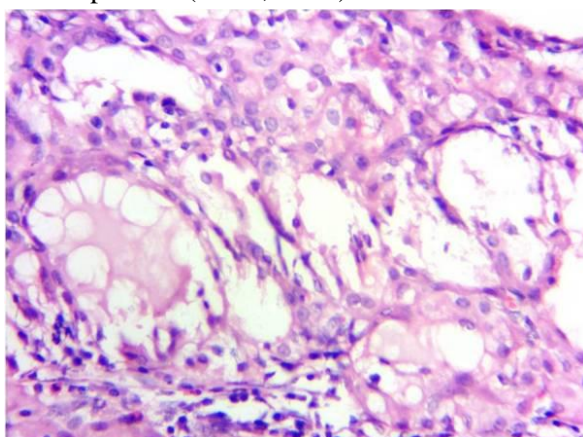


Figure - 4b: Microphotograph showing cells arranged in solid pattern with low grade nuclei (400X, H&E)

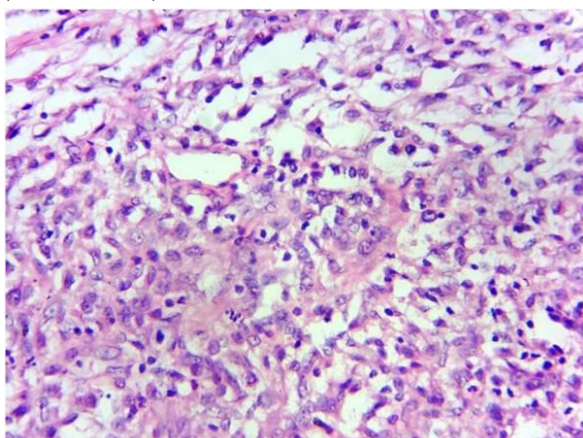


Figure - 4c: Microphotograph showing papilla against eosinophilic secretions. Note hobnailed nuclei. (400X, H&E)

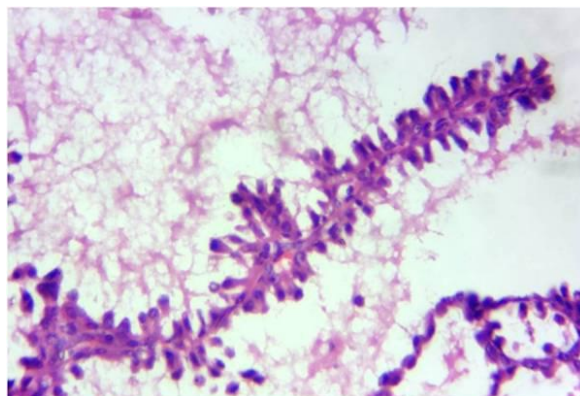
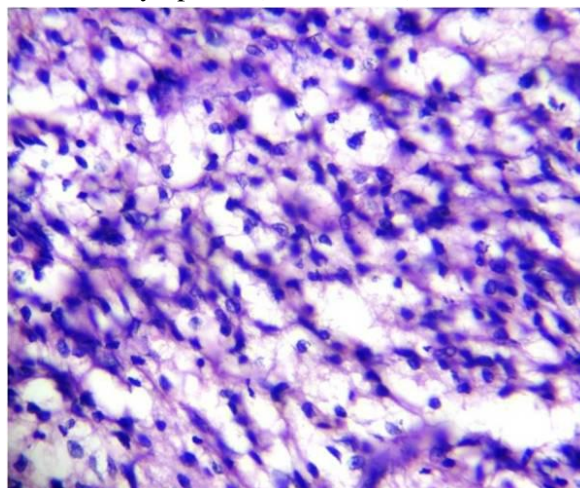


Figure - 4d: Microphotograph showing cells with clear cytoplasm (400X, H&E)



As limited number of cases published and relatively newer entity, it's difficult to suggest about the treatment and prognosis of MASC. More studies of large number of cases are needed. Surgical intervention is the primary treatment so far. In our case, the patient is following up without any recurrence for around 6 months.

Conclusion

Further research is needed regarding prognosis and targeted therapy in this tumor.

References

1. Chiosea, et al. The profile of acinic cell carcinoma after recognition of mammary analog secretory carcinoma. American

- Journal of Surgical Pathology, 2012; 36(3): 343-350.
2. A. Skalova, T. Vanecek, R. Sima, et al. Mammary analogue secretory carcinoma of salivary glands, containing the *etv6-ntrk3* fusion gene: a hitherto undescribed salivary gland tumor entity. American Journal of Surgical Pathology, 2010; 34(5): 599-608.
 3. C. Tognon, S. R. Knezevich, D. Huntsman, et al. expression of the *etv6-ntrk3* gene fusion as a primary event in human secretory breast carcinoma. Cancer Cell, 2002; 2(5): 367-376.
 4. Bishop JA. Unmasking MASC: Bringing to light the unique morphologic, immunohistochemical and genetic features of the newly recognized mammary analogue secretory carcinoma of salivary glands. Head Neck Pathol, 2013; 7: 35-39.
 5. Chiosea SI, Griffith C, Assaad A, Seethala RR. Clinicopathological characterization of mammary analogue secretory carcinoma of salivary glands. Histopathology, 2012; 61: 387-94.
 6. Hwang MJ, Wu PR, Chen CM, Chen CY, Chen CJ. A rare malignancy of the parotid gland in a 13-year-old Taiwanese boy: case report of a mammary analogue secretory carcinoma of the salivary gland with molecular study. Med Mol Morphol, 2014; 47: 57-61.
 7. Mariano FV, et al. Mammary analogue secretory carcinoma of salivary glands is a lipid-rich tumour, and adipophilin can be valuable in its identification. Histopathology, 2013; 63: 558-67.
 8. Connor A, Perez-Ordoñez B, Shago M, Skálová A, Weinreb I. Mammary analog secretory carcinoma of salivary gland origin with the *ETV6* gene rearrangement by FISH: Expanded morphologic and immunohistochemical spectrum of a recently described entity. Am JSurg Pathol, 2012; 36: 27-34.
 9. Min Jung Jung, et al. Finding and Characterizing Mammary Analogue Secretory Carcinoma of the Salivary Gland. The Korean Journal of Pathology, 2013; 47: 36-43.