

# Lobular Capillary Hemangioma of the Nasal Cavity: A Retrospective Study of 15 Cases in Taiwan

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**Background:** Lobular capillary hemangioma of the nasal cavity is an uncommon benign vascular tumor of unknown etiology. There have been only very few case reports in Taiwan.

**Aims:** This study aimed to analyze the clinical features, radiological findings, treatment modalities, and outcome of lobular capillary hemangioma treated at a teaching hospital in Taiwan during a period of 10 years.

**Study Design:** Descriptive study.

**Methods:** Retrospective chart reviews were performed on patients who were diagnosed with lobular capillary hemangioma of the nasal cavity at Kaohsiung Armed Forces General Hospital, Kaohsiung, Taiwan, from January 2003 to December 2012. Data retrieved included age, gender, clinical symptoms, computed tomography (CT) findings, treatment modalities, and outcome for further analysis.

**Results:** Of the 15 patients identified, there were five males and ten females ranging from 17 to 86 years of age, with a mean age of

43.8±20.2. Epistaxis was the most common presenting symptom. All patients presented a unilateral nasal lobular capillary hemangioma. The most commonly affected site was the anterior nasal septum, followed by the inferior turbinate, vestibule, middle turbinate, and posterior nasal septum. All lesions presented as soft tissue density without bony erosions under CT examination. Endoscopic excisional surgery (n=12) or classical local excision (n=3) was performed for complete removal of the hemangioma. No evidence of recurrence was observed with 6 to 75 months of follow-up.

**Conclusion:** Lobular capillary hemangioma of the nasal cavity was usually found to occur in anterior septum with epistaxis. Complete excision with endoscopic surgery or classical local excision was recommended and recurrence can be prevented.

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**Key Words:** Endoscopic surgery, epistaxis, lobular capillary hemangioma, nasal cavity

Hemangiomas are benign tumors made up of blood vessels that most commonly occur in the skin, mucosa, and internal organs such as the brain and liver. Hemangiomas are categorized to capillary, cavernous and mixed types according to the histopathological features. Lobular capillary hemangioma, also known as pyogenic granuloma, is uncommonly seen localized in the nasal cavity (1). Current information on this disease is mostly derived from case series of western populations, and little is known about this disease in Asians. In the present study, 15 patients diagnosed and treated with lobular capillary hemangioma of the nasal cavity at a teaching hospital in Taiwan were reviewed. The clinical features, radiological findings, treatment modalities, and outcomes were analyzed.

## MATERIAL AND METHODS

A retrospective chart review of patients who were diagnosed with lobular capillary hemangioma of the nasal cavity between January

2003 and December 2012 at a teaching hospital in Taiwan was performed. Patients who had undergone biopsy procedures without surgical excision were excluded from this study. Information on patient age, gender, clinical symptoms, CT findings, treatment modalities, and outcomes was collected for analysis.

## RESULTS

There were 15 patients enrolled in this study, including five males (33.3%) and ten females (66.7%) with a male:female ratio of 1:2. The mean age was 43.8±20.2, ranging from 17 to 86 (Table 1). Approximately 73.3% (11/15) of the patients were between 20 and 60 years of age. Twelve patients had no underlying diseases, whereas the remaining three had diabetes mellitus, hypertension, and rheumatoid arthritis.

All patients presented with unilateral lobular capillary hemangioma of the nasal cavity with 60.0% (9/15) of the lesions on the left side and 40.0% (6/15) on the right. The



**TABLE 1.** Demographic characteristics of patients with lobular capillary hemangiomas of the nasal cavity

No.	Gender	Age (year)	Duration of symptoms	Symptoms	Lesion site	Treatment#	Follow-up (month)
1	Female	45	3 weeks	Nasal obstruction, rhinorrhea, protruding tumor	R, V	CLE	8
2	Male	30	2 weeks	Epistaxis, nasal obstruction,	L, AS	EES	6
3	Female	31	2 weeks	Epistaxis, rhinorrhea	L, IT	EES	12
4	Female	65	5 months	Epistaxis, nasal obstruction,	L, PS	EES	24
5	Female	17	3 months	Epistaxis, rhinorrhea	L, IT	EES	43
6	Female	58	1 month	Epistaxis, nasal obstruction	L, AS	EES	28
7	Female	86	1 year	Epistaxis, nasal obstruction, facial pain	R, IT	EES	47
8	Male	23	2 weeks	Epistaxis, nasal obstruction, protruding tumor	L, V	CLE	42
9	Male	22	3 weeks	Epistaxis, nasal obstruction, protruding tumor	R, V	CLE	41
10	Female	75	1 year	Epistaxis, nasal obstruction, rhinorrhea	R, AS	EES	75
11	Male	22	2 months	Epistaxis, nasal obstruction, rhinorrhea	L, IT	EES	7
12	Female	54	3 weeks	Epistaxis, nasal obstruction, rhinorrhea	L, AS	EES	24
13	Female	52	8 months	Epistaxis, nasal obstruction, rhinorrhea	L, AS	EES	15
14	Female	41	1 month	Epistaxis, rhinorrhea, facial pain, headache	R, MT	EES	27
15	Male	36	3 months	Epistaxis, nasal obstruction	R, AS	EES	11

R: right; L:left; V: vestibule; AS: anterior septum; PS: posterior septum; MT: middle turbinate; IT: inferior turbinate; CLE: classical local excision; EES: endoscopic excisional surgery



**FIG. 1.** Rigid endoscopy of the patient showing one dark-red polypoid mass with a blood clot arising from the posterior nasal septum of the left nasal cavity



**FIG. 2.** CT of the sinuses shows one hyperdense lesion of about 1.3x1.2 cm over right middle meatus with an opacified right maxillary sinus

presented symptoms included epistaxis (14/15, 93.3%), followed by nasal obstruction (12/15, 80.0%), rhinorrhea (8/15, 53.3%), protruding tumor (3/15, 20.0%), facial pain (2/15; 13.3%), and headache (1/15; 6.7%). The mean duration of symptoms prior to admission was  $3.4\pm 3.9$  months (ranging from 2 weeks to 12 months). The most common site of the lesion was the anterior nasal septum (6/15, 40.0%), followed by the inferior turbinate (4/15, 26.6%), nasal vestibule (3/15, 20.0%), posterior nasal septum (1/15, 6.7%) (Figure 1), and middle turbinate (1/15, 6.7%).

Rigid endoscopy found a single dark-red to perse polypoid mass which bled easily when the lesion was touched by a telescope. On CT examinations, the lesions were all characterized by the presence of well-defined, enhancing soft tissue density without bony erosions. Maxillary sinusitis was found in two patients (13.3%). Among them, one had a lobular capillary hemangioma over the middle turbinate (Figure 2) and the other had a hemangioma over the inferior turbinate. All these patients underwent surgical removal of the hemangioma. While three patients with a lesion over the nasal vestibule underwent classical local excision, the others underwent endoscopic excisional surgery. There were no postoperative complications observed. The follow-up periods ranged from 6 to 75 months, with the mean of  $27.3\pm 18.7$  months. No recurrence was observed in the present case series.

## DISCUSSION

Lobular capillary hemangioma was first described as human botryomycosis by Poncet and Dor in 1897 (2). In the practice of otolaryngology, lobular capillary hemangioma is a benign vascular lesion commonly occurring in the skin and

mucosa of the oral cavity, and is less commonly found in the nasal cavity. Proposed contributing factors for the development of lobular capillary hemangioma include trauma, hormones, viral oncogenes, arteriovenous malformations, and angiogenic growth factors (3). In the present series, underlying rheumatoid arthritis in one patient was considered to be the triggering factor of the nasal lobular capillary hemangioma. The increased blood levels of angiogenic growth factors in rheumatoid arthritis patients, namely vascular endothelial growth factor (VEGF) and basic fibroblast growth factor (b-FGF), may be critical in triggering the formation of hemangiomas (4).

According to the literature, lobular capillary hemangioma of the nasal cavity show a female predominance, and most commonly occur in the third decade of life (5). In our series, although two-thirds of the patients were female, no peak incidence was found in the third decade. Nearly 75% of the patients in this study were between 20 and 60 years of age.

Epistaxis was the most common presenting symptom in this series, followed by other intra-nasal symptoms including nasal obstruction and rhinorrhea. Extra-nasal symptoms such as facial pain and headache were less commonly observed. Puxeddu et al. (6) reported that the most common site of a nasal lobular capillary hemangioma is the nasal septum (55.0%), followed by the nasal vestibule (17.5%), inferior turbinate (12.5%), middle turbinate (7.5%), and uncinat process (7.5%). This is consistent with our results showing that the nasal septum, especially the anterior region, was the most frequent occurring site.

In view of the similar clinical features of the intranasal mass, the differential diagnosis should include inflammatory lesions such as sarcoid, Wegener's granulomatosis, neoplastic lesions such as sinonasal papillomas, hemangiopericytoma, histiocytoma, leiomyoma, osteoma, squamous cell carcinoma, adenocarcinoma, esthesioneuroblastoma, angiosarcoma, and even foreign bodies (7). CT examination or magnetic resonance imaging (MRI) can be applied to exclude bony erosions or considerations of malignant formations. In this study, all lesions presented as enhancing soft tissue without bony erosions under CT examination. The tumor may also affect the patency of the ostiomeatal complex, leading to poor sinus drainage and maxillary sinusitis.

Surgical excision is the preferred treatment for lobular capillary hemangioma of the nasal cavity. The surgical methods used for this lesion include electrocoagulation, cryotherapy, LASER, excisional surgery, and excisional surgery following angiography with embolization (6, 8). In our study, all patients underwent excisional surgery with classical local excision or endoscopic excisional surgery without preoperative embolization. The recurrence rate for hemangioma ranges from 0% to 42.0%, depending on the case series and the duration of

follow-up (6, 8, 9). On the basis of 6 to 75 months (mean of 27.3 months) of follow-up, no complication or recurrence was found in our series.

The present study found that lobular capillary hemangioma of the nasal cavity is an uncommon disease in the practice of otolaryngology, and the incidence is higher among females than males in Taiwan. When lobular capillary hemangiomas occurred in the nasal cavity, epistaxis and nasal obstruction were the common initial presenting symptoms, and the anterior region of the nasal septum was the most frequent lesion site. According to the CT findings, all patients presented with well-defined, enhancing soft tissue density lesions without bony erosions. All were successfully treated with classical local excision or endoscopic excisional surgery and no complications or recurrence were observed.

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**Informed Consent:** Written informed consent was obtained from patients who participated in this study.

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