Research Article

A comparative study of cytomorphological subtypes of Schneiderian papilloma

Shrinivas S Chavan[1], Dnyanoba Chokhoba Somwanshi[1], Pallavi Sapale[2], Manu S Babu[3], Ajinkya Kedari[3]

[1]Department of ENT, Government Medical College and Hospital, Miraj, Maharashtra, India, [2]Department of Pediatrics, Government Medical College and Hospital, Miraj, Maharashtra, India, [3]Department of ENT, Government Medical College and Hospital, Aurangabad, Maharashtra, India

Correspondence to: Shrinivas S Chavan, E-mail: shrinivasc77@hotmail.com

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ABSTRACT

Background: Nasal papilloma (NP) is a well recognized but a rare nasal tumor, representing 0.5-4% of all sinonasal tumors. It has eluded otorhinolaryngologists regarding its etiology and histopathologists regarding its tissue component. **Objective:** The objective is to study the various cytomorphological subtypes of Schneiderian papilloma (SP) along with their occurrence, recurrence, and malignant transformation. **Materials and Methods:** This prospective observational study was conducted by Department of Otorhinolaryngology in collaboration with Department of Pathology of Government Medical College and Hospital, Miraj and Aurangabad from a period of August 2014 to December 2016. All patients of nasal mass after detailed anesthetic evaluation and radiological investigation underwent surgery and the mass were sent for histopathology. **Results:** In this case series of 25 patients of SP, we encountered 17 cases of Inverted papilloma, 5 cases of Cylindrical (Transitional) Cell Carcinoma (CCC), and 3 rare cases of Everted papilloma (EP). **Conclusion:** SP although benign is well known for its propensity to recur and malignant transformation in a few of subtypes of NP.

KEYWORDS: Nasal Papilloma; Inverted Papilloma; Cylindrical Cell Carcinoma; Transitional Cell Carcinoma; Everted Papilloma

INTRODUCTION

The nasal papilloma (NP) in its earlier days generated varied opinion among histopathologists for its nomenclature with as many as 54 synonyms and recently among molecular biologist for its etiopathogenesis.[1] The NP was first introduced to the medical fraternity by Ward in 1854 and Billroth in 1855 independently and was named in honor of Sir Victor Conrad Schneider, who in 1600 demonstrated that nasal mucosa produces catarrh and not cerebrospinal fluid and also proved the ectodermal origin of the nasal mucosa.[1] In 1938, Ringertz was the first one to describe one of the subtypes of NP by demonstrating the inversion of papilloma into the underlying connective tissue stroma for which he labeled it as inverted papilloma (IP) also known as Ringertz tumor.[2] The intermediate phase between the IP and EP before they acquire the invertedness or evertedness was similar in nature. The recurrences of resected IP were in the form of EP in few cases and vice versa.[2]

Therefore, the umbrella term Schneiderian papilloma (SP) was proposed to encompass all varieties of NP until in 1963 Norris classified NP into 2 types depending upon their histopathology: (a) SP, and (b) IP.[3] Batsakis in 1979 based on anatomical site of origin, divided NP into 4 variants: (i) Keratotic Papilloma from nasal vestibule, (ii) IP from the lateral nasal wall, (iii) fungiform papilloma from the nasal septum (EP), and (iv) cylindrical papilloma from the paranasal sinuses (commonly maxillary sinus).[2]

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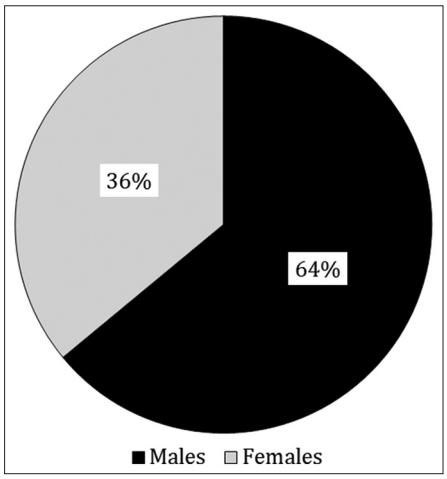

Figure 1: Gender distribution of the cases

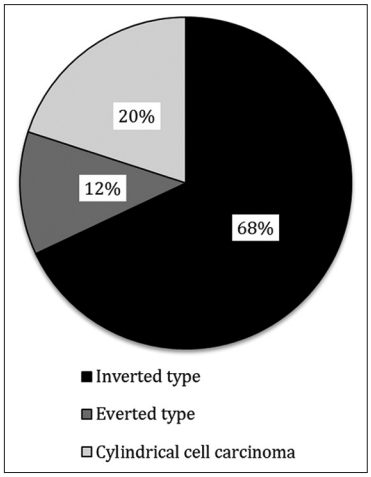

Figure 2: Type distribution of the Schneiderian papilloma

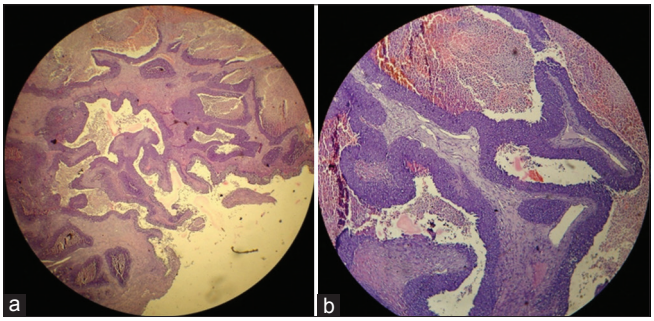

Figure 3: Inverted papilloma: Circumscribed margins of lesion show thickened epithelial covering of squamous type, underneath it are multiple irregular papillary folds with fibrovascular cores infiltrating into deeper connective tissue stroma which is fibromyxoid in nature. Papillae are lined by multilayered epithelium with uniform nuclei without atypical mitotic figures negating possibility of malignancy and confirming it to be an inverted papilloma, (a) inverted papilloma (lower magnification), (b) inverted papilloma (higher magnification)

The plethora of histopathological presentations of SP is further complicated by malignant transformation in about 11% of patients of IP, the malignancy can be synchronous or may appear after resection of papilloma (metachronous).[4]

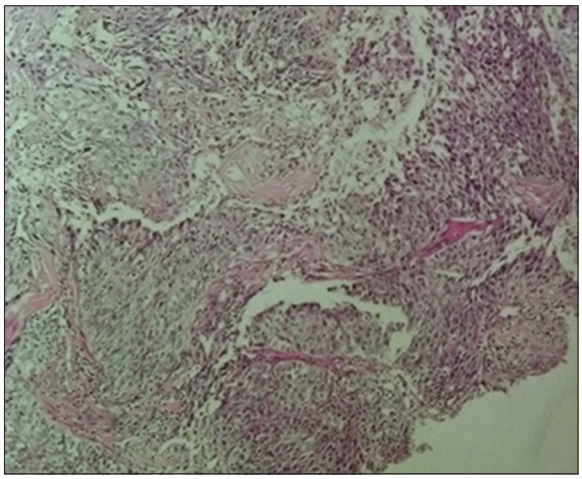

Figure 4: Cylindrical Cell Carcinoma: Papillary ribbon-like pattern with frequent central necrosis. Resemble urothelial (transitional) carcinoma. Usually, invades underlying tissue with pushing margins. Tumor cells are medium to large with cylindrical or basaloid morphology, marked nuclear atypia, and brisk mitotic activity. The tumor is devoid of significant keratinization. Occasional mucous containing cells can be seen

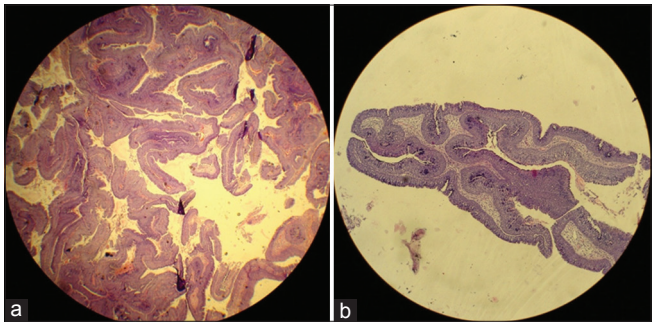

Figure 5: Everted papilloma: Lesion exhibits multiple complex branching papillary processes having fibrovascular core typifying exophytic pattern. Papillary processes are lined by multilayered epithelium that contained both squamoid and transitional epithelium with occasional mucocytes. Fibrous stroma shows mononuclear infiltration, (a) everted papilloma (lower magnification), (b) everted papilloma (higher magnification)

The malignant variant also has many synonyms including, Schneiderian carcinoma, Transitional cell carcinoma, Cylindrical Cell Carcinoma (CCC), Ringertz carcinoma and respiratory epithelial carcinoma.[5]

To settle the long-standing battle on the nomenclature of NP, the WHO in 1991 has given directive that any NP encountered in the sinonasal area should be labeled depending upon the histopathology under three headings: (i) IP, (ii) EP, and (iii) oncocytic papilloma.[5] Malignant transformation of IP was named as CCC, a term first coined by Ringertz in 1938 and later recommended as the preferred term by Shanmugaratnam in the WHO classification.[6] Till now the etiopathogenesis of NP is still enigmatic with questionable role of human papilloma virus and epstein barr virus in the causation of EP and IP. This study was planned with the objective is to study

the various cytomorphological subtypes of SP along with their occurrence, recurrence, and malignant transformation.

MATERIALS AND METHODS

This prospective observational study was conducted by Department of Otorhinolaryngology in Collaboration with Department of Pathology of Government Medical College and Hospital Miraj and Aurangabad from a period of August 2014 - December 2016. The study was approved by institutional Ethics Committee. All patients of nasal mass after detailed anesthetic evaluation and radiological investigation underwent surgery and the mass were sent for histopathology. The Inclusion criteria for this study were the cases of benign and malignant nasal mass, operated in our institute which was diagnosed to be variants of SP based on histopathology. All nasal masses other than SP on histopathology were excluded from the study.

RESULT

A series of 25 patients were included in our study, among which 16 were males (64%) and 9 females (36%) (Figure 1). The mean age of the patients was 48.4 which ranges from 35 years to 68 years. According to Figure 2, among 25 patients, most common variant of SP was IP (Figure 3) (68%), followed by CCC (Figure 4) (20%) and only 3 cases of EP (Figure 5) (12%). IP and EP most commonly situated in nasal cavity (11 and 2 cases, respectively) while CCC involved the nasal cavity most commonly on 6 cases. All the tumors are more common on right side.

DISCUSSION

NP is a rare sinonasal tumor of unknown etiology, arising from nasal mucosa, and representing 0.5-4% of all sinonasal tumors. In our case series of NP, males outnumbered females while CCC was exclusively observed in males consistent with finding of other various studies.[7-10]

The most common presenting complaint in NP was unilateral nasal obstruction which was progressive in IP and non-progressive in EP. The NP undergoing malignant changes showed not only progressive nasal obstruction and but also occasional blood-stained nasal discharge.

The gross appearance on nasal endoscopy, IP showed nodular mass reddish-brown, smooth surfaced, and firm in consistency bled on probing while EP presented as pink mass, soft in consistency with multiple fronds like projection which open up during suctioning of nasal mass. CCC grossly showed exophytic growth with the smooth or corrugated surface, arising from maxillary sinus or lateral nasal wall firm too hard in consistency and bleed on probing.

In our study, the most common variant of NP was IP (73.33%) which correlates with Vorasubin et al.(2013).[11] Followed by CCC and EP.

Our case study showed 3 of IP undergoing malignant transformation which correlates with the study carried by Lawson et al. (1995); Benninger et al.(1990); Lesperance and Esclamado (1995).[8,12,13]

The present study indicates that SP although benign is well known for its obscure etiology, capacity to destroy, a tendency to recur, and an association with malignancy.[14] Consequently, high suspicion at primary procedure on the part of otorhinolaryngologist and coordination with histopathologist are paramount in diagnosis and treatment of NP.

CONCLUSION

SP although benign is well known for its propensity to recur and malignant transformation in a few of subtypes of NP.

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