

A clinicomorphological study of Schneiderian Papilloma

Sumit Gupta^{1,*}, Swati Singh², Jaydeep Garewal³, Shivangi Vijay⁴, Atul Makhija⁵, Yogesh Gupta⁶

¹Assistant Professor, ^{2,3,4}Junior Resident, Dept. of Pathology, NIMS Medical College, Jaipur, ⁵Consultant ENT Surgeon, Dept. of ENT, Amodh Hospital, Jaipur, ⁶Consultant Pathologist, Dept. of Pathology, Sudha Hospital, Kota

***Corresponding Author:**

Email: drsumitpatho@yahoo.com

Abstract

Background: Schneiderian papilloma are benign epithelial neoplasm of three subtypes- exophytic, oncocyctic and inverted. The objective of the study performed is to illustrate the histopathological patterns and clinical presentation of schneiderian papilloma subtypes. Sinonasal papillomas are benign yet aggressive neoplasm characterized by high recurrence rate and associated with malignancy.

Method: A prospective study was performed of schneiderian papillomas diagnosed in a period of three years.

Results: Thirty five patients of sinonasal papilloma who underwent sinus surgery were observed. There were 25(71%) male and 10(29%) female subjects diagnosed at an average age of 53 years(range 10-74years). The three subtypes were classified as exophytic(13 cases); inverted(19cases) and oncocyctic papilloma(3cases).

Conclusion: Inverted papilloma are the most common sinonasal papilloma.

Key Words: Exophytic, Inverted, Oncocyctic, Sinuses

Access this article online	
Quick Response Code:	Website: www.innovativepublication.com
	DOI: 10.5958/2394-6792.2016.00065.X

Introduction

Schneiderian papilloma was first described by ward in 1854 and it is believed to originate from the schneiderian membrane which lines the sinonasal tract^(1,2). Reingertz in 1935 was the first to histologically describe the appearance of inverted papilloma. Since then several different names have been used to characterize these three distinct types of papilloma. It was hams who proposed that they be classified into three subtypes⁽³⁾. Schneiderian papilloma arise in sinonasal tract which is lined by schneiderian membrane ectoderally derived respiratory mucosa^(4,5) which can give rise to three histological subtype-exophytic, inverted and oncocyctic⁽⁶⁾. Oncocyctic papilloma is the rarest of the three morphological variant of schneiderian papilloma⁽⁵⁾. The inverted variety has the highest association with malignancy. The differential diagnosis include nasal polyp with squamous metaplasia, respiratory epithelial adenomatoid hamratoma and invasive carcinoma. There is a strong etiologic association with human papilloma virus(H.P.V) commonly with serotype 6 and 11, although no association have been found in oncocyctic subtype. Other diseases such as inflammatory polyps and allergic fungal sinusitis may be seen concurrently. The overall clinical presentation is quite non-specific

with nasal obstruction, rhinitis and sinusitis being the most common symptoms⁽⁷⁾.

The study is done to observe distribution of different subtypes with age group, sex preponderance, laterality and anatomical site along with histopathological study based on a prospective study done over a period of three years.

Method

A prospective study was done on pathology specimens received from sinus surgeries between October 2012 to September 2015. Thirty five patients were diagnosed with schneiderian papilloma over this three years period of study. Age, sex, laterality, location and clinical symptoms were obtained by review of the operative report followed by histopathological examination.

Results

Sex	Male	Female
No. of cases	25	10

Associated Findings	No of Cases
Nasal obstruction	28
Rhinitis	18
Sinusitis	20



Fig. 1: Gross appearance of inverted Papilloma

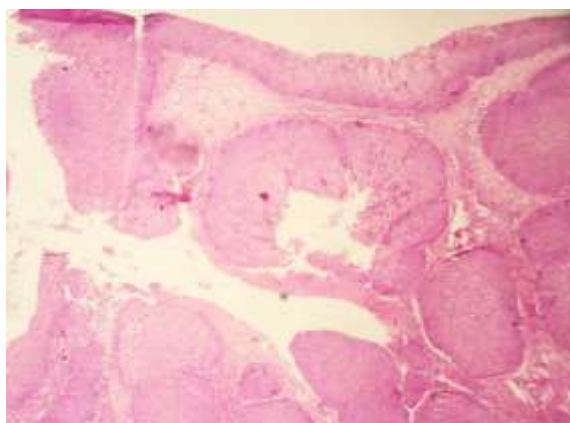


Fig. 4: Squamous lining with underlying nests in inverted papilloma (H & E X 10)

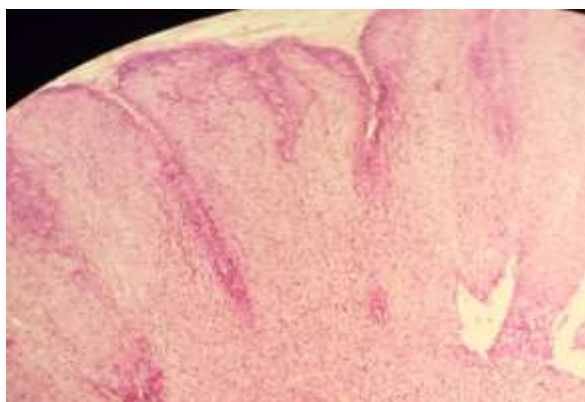


Fig. 2: Low power view of Exophytic Papilloma (H & E)

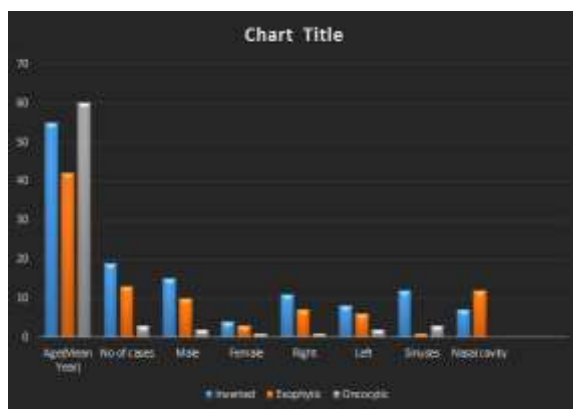


Fig. 5:

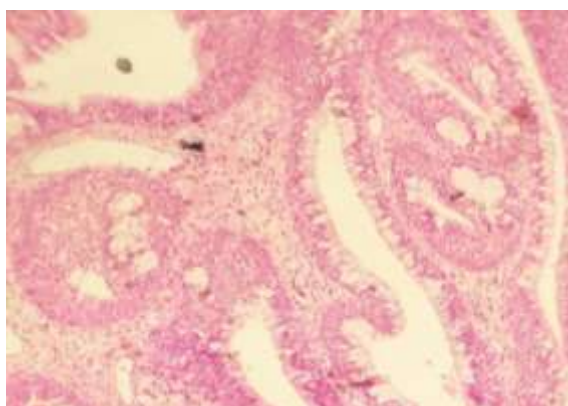


Fig. 3: Oncocytic showing Mucinous Cysts (H & E X 10)

		Inverted	Exophytic	Oncocytic
Age(Mean Year)		55	42	60
No of cases		19	13	03
Sex	Male	15	10	02
	Female	04	03	01
Side	Right	11	07	01
	Left	08	06	02
Location	Sinuses	12	01	03
	Nasal cavity (Septum, turbinate)	07	12	00

Discussion

Sinonasal papilloma occurs in wide age range between 6 and 85 years of age but most cases are seen in fifth and sixth decade of life^(3,8,9,10). They are uncommon in children and the youngest patient reported in the literature is 6 years old⁽⁸⁾. In our study, the majority of the patients were above 50 years of age with youngest patient is 14 years old; their ages were between 14 to 72 years with an average age of 52 years. Male to female ratio was 2.5:1. The majority of sinonasal papilloma occurs between fifth to sixth decade of life were similar to previous study findings⁽¹²⁾. The mean age at presentation of the patients with the inverted type was 55 years; exophytic 40 years and oncocytic papilloma it was 62 years. The main symptoms found in previous study at presentation included unilateral nasal obstruction, stuffiness, rhinitis and less commonly epistaxis, facial pain and purulent discharge^(3,9,11) similar to observation made in our study. The main presentation in our series was nasal obstruction. In general papilloma are unilateral^(3,8,12) and can be multifocal but rarely bilateral⁽¹³⁾. In our study most of the papillomas were on left side with all cases were of unilateral presentation. The frequency of the various types of schneiderian papilloma varies depending upon geographic area. In a collective series of more than 700 cases, 32% were of exophytic type; inverted(47-78%) and 6% oncocytic(range 2-26%)^(2,14); compared to our study in which 54.3% were of exophytic; inverted (37%) and 8% were oncocytic type. In the study by Hams of 72 patients with sinonasal papilloma the most common sites of involvement were the maxillary (58.3%), lateral nasal wall(41.7%) and ethmoid sinus (37.5%)⁽³⁾. In our study out of 35 patients; site of origin was nasal cavity(septum and turbinate) in 19 cases (54.3%) and 16 cases(45.7%) from sinuses. Invasive and exophytic papilloma were the most common diagnosed subtypes and oncocytic the rarest subtype in the previous studies^(6,7); similar findings were observed in our study in which invasive papilloma and exophytic papilloma comprise of 92% cases and oncocytic papilloma subtype was seen in just 8% cases. A male to female predominance exists(2.5:1) in population of our study with younger patients were having more commonly exophytic papilloma. Though only two cases(5.7%) of inverted papilloma were found in patients younger than eighteen years of age. Exophytic papilloma almost exclusively arise from the nasal septum with rare cases arising from the sinus which collaborated with previous study⁽¹⁵⁾. Inverted papilloma are located in lateral wall and sinuses and tended to arise with inward growth of the epithelium into the stroma⁽¹⁷⁾. Exophytic papilloma were most common within the nasal cavity and oncocytic papilloma had a predilection for the sphenoid sinus.

There are two thoughts for origin of inverted sinonasal papilloma either metaplasia of surface and ductal epithelium or metaplastic inversion of surface

epithelium⁽¹⁸⁾. The exact pathogenesis of papillomas has not yet been delineated although many factors such as allergy, chronic sinusitis, H.P.V., E.B.V., environmental carcinogens and tobacco smoking have been proposed⁽⁶⁾. Inflammation may have potential role in inverted papilloma and the higher grade of epithelial remodeling was associated with the recurrence of inverted papilloma⁽¹⁶⁾. In contrast to sinonasal papillomas; inflammatory polyp are mostly bilateral.

The histopathological examination is needed to differentiate each of these papilloma. On gross, invasive papilloma appeared large, firm with uneven surface(Fig. 1). Histologically invasive papilloma showed thick squamous epithelium underlying endophytic growth (Fig. 4). Exophytic papilloma grossly appear grey tan with papillary projection and microscopically showed outward papillary projection (Fig. 2). The oncocytic papilloma appears soft, fleshy and microscopically showed pseudostratified columnar epithelium with oncocytic change and scattered mucus glands were seen (Fig 3). All the above findings were similar to previous studies.^(3,11)

Conclusion

Sinonasal papillomas are benign epithelial neoplasm arising from schneiderian mucosa. This study stress the importance to recognize this tumor and to differentiate it from cancer. The ethmoid and maxillary sinus represented commonly involved sites of papilloma. The papilloma found within sphenoid sinus was of oncocytic subtype only. While exophytic papilloma are mostly confined to the nasal cavity.

Although the incidence of invasive papilloma is much higher compared with the other papilloma subtype; oncocytic and exophytic papilloma must be recognized and differentiated. The ethmoid and maxillary sinus represented commonly involved sites of papilloma.

References

1. Ward N.A mirror of the practice of medicine and surgery in the hospitals of London. London Hosp Lancet.1854;2:480-482.
2. Ridolfi RL, Lieberman PH, Erlandson RA, Moore OS. Schneiderian papillomas: a clinicopathological study of 30 cases. Am J Surg Pathol 1977;1(1):43-53.
3. Hyams VJ. Papillomas of the nasal cavity and paranasal sinuses. Ann Otol Rhinol Laryngol 1971;80:192-206
4. Batsakis JG, Suarez P. Schneiderian papillomas and carcinomas: A review. Adv Anat Pathol 2001;8:53-64
5. Cheng T-Y, Ueng S-H, Chen Y-L, et al. Oncocytic Schneiderian papilloma found in a recurrent chronic paranasal sinusitis. Chang Gung Med J 2006;29:336-341
6. Schneiderian papillomas: Comparative review of exophytic, oncocytic, and inverted types Nopawan Vorasubin, Darshni Vira, Jeffrey D. Suh, Sunita Bhuta, Marilene B. Wang Am J Rhinol Allergy.2013 July-Aug;27(4):287-292.
7. Thompson, Lester D.R. "Schneiderian papilloma of the sinonasal tract." Ear, Nose and Throat Journal Apr-May 2015:146.

8. Eavey RD. Inverted papilloma of the nose and paranasal sinuses in childhood and adolescence. *Laryngoscope* 1985;95:17-23.
9. Díaz Molina JP, Llorente Pendas JL, Rodrigo Tapia JP, et al. Inverted sinonasal papillomas. Review of 61 cases. *Acta Otorhinolaringol.* 2009;60(6):402-408.
10. Dragonetti A, Gera R, Sciuto A, Scotti A, et al. Sinonasal inverted papilloma: 84 patients treated by endoscopy and proposal for a new classification. *Rhinology* Jun 2011;49(2):207-213.
11. Kim S, Lee OY, Choi J, et al. Pattern of expression of cell cycle-related proteins in malignant transformation of sinonasal inverted papilloma. *Am J Rhinol Allergy* 2011;25:75–81.
12. Vrabec DP. The inverted Schneiderian papilloma: A 25-year study. *Laryngoscope* 1994;104:582–605.
13. Lund VJ, Stammberger H, Nicolai P, et al. European position paper on endoscopic management of tumours of the nose, paranasal sinuses and skull base. *Rhinol Suppl* 2010;22:1–143.
14. Wood JW, Casiano RR. Inverted papillomas and benign non neoplastic lesions of the nasal cavity. *Am J Rhinol Allergy* 2012; 26:157–163.
15. Orlandi RR, Rubin A, Terrell JE, et al. Sinus inflammation associated with contralateral inverted papilloma. *Am J Rhinol* 2002; 16:91–95.
16. Zhao, L., Li, C. W., Jin, P., Ng, C. L., Lin, Z. B., Li, Y. Y., Li, T. Y., Petersson, B. F., Shi, L. and Wang, D. Y. Histopathological features of sinonasal inverted papillomas in chinese patients. *The Laryngoscope*, 2016;126:141–147.
17. Maru AM, Patel UV, Shrivastav A, Lakum NR et al. Histopathological study of nasal masses in patients coming to a tertiary care hospital: A study of 70 cases. *Med J DY Patil Univ* 2015;8:468-73.
18. Harikrishnan Prasad, Ranganath Sruthi, Krishnamurthy Anuthamad et al. Sinonasal papilloma masquerading as a malignancy –Report of an unusual case *Cureus*. 2016 Mar;8(3):e526.