Case Report

# Intra-Cystic Papillary Neoplasm of Salivary Gland with Focal Low Grade Malignant Change: A Rare Entity

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## ABSTRACT

Intraductal papilloma is a rare benign salivary gland tumor. It is found in the duct of the minor salivary glands, predominantly in lip and buccal mucosa, but the tumors in the sublingual region are quite rare. Malignant counterpart of intraductal papilloma which is a well defined entity in WHO classification is also extremely rare. This report shows a case of borderline intraductal papillary tumor with low malignant potential. It developed in minor salivary gland of sublingual region. This is a very rare entity, not included in WHO classification of salivary gland tumors and needs to be distinguished from other more common papillary and cystic tumors found in salivary glands.

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## Introduction

Ductal papillomas are a group of relatively rare benign, papillary salivary gland tumors predominantly involving the minor salivary glands. At other end of the spectrum is salivary duct carcinoma which is a well defined entity in WHO classification.[1] Malignant counterpart of intraductal papilloma is extremely rare. Moreover, low grade papillary intraductal salivary gland carcinoma has rarely been described in literature.[2,3] We report a case of borderline, low grade intraductal papillary tumor of sublingual gland in a 50 year old male, an entity not discussed in WHO classification of salivary gland tumors. [1]

## Case Report

A 50 year old Saudi male presented in the OPD with the chief complaint of painless mass in the oral cavity on right side for 2 months. There were no other complaints. On examination, a round, well circumscribed submucosal nodule, 3 cm in diameter was palpable in the right sublingual region without fixation. Routine physical examination, biochemical and hematological tests were normal.

The excised specimen was sent for histopathological examination. Gross examination showed a grayish white firm mass measuring 2.5x2x2cm. Microscopy showed cystically dilated duct lumen with proliferation of papillary projections lined by two layers of cells-inner mucin secreting epithelial cells and outer myoepithelial cells and having fibrovascular cores (fig. 1). The tumor focally exhibited multilayered lining (fig. 2), with cells displaying moderate pleomorphism, prominent nucleoli and suspicion of focal stromal invasion (fig. 3, 4) Mitoses were infrequent. Hemorrhage and necrosis was not seen. Smooth muscle actin (SMA) and calponin were positive in most parts of the tumor (fig. 5) indicating presence of myoepithelial cells with focal areas of absence (fig. 6 & 7). The tumor was diagnosed as intra-cystic papillary neoplasm with focal low grade malignant change.

## Discussion

Ductal papillomas are a group of relatively rare, benign, papillary salivary gland tumours classified as inverted ductal papilloma, intraductal papilloma, and sialadenoma papilliferum.[1] They represent adenomas with unique papillary features with a common relationship to the excretory salivary duct system, a nonaggressive biologic behaviour, and a predilection for the minor salivary glands. They tend to occur in the middle-aged and elderly and rarely in children.[1] All of the reported sites have been in the minor salivary glands—the most common location is the lower lip followed by the buccal mucosa/mandibular vestibule. Other reported sites have been the palate and the floor of mouth.[4, 5, 6] Intraductal papilloma always occurs in a single cystic space and is characterized by numerous and complex papillary projections. Cytologic atypia and mitotic figures are virtually absent.[1,7]

Malignant counterpart of intraductal papilloma has rarely been described in literature.[2,3] Like the papillary neoplasms in other organs such as pancreas, papillary tumors can be classified as benign, borderline and malignant in salivary glands also. However, borderline and malignant intraductal papillary tumors are extremely rare in salivary gland. The cytological and histomorphological criteria remains the

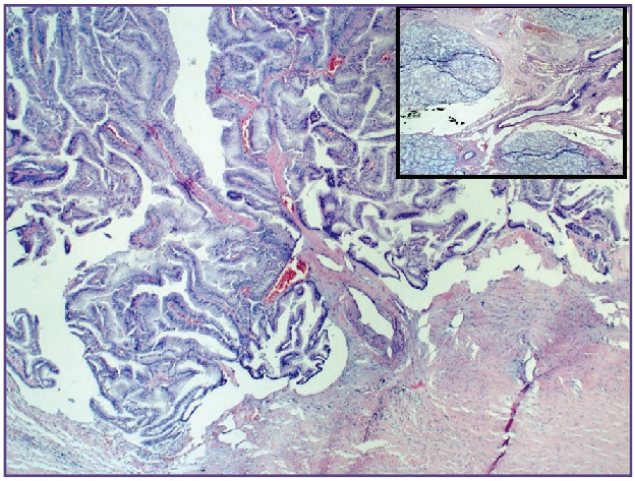

**Fig. 1: A part of tumor showing cystically dilated duct lumen with papillary projections lined by two layers of cells and having fibrovascular cores. Inset shows normal salivary gland. (H&E, 5X)**

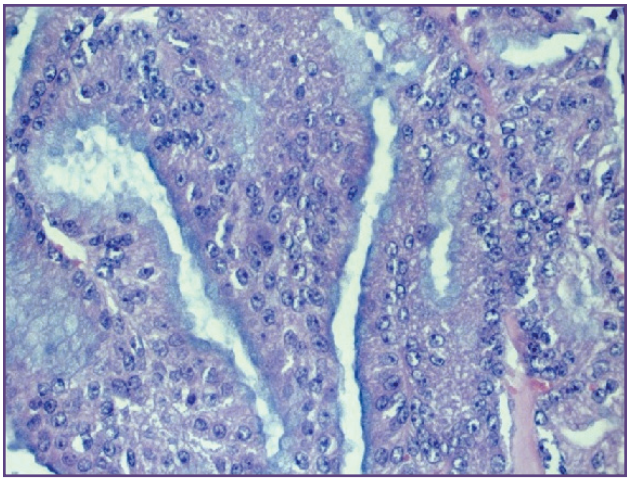

**Fig. 2: Papillae showing focal multilayered lining. (H&E, 40X)**

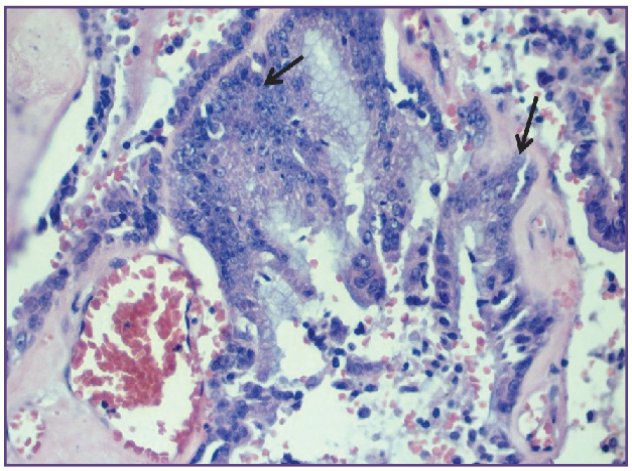

**Fig. 3: Tumors cells showing moderate pleomorphism, prominent nucleoli. (H&E, 20X)**

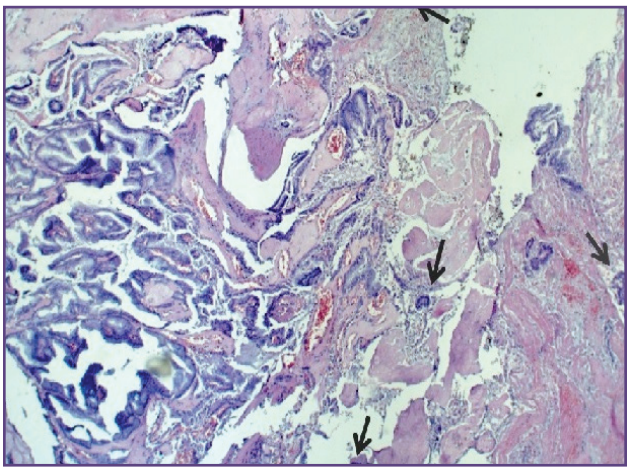

**Fig. 4: Suspicion of focal stromal invasion depicted by arrows. (H&E, 10X)**

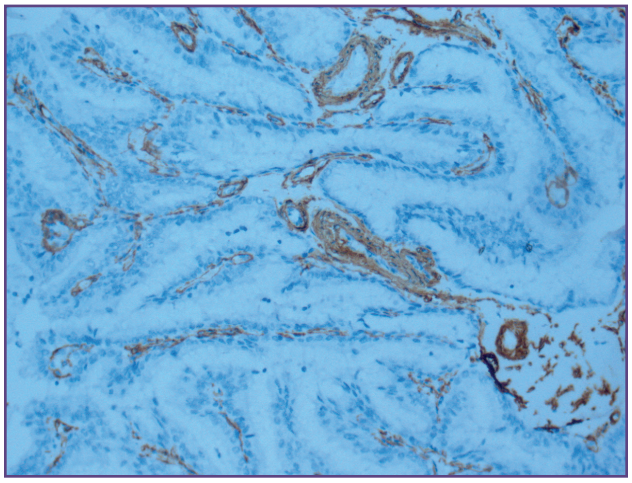

**Fig. 5: Immunohistochemical study by Smooth Muscle Actin (SMA) showing positivity for myoepithelial cells in papillary projections. (SMA immunostain, 20X)**

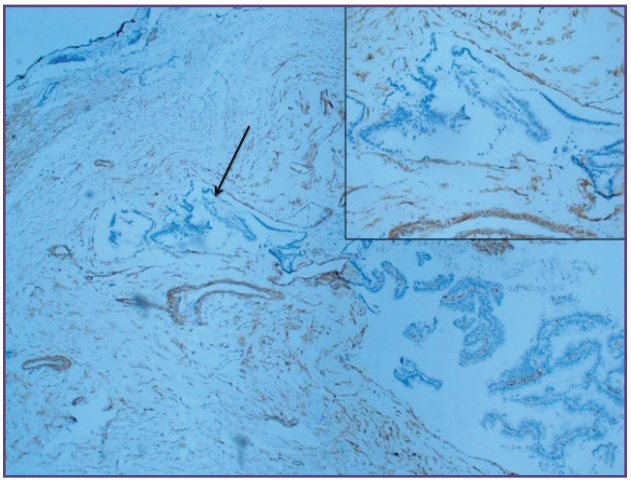

**Fig. 6: Immunohistochemical study by Smooth Muscle Actin (SMA) showing focal negativity (arrow). (SMA immunostain, 10X, Inset 20X)**

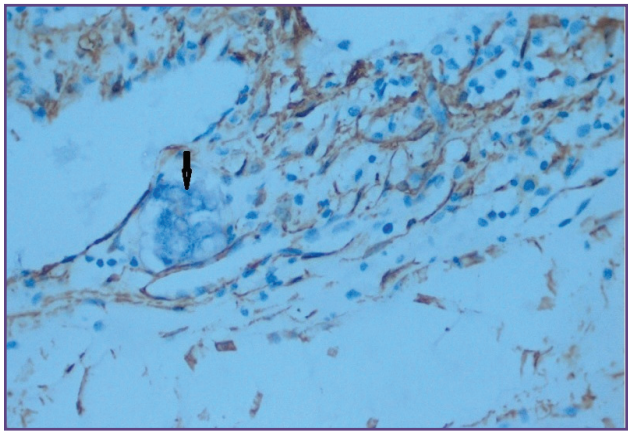

**Fig. 7: Immunohistochemical study by Calponin showing focal negativity (arrow). (Calponin immunostain, 20X)**

same in salivary gland intraductal papillary neoplasms such as cytological and nuclear atypia, multilayering, disorganization and invasion.[2,3] Using the similar criteria our case was diagnosed as lowgrade or borderline intra ductal papillary carcinoma.

Papillary and cystically dilated duct like structure should be differentiated from other more common papillary and cystic tumors found in salivary glands like salivary duct carcinoma (especially its low-grade variant), the papillary-cystic variant of acinic cell carcinoma, papillary cystadenoma and cystadenocarcinoma, polymorphous low grade adenocarcinoma, and metastatic thyroid papillary carcinoma.[2,3,8]

A salivary duct carcinoma is regarded as a high-grade aggressive malignancy of the salivary glands because it has

invasive growth with early regional and distant metastases with histological similarity to intraductal carcinoma of breast.[9]

Histologic variants of a salivary duct carcinoma include a low-grade salivary duct carcinoma, sarcomatoid variant, mucin-rich variant, and invasive micropapillary salivary duct carcinoma.[4,6,10] Low grade variant should especially be differentiated by presence of multifocal intraductal lesions with micropapillary projections rather than papillary projections in single cystically dilated duct as seen in our case.

The intraductal micropapillary pattern shows overlapping features with a papillary-cystic acinic cell carcinoma, but tumor cells of an acinic cell carcinoma exhibit basophilic granular or clear cytoplasm rather than eosinophilic cytoplasm, and they show readily identifiable mitotic figures.[5,8] Moreover, the papillarycystic variant of acinic cell carcinoma shows a more delicate fibrovascular core, admixed with a microcystic or follicular structure. [2] The lack of acinar differentiation as seen in our case and negativity for Periodic Acid Schiff (PAS) helps to rule out papillary cystic acinic cell carcinoma.[2]

Polymorphous low grade adenocarcinoma may also show papillary structures but forms a mixture of tubular, solid, cribriform, trabecular and targetoid patterns of invasive growth.[1]

Metastatic thyroid papillay carcinoma shows immunoreactivity for thyroglobulin.

Low-grade intraductal carcinomas (LG-IDCs) of salivary gland are rare neoplasms that resemble atypical ductal hyperplasia or LG-IDCs of the breast.[8] Papillary cystadenoma and cystadenocarcinoma are characterised by a neoplastic papillary proliferation of salivary gland duct epithelium in the form of multiple epithelium-lined, multilocular cystic structures.[1,2,8]

Therefore, our case is a rare malignant counterpart of intraductal papilloma of sublingual salivary gland showing low grade features. It is different from its closest differentials, low grade salivary duct carcinoma and papillary cystadenocarcinoma.

## Conclusion

We want to highlight that although rare, borderline or low grade and malignant intraductal papillary tumors should be considered in the classification of salivary gland tumors.

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## Competing Interests

None declared

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