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Schneiderian Papilloma: A Rare Case Report

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Abstract: The nasal cavity, paranasal sinuses, and nasopharynx are sites for a wide variety of tumors and non neoplastic conditions. Inverted papilloma accounts for about 0.5-4% of total nose and paranasal sinus tumours. Men are affected 4 times more often than women. The major types are fungiform papilloma, inverted papilloma, and oncocytic Schneiderian papilloma. The latter has often been referred to as cylindrical-cell papilloma, whereas fungiform papilloma and inverted papilloma have often been called transitional cell papilloma or papillomatosis. We have come across a case of Schneiderian papilloma in a 50 yr. old male with h/o recurrent nasal bleeding and mass in the nasal cavity. Because of its rarity and the aggressive growth, high recurrence rate, invasive capacity and malignant potential, it is important to make a proper diagnosis.
Keywords: Papilloma, paranasal sinus, nasal cavity, neoplasms

INTRODUCTION

The nasal cavity, except for its uppermost portion, is lined by thick, highly vascularised, ciliated columnar epithelium. This mucosa, in conjunction with that of the paranasal sinuses, is often referred to as the Schneiderian membrane [1]. Schneiderian papillomas are uncommon benign tumors of the sinonasal area.

Inverted papilloma or Schneiderian papilloma (SP) is a locally aggressive sinonasal tumour that arises from the lining respiratory membrane. Ward was credited for reporting the first case of inverted papilloma in 1864 [2]. These benign lesions were named in honour of C. Victor Schneider who, in the 1600s, demonstrated that nasal mucosa produces catarrh and not CSF and identified its origin from the ectoderm .Kramer and Som classified SPs as true nasal neoplasms and described them as true papillomas, distinguishing them from inflammatory nasal polyps. It constitutes 0.5-4.0% of all primary nasal tumours and has a peak incidence in the fifth and sixth decades of life [3]. Ringertz was the first to identify the tendency of SPs to invert into the underlying connective tissue stroma, which differs from other types of papillomas [4]. Inverted papillomas generate considerable interest because they are locally aggressive, have a propensity to recur, and are associated with malignancy [1, 2]. Recurrent disease and metachronous carcinoma can develop after a prolonged period of time [2].

SPs, commonly called inverting papillomas, have many synonyms (e.g. epithelial papilloma, transitional cell papilloma, squamous cell papilloma). The sinonasal mucosa is ectodermal in origin, derived originally from the stomodeum (i.e. primitive mouth) in the fourth week of gestation. Sinonasal mucosa is continuous with the mucosal lining of the nasopharynx, which is of endodermal origin but is of identical histology [1].

Lesions with similar histologic and biologic features infrequently arise outside the nasal cavity. These represent an ectopic migration of the Schneiderian membrane during embryogenesis. Extra sinonasal sites where SPs may arise include the pharynx, the lacrimal sac, and the middle-ear space. Similar to SPs, these extra nasal papillomas may recur after inadequate resection [5]. There are three recognized subtypes of SP: inverting, fungiform, and oncocytic (cylindric) cell papillomas. Inverting papilloma represents 47% to 73% of the tumors, fungiform represents 19% to 50%, and oncocytic cell, 3% to 8%. The inverting and oncocytic cell subtypes originate on the lateral nasal wall or within the paranasal sinuses and have similar biologic behavior with high rates of recurrence, as well as a known association with malignancy. In contrast, the fungiform subtype has a low recurrence rate, arises exclusively on the nasal septum, and is not associated with malignancy [3].

Inverting papilloma accounts for approximately 70% of all SPs and has an incidence of 0.74-1.5 cases per 100,000 per year. Men are affected 4 times more often than women. White persons are most at risk, compared with persons of other races. Finally, although the age range for occurrence is 6-90 years, SPs are rare in children and young adults[5]. Extrinsic factors associated with air pollution and industrial carcinogens have been considered as possible causes of SPs; however, more studies are required to achieve statistical significance [6].

Both the low-risk subtypes (i.e. HPV 11, HPV 6) and the high-risk subtypes (i.e. HPV 16, HPV 18)

have been identified in SPs. In 1987, Respler et al, using an in situ hybridization technique, demonstrated HPV 11 in 2 of their patients [7]. The role of human papilloma virus (HPV) in the development of Schneiderian papillomas has been the subject of numerous studies. In situ hybridization and polymerase chain reaction (PCR) studies have shown papilloma virus DNA in almost all fungiform papillomas and in a minority of inverted papillomas [8-10]. Cylindrical-cell papillomas have been negative for HPV DNA [8, 11]. Epstein-Barr virus (EBV) has not been detected in Schneiderian papillomas [8]. Fungiform papilloma arises almost exclusively on the nasal septum, whereas the inverted form predominantly affects the lateral wall of the nose and/or the paranasal sinuses. Fungiform papilloma is not associated with carcinoma, whereas inverted papilloma is [12-14].

CASE REPORT

A male patient aged about 50 yrs. presented with recurrent bleeding from the nose and mass in the nasal cavity. The mass was surgically removed and sent for histopathological examination.

Morphology

On gross inspection the specimen was soft to moderately firm, with clefted surface Microscopy showed non keratinizing squamous epithelium, displaying the central fibrovascular core (Fig. 1&2).These oncocytic epithelial cells had 5 to 10 cells in thickness with cells containing inspissated mucin (Fig.3). Mitotic figures were few in number. The stroma was fibrous and vascular. Inflammatory cells were absent. These features were suggestive of Schneiderian papilloma.

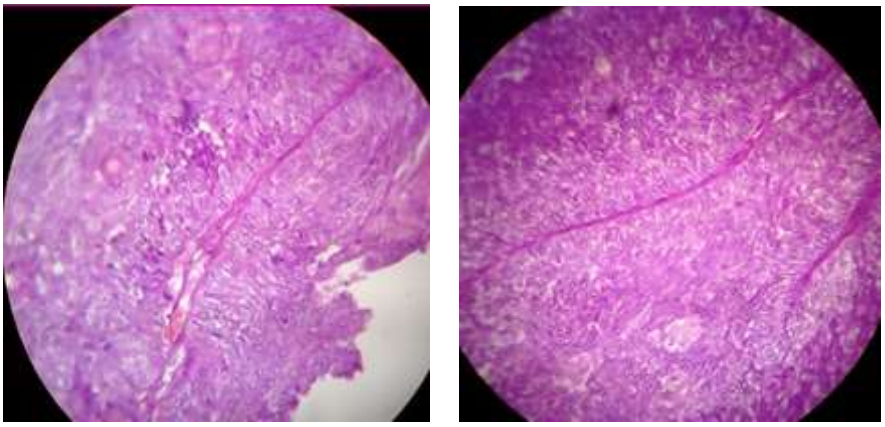

Fig. 1 &2: (10x) Showing papillary structure with central fibrovascular core

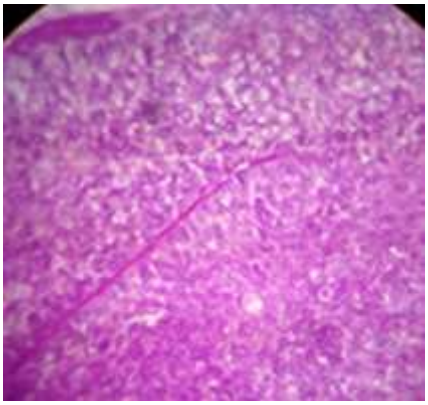

Fig. 3: (45x) Showing inspissated mucin secretion in the cells

DISCUSSION

The differential diagnosis of inverted and fungiform papilloma includes nonkeratinizing squamous carcinoma when it has a papillary architecture or narrow, serpiginous ribbons of invading epithelium. On cytological examination, however, papillary carcinoma has widespread, severe nuclear abnormalities and the cells have a partially clear cytoplasm. Papillary squamous carcinoma frequently has scattered small, round nests of mature squamous epithelium.

Oncocytic Schneiderian papilloma has areas of intermediate-cell proliferation identical to inverted papilloma, and the low-power architectures of these two papillomas are indistinguishable. In contrast to inverted papilloma, however, the majority of the cells in oncocytic papilloma have a finely granular eosinophilic

cytoplasm and less sharply defined cell borders. The outermost layer is often ciliated, and the cells rarely form a layer more than six to eight cells thick.

Oncocytic papilloma frequently contains numerous cells with sharply delimited, inspissated mucin droplets [14]. The differential diagnosis of oncocytic papilloma includes inflammatory polyp. When there are many neutrophils in the epithelium and stroma of oncocytic papilloma, the resemblance to an inflammatory polyp is enhanced. Inflammatory polyps, however, do not have the oncocytic epithelial cells or mucous inclusions. The numerous vacuoles containing inspissated mucus superficially resemble rhinosporidiosis. The organisms of rhinosporidiosis, however, involve both the epithelium and underlying stroma. Moreover, they are not accompanied by oncocytic epithelium. When the mucosa of oncocytic papilloma is cut tangentially, the numerous small lumina may mimic adenocarcinoma. However, adenocarcinomas of the nose or paranasal sinuses rarely have eosinophilic cytoplasm. The lack of nuclear atypia in oncocytic papilloma further distinguishes it from carcinoma.

Inverted and oncocytic papillomas are not metastasizing lesions in the absence of carcinoma.

The association of carcinoma with inverted and oncocytic papilloma is indisputable. Invasive squamous cell carcinoma occurs in approximately 6% to 14% of patients with these papillomas. Metachronous carcinoma may or may not be associated with a papilloma [15]. There are no criteria to predict which papillomas will be followed by carcinoma. The rate at which papillomas recur and the length of time between recurrences do not correlate with the risk of subsequent carcinoma. The carcinomas are mostly of the squamous cell type, but spindle cell, clear-cell, high-grade mucoepidermoid , and sinonasal undifferentiated carcinomas have also been described.

CONCLUSION

Studies of Schneiderian papillomas need to carefully distinguish the different histologic subtypes, as their etiology, clinical behavior, and required treatment are likely to be different. HPV-6b and HPV-11 appear to be involved in all cases of fungiform papillomas but are only rarely involved in cases of inverting or oncocytic cell papillomas. HPV-16 may rarely play a role in inverting papillomas, and HPV-16 and HPV-18 may be involved in a subset of cases of carcinomas originating in an inverting papilloma. All the tissue removed from a patient with inverted or oncocytic papilloma should be submitted for microscopic examination so as not to overlook small foci of carcinoma.

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