Sinonasal Papilloma in Chiang Mai University Hospital

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Objective: *To study sinonasal papilloma patients in terms of clinical characteristics, treatment, outcome, and complications.*
Material and Method: *A retrospective descriptive study was done. Sinonasal papilloma data were gathered between 1999 and 2009. There were 63 available patients from the 82 cases.*
Results: *There were nine cases of nasal papilloma (14.3%) and 54 of inverted papilloma (85.7%). The mean age of the inverted papilloma group was higher than the nasal papilloma group (54±12.97 years vs. 42.4±24.8 years). The most common symptom was unilateral nasal obstruction. There were three cases of synchronous malignancy in the inverted papilloma and two metachronous (9.3%). Thirty-nine patients (72%) could be followed-up for more than three months. Recurrence was more common in the inverted papilloma group than nasal papilloma (37% vs. 11.1%). The 50% recurrent time of the endoscopic group was 51 weeks and the external group was 14 weeks. The recurrence of the external approach group was 1.59 times the endoscopic group. Ten surgical complications were found in eight inverted papilloma patients (16%) and included three in the endoscopic and five in the external group. Most of them were minor. They were hypoesthesia and epiphora.*
Conclusion: *Sinonasal inverted papilloma was common, able to recur, and associated with malignancy. Though this was a limited retrospective study, it showed lower recurrence on the endoscopic approach. The life-long follow-up is needed in all cases.*

Keywords: *inverted papilloma, nasal papilloma, sinonasal papilloma, inverting papilloma*

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Sinonasal papilloma is a common benign nasal tumor[1-5]. Inverted papilloma, one of its subgroups, is 0.5 to 4% of all nasal and paranasal sinus neoplasms[6]. The number is as high as 20.6% in the previous study in Thailand[7]. It is locally destructive and often recurrent. Treatment requires complete surgical removal by lateral rhinotomy or midfacial degloving. Endoscopic approach is now acceptable with a recurrent rate of 12% compared with 15 to 20% for external approaches (range 0-33% in both groups)[1]. The objective of the present study was to analyze sinonasal papilloma patients in terms of clinical characters, treatment, outcome, and complications.

Material and Method

A retrospective data was gathered on all surgical sinonasal papilloma patients in the ENT department, Chiang Mai University Hospital between 1999 and 2009. Demographic data, tumor staging, main surgical approach, and outcome were collected. Krouse system[8] was used for the inverted papilloma staging due to its acceptability and corresponds with the disease prognosis and outcome; T1: tumor confined to the nasal cavity, T2: tumor limited to the medial and superior portions of the maxillary sinus, and/or involving the ethmoid sinus, with or without involvement of the nasal cavity, T3: tumor involving other walls of the maxillary sinus, the sphenoid sinus, or the frontal sinus, with or without involvement of the ethmoid sinus or nasal cavity, T4: tumor extending outside the nose and/or paranasal sinuses to involve adjacent structures such as the orbit, intracranial compartment, or pterygomaxillary space. The Research Ethics Committee of Chiang Mai Medical School approved the study protocol.

The STATA program version 11.0 was used for survival analysis with Kaplan-Meier method; for disease recurrence, other parameters were tested with SPSS program version 17, in term of number and percentage; mean ± standard deviation and

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comparison between two means by using Student t-test or Mann-Whitney U test as appropriate. Comparison between two proportion (%), Chi-square test, or Fisher's exact test was used. P-value was set at 0.05 for statistical significance.

Results

There were 82 surgical sinonasal papilloma patients, though complete data was available for only 63 patients. Of 63 patients, there were nine cases of nasal papilloma (14.3%) and 54 of inverted papilloma (85.7%). There were three cases of nasal polyps in nasal papilloma group and eight cases of associated antrochoanal polyp (14.8%), seven cases of nasal polyps (12.9%), and five cases of malignancy (9.3%) in the inverted papilloma group. The most common symptom was unilateral nasal obstruction, followed by rhinorrhea (Table 1). Nasal papilloma and inverted papilloma patients had different age distributions (p = 0.025).

The only one recurrent nasal papilloma occurred four times at the nasal vestibule and there was a scar deformity that required surgical correction after successful papilloma treatment.

All five malignancy cases were in the inverted papilloma group. Three were synchronous and two metachronous. The most common cell type was squamous cell carcinoma (Table 2).

The three synchronous malignancy cases and one inverted papilloma with intracranial extension were not included for survival analysis. In the latter case, surgery was done as symptomatic treatment due to the patient's condition.

Thirty-nine patients (72%) could be followed-up for more than three months. The surgical approach was determined by the intention. In the case of external, lateral rhinotomy, midfacial degloving, medial maxillectomy, tumor removal with or without endoscopic exam was done. For the endoscopic, pure endoscopic medial maxillectomy, tumor removal, or combined with CWL or external frontoethmoidectomy was used based on the tumor stage. There were 36 endoscopic cases with 11

Table 1. Sinonasal papilloma data

	Nasal papilloma (9 patients)	Inverted papilloma (54 patients)	p-value
Sex			0.283
Female	5 (55.6%)	19 (35.2%)	
Male	4 (44.4%)	35 (64.8%)	
Mean age (year) ±SD	42.4±24.48	54±12.97	0.025*
Range (year)	12-76	23-80	
Symptoms			
Unilateral nasal obstruction	8 (88.9%)	46 (85.2%)	1.000
Rhinorrhea	4 (44.4%)	35 (64.8%)	0.283
Epistaxis	2 (22.2%)	14 (25.9%)	1.000
Facial pain	2 (22.2%)	12 (22.2%)	1.000
Smell dysfunction	1 (11.1%)	9 (16.7%)	1.000
Mean follow-up (year)	1	8.5	
Range	2 weeks-3.1 years	0-9.25 years	
Recurrence	1 (11.1%)	20 (37.0%)	0.251
Associated disease			
Antrochoanal polyp	0	8 (14.8%)	
Nasal polyps	3 (33.3%)	7 (12.9%)	
Malignancy	0	5 (9.3%)	
Sinus involvement			
Ethmoid sinus	0	28 (51.9%)	0.003
Maxillary sinus	0	36 (66.7%)	<0.001
Frontal sinus	0	10 (15.0%)	0.332
Sphenoid sinus	0	6 (11.1%)	0.581
Other sites**	8 (88.9%)	7 (13.0%)	<0.001

* t-test, other variables: Fishers exact test

** Nasal papilloma: nasal septum or nasal vestibule, with no record in one case, Inverted papilloma: nasal cavity, with no record in one case

recurrences (30.6%) and 14 external cases with six recurrences (42.9%).

Ten surgical complications were found in eight inverted papilloma patients (16%), five in the external, and three in the endoscopic group. Most of them were minor such as two temporary epiphora and one facial hypoesthesia cases in the endoscopic group and three hypoesthesia and one epiphora cases in the external group. In the endoscopic group, there was one case of arterial bleeding that required cauterization. In the external approach group, there was one case of lung atelectasis. There was a case of CSF leakage due to skull base tumor progression three months after endoscopic surgery in one of the four excluded cases.

All 50 cases were analyzed for recurrence. The recurrent rate was 1.9% per week in the endoscopic approach group, and 3.1% per week in the external approach group. The 50% recurrent time of the endoscopic group was 51 weeks and the other group was 14 weeks. The recurrence of the external approach group was 1.59 times the endoscopic group. When the Krouse stage and age were taken into account, the

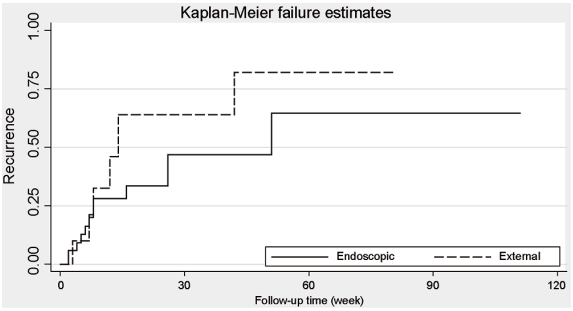

Fig. 1 Percentage of recurrence over follow-up time between different approaches.

Table 2. Associated malignancy found in the inverted papilloma group

Age/sex	Cell type	Site	Synchronous/metachronous	Tumor location	Duration*
65/M	SCCA	Maxillary	Synchronous	Same	Same time
43/M	SCCA	Nasal cavity	Metachronous	Same	1 year
	PDCA		Metachronous	Temporal mass	2 years
76/M	SCCA	Ethmoid, sphenoid	Synchronous	Same	Same time
56/M	SCCA	Maxillary	Synchronous	Same	Same time
59/M	CIS	Maxillary	Metachronous	Same	17 months

M = male; SCCA = squamous cell carcinoma; PDCA = poorly differentiated carcinoma; CIS = carcinoma in situ
Synchronous: second primary tumor was detected at the same time or within 6 months of the primary tumor, Metachronous: second primary tumor occurred after 6 months
* Period of time from the diagnosis of inverted papilloma

Table 3. Inverted papilloma management and outcome

Total of 50 patients	External approach, 14 patients (28%)	Endoscopic approach, 36 patients (72%)
Recurrence	6	11
>3 months follow-up	10	29
Krouse staging		
I	1	7
II	2	12
III	4	15
IV	1	0
Unknown (II-III)	6	2
Surgical complications	5 cases 5 events	3 cases 4 events
Minor		
Hypoesthesia	3 (cheek)	1 (eyebrow)
Epiphora	1	2
Major		
Post op arterial bleeding	0	1 (anterior ethmoidal a.)
Other		
Lung atelectasis	1	0

recurrence was statistically significant (Cox regression analysis done with adjusted Krouse stage and age was significant, p<0.001 [95% CI 1.33-1.88]).

Discussion

Schneiderian papilloma is divided to inverted, fungiform, and cylindrical cell types[9]. In the present study, inverted papilloma was more common than others. It could be that disease was more extensive and invasive because this is a tertiary referral center. From Table 1, there was no difference in presenting symptoms between the groups but the mean age of the inverted group was significantly higher (p = 0.025). The most common symptom was unilateral nasal obstruction, more than 80% of cases. This was the same as the inverted papilloma study of Vrabec et al[10] and Jareoncharsri et al[7]. There were misdiagnosed cases, which were diagnosed as antrochoanal polyp, but all the reported associated cases in the present study had pathologic results of the polyp and papilloma. Inverted papilloma have 5 to 15% malignant association[1], it was 9.3% in the present study. The most common cell type was squamous cell carcinoma, which was the same as other studies[10-14], though undifferentiated CA was found with worse prognosis[15]. The time interval to developing a metachronous carcinoma ranged from 0.5 to 15 years[12], which was within two years in the present study.

The recurrent rate of inverted papilloma can be up to 78%[12] depending on surgical methods. Endoscopic resection recurrence is 12[1] to 14.5%[12], external approach recurrence is 16[12] to 20%[1], whereas limited resection is 34.4%[12]. The overall recurrence of 37% in the present study was higher than recent reviews, including other study (30.51%) in Thailand[7]. This result might come from many loss of follow-up patients with mild symptoms or no recurrence. It is also due to different surgical experience and preference, because all the authors are surgeons; Head & Neck and rhinologists with various experience (<1 year to >20 years) and all contributed to the results. There should be a further study on treatment and methods that encourage favorable outcomes after this studying period. The limitations of the present study were the incomplete data of operative details of the inverted papilloma and the pathological results of the nasal papilloma.

Conclusion

Sinonasal inverted papilloma was common, able to recur and was associated with malignancy. Though this was a limited retrospective study, it showed lower recurrence on the endoscopic approach. The lifelong follow-up is needed in all cases.

Acknowledgement

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Potential conflicts of interest

None.

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***Sinonasal papilloma* ในโรงพยาบาลมหาวิทยาลัยเชียงใหม่**

สุปราณี ฟูอนันต์, เธียรไชย ภัทรสกุลชัย, รักษ์ ตนานุวัฒน์, พิชิต สิทธิไตรย์, สายสวาท ไชยเศรษฐ, กรรณิการ์ รุ่งโรจน์วัฒนศิริ, ชลธิชา ศรีวานิชภูมิ

วัตถุประสงค์: *เพื่อศึกษาข้อมูลผู้ป่วย sinonasal papilloma ได้แก่ ลักษณะทางคลินิก, วิธีการรักษา, ผลการรักษา และภาวะแทรกซ้อนที่เกิดขึ้น*

วัสดุและวิธีการ: *ศึกษาย้อนหลังในผู้ป่วย sinonasal papilloma ที่มารักษาตั้งแต่ พ.ศ. 2542 ถึง พ.ศ. 2552 จากทั้งสิ้น 82 ราย เก็บข้อมูลได้ 63 ราย*

ผลการศึกษา: *พบ nasal papilloma 9 ราย (ร้อยละ 14.3) inverted papilloma 54 ราย (ร้อยละ 85.7) กลุ่ม inverted papilloma มีอายุเฉลี่ยสูงกว่า nasal papilloma (54±12.97 ปี กับ 42.4±24.8) อาการที่พบบ่อยที่สุดคือ คัดจมูกข้างเดียว มีผู้ป่วยเป็นมะเร็งพร้อมกับ inverted papilloma 3 ราย และเกิดภายหลัง 2 ราย คิดเป็นร้อยละ 9.3 มีผู้ป่วย inverted papilloma ที่สามารถติดตามดูอาการได้มากกว่า 3 เดือน 39 ราย (ร้อยละ 72) โดยรวมพบการเป็นซ้ำใน inverted papilloma มากกว่า nasal papilloma (ร้อยละ 37 และร้อยละ 11.1) เมื่อศึกษาการเกิดโรคซ้ำพบว่ากลุ่มที่เกิดซ้ำหลังผ่าตัดผ่านกล้องจะพบร้อยละ 50 ใน 51 สัปดาห์ และกลุ่มผ่าตัดที่มีแผลภายนอก หากเกิดซ้ำจะพบร้อยละ 50 ใน 14 สัปดาห์ และพบเป็น 1.59 เท่า ของกลุ่มผ่าตัดผ่านกล้อง พบภาวะแทรกซ้อน 10 ครั้ง ในผู้ป่วย 8 ราย (ร้อยละ 16) คือกลุ่มผ่าตัดผ่านกล้อง 3 ราย กลุ่มที่มีแผลภายนอก 5 ราย ซึ่งส่วนใหญ่ไม่รุนแรงเช่น ชาใบหน้า น้ำตาไหล เป็นต้น*

สรุป: *Sinonasal inverted papilloma เป็นโรคที่พบได้บ่อย มีโอกาสเป็นซ้ำและเกิดโรคมะเร็งได้ แม้การศึกษานี้มีข้อจำกัดเนื่องจากเป็นการศึกษาย้อนหลัง แต่ได้แสดงให้เห็นว่าการผ่าตัดผ่านกล้องมีการเกิดโรคซ้ำต่ำกว่า และผู้ป่วยควรได้รับการติดตามดูแลต่อเนื่องไปตลอดชีวิต*
