

Fibroepithelial Polyps Originating from the Posterior Nasal Septum: A Case Report

Yuki Numano,¹ Kazuhiro Nomura,¹ Mika Watanabe,² Mitsuru Sugawara,¹ Tomotaka Hemmi,³ Jun Suzuki³ and Yukio Katori³

¹Department of Otolaryngology, Tohoku Kosai Hospital, Sendai, Miyagi, Japan

²Department of Pathology, Tohoku Kosai Hospital, Sendai, Miyagi, Japan

³Department of Otolaryngology, Head and Neck Surgery, Tohoku University Hospital, Sendai, Miyagi, Japan

Fibroepithelial polyps are benign tumors of mesodermal origin. They rarely occur in the nasal cavity, with only four such cases reported in the relevant English literature. The location was the inferior turbinate in three cases and anterior nasal septum in one case. The etiology has been suggested in other organs; however, it is entirely unknown in the nasal cavity. Pathological findings play an essential role in the diagnosis of fibroepithelial polyps. We report the case of a 76-year-old woman with fibroepithelial polyps originating from the posterior part of the nasal septum. The fibroepithelial polyps were white-yellow lobular masses that differed from a common inflammatory polyp. We made the diagnosis by excluding the other possible tumors based on a pathological examination. This is the first report about fibroepithelial polyps arising from the posterior nasal septum. She had no potential risk factors that might trigger fibroepithelial polyps in the nasal cavity. This case is a valuable example when considering the potential causes (e.g., female hormones and mechanical pressure) of nasal fibroepithelial polyps.

Keywords: fibroepithelial polyps; inflammatory nasal polyp; nasal septum; papilloma; respiratory epithelial adenomatoid hamartoma Tohoku J. Exp. Med., 2022 August, **257** (4), 333-336. doi: 10.1620/tjem.2022.J047

Introduction

Fibroepithelial polyps are benign tumors of mesodermal origin. It is often found in the skin and genitourinary system (Rexhepi et al. 2018), but rare in the upper airway. There are a few reports of fibroepithelial polyps in the tonsil, epiglottis, and pharynx. They can sometimes interfere with swallowing and breathing (Farboud et al. 2010; Farzal et al. 2014; Jabbour et al. 2019). Only four cases of fibroepithelial polyps originating from the nasal cavity have been reported. Three cases are derived from the inferior turbinate, and one from the anterior nasal septum (Peric et al. 2009; Nishijima and Yagi 2012; Stoiljkov and Perić 2019; Lee 2021). The pathogenesis is still uncertain. The major differential diagnoses to consider with fibroepithelial polyps of the nasal cavity are inflammatory nasal polyp, respiratory epithelial adenomatoid hamartoma, papilloma, and pyogenic granuloma. A pathological examination reveals fibrous stroma covered with a squamous or pseudostratified epithelium (Peric et al. 2009). Complete excision is recommended as treatment because tissue metaplasia and malignant transformation can be infrequently confirmed. Recurrence after resection is extremely rare (Graff et al. 2019).

We report the case of a 76-year-old woman who was diagnosed with fibroepithelial polyps originating from the posterior nasal septum. This case is a practical example for considering the pathogenesis of fibroepithelial polyps in the nasal cavity and their features in comparison to other tumors.

Case Presentation

A 76-year-old woman presented to our hospital after a mass in the left nasal cavity was found at a nearby otolaryngology clinic. She had no complaint, except for occasional cough. She had a history of hypertension, appendicitis, and hemorrhoids. She had no smoking habit. Endoscopic exploration revealed a white-yellow lobular mass originat-

Correspondence: Yuki Numano, M.D., Department of Otolaryngology, Tohoku Kosai Hospital, 2-3-11 Kokubun-cho, Aoba-ku, Sendai, Miyagi 980-0803, Japan.

Received March 26, 2022; revised and accepted May 31, 2022; J-STAGE Advance online publication June 10, 2022

e-mail: yukinumano0@gmail.com

^{©2022} Tohoku University Medical Press. This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC-BY-NC-ND 4.0). Anyone may download, reuse, copy, reprint, or distribute the article without modifications or adaptations for non-profit purposes if they cite the original authors and source properly. https://creativecommons.org/licenses/by-nc-nd/4.0/

ing from the posterior nasal septum occupying the left sphenoethmoidal recess (Fig. 1A). CT showed a soft tissue mass attached to the anterior wall of the left sphenoid sinus and the posterior nasal septum without any signs of sinusitis, sinus invasion, or bone destruction (Fig. 2A-C). We did not perform MRI or biopsy because we intended to make a diagnosis by total resection of the tumor.

We excised the mass endoscopically along with its base under local anesthesia. We determined the excision area by confirming the border between the tumor and the normal mucosa endoscopically without pathological information. Endoscopy showed no findings of invasion into the periosteum under the tumor, and we successfully preserved this area. Little bleeding was seen after surgery, and we did not use any packing for the lesion. A pathological examination (hematoxylin & eosin staining) showed the findings consistent with fibroepithelial polyps. The stroma was atrophied and contained much fine collagen with moderate infiltration of lymphocytes and plasma cells. The lesion was covered with pseudostratified epithelium (Fig. 1B). There were no signs of dysplasia or malignancy. At one week, the lesion was considered to have been curatively treated (Fig. 1C).

The authors assert that all procedures contributing to

this work comply with the ethical standards of the 1975 Declaration of Helsinki, as revised in 2008.

Discussion

We experienced the case of a patient with fibroepithelial polyps originating from the posterior nasal septum. The patient's history provided no clue as to the etiology. We need to consider the possibility of other causes that have not been proposed thus far.

The pathogenesis remains unclear, but some factors are assumed to be related to the mechanism. Chronic smoke inhalation may be a potential cause in the airway (Li et al. 2013). Female hormones are associated with the frequency of fibroepithelial polyps in the vulva, and their sporadic occurrence in postmenopausal women (Rexhepi et al. 2018). However, none of the four reported cases of fibroepithelial polyps in the nasal cavity occurred in reproductive-age females. Three patients were men, and one patient was a 69-year-old woman (Peric et al. 2009; Nishijima and Yagi 2012; Stoiljkov and Perić 2019; Lee 2021). Female hormones may not influence fibroepithelial polyps in the nasal cavity.

Mechanical pressure has also been proposed to lead to the development of fibroepithelial polyps. Ill-fitting den-



Fig. 1. Endoscopic findings of the left hasal cavity and instopathological findings of horoepithenal polyps. A. An endoscopic finding of the left nasal cavity. A white-yellow, lobular mass was originating from the posterior part of the nasal septum filling the left sphenoethmoidal recess. B. Histopathological findings. The stroma is atrophied and contains abundant fine collagen with moderate infiltration of lymphocytes and plasma cells. The lesion is covered with pseudostratified epithelium (hematoxylin and eosin, ×100). C. An endoscopic finding of the left nasal cavity one week

after the excision. The wound at the left sphenoethmoidal recess is epithelialized.



Fig. 2. Findings of computed tomography.A. Coronal image. B. Axial image. C. Sagittal image. A soft tissue mass is attached to the anterior wall of the left sphenoid sinus and the posterior part of the nasal septum (arrows). There are no signs of sinusitis, sinus invasion, and bone destruction.

tures or sharp tooth edges can trigger fibroepithelial polyps in the oral cavity. (Mishra and Pandey 2016). Stoiljkov and Perić (2019) reported fibroepithelial polyps originating from the anterior nasal septum. The patient was treated with intranasal corticosteroid sprays for allergic rhinitis, and the applicator tip of the intranasal corticosteroid sprays, which frequently touched the nasal septum, may be an origin of fibroepithelial polyps (Stoiljkov and Perić 2019). Three cases of fibroepithelial polyps arose from the anterior part of the inferior turbinate, where traumatic effects caused by patients' hands or the wall shear stress of the airflow are applied (Peric et al. 2009; Nishijima and Yagi 2012; Lee 2021).

Our patient was a 76-year-old woman with no history of smoking. She had not used intranasal corticosteroid sprays and had never experienced nasal trauma. Moreover, the base of the fibroepithelial polyps was not directly reached with her finger or any material; thus, the occurrence of the tumor may not have been related to mechanical pressure. Two possible causes of nasal fibroepithelial polyps did not fit the present case, and we have to consider the possibility of another etiology. In chronic rhinosinusitis, a decrease of microbial diversity in the nasal cavity affects the immune system and converts an essential regulator of local inflammation (Stevens et al. 2015). A similar causative mechanism may be associated with the development of fibroepithelial polyps originating from the nasal cavity, although an association between the microbial environment in the nasal cavity and fibroepithelial polyps has never been reported.

Symptoms vary depending on the location and size of a polyp. Pharyngeal fibroepithelial polyps can cause cough, choking, and foreign body sensations. The tumor is easily movable in the mouth and pharynx and can directly obstruct the airway. Furthermore, it can act as a trigger for cough and foreign body sensations (Cukic and Jovanovic 2020). In the nasal fibroepithelial polyps, the patients complained of nasal obstruction (4/4), intermittent epistaxis (2/4), and rhinorrhea (2/4). The symptoms were completely cured after the resection of the tumor (Peric et al. 2009; Nishijima and Yagi 2012; Stoiljkov and Perić 2019; Lee 2021). The tumor in our patient did not seem to be movable and the complaint of occasional coughing remained unchanged after surgery. As a result, the coughing symptoms in our patient may not have been related to the fibroepithelial polyps occupying the sphenoethmoidal recess.

A pathological examination is indispensable in the diagnosis of fibroepithelial polyps because the possibility of other diseases, such as inflammatory nasal polyps, respiratory epithelial adenomatoid hamartoma, papilloma, and pyogenic granuloma, should be excluded. Especially, histopathological findings of inflammatory nasal polyps resemble those of fibroepithelial polyps in view of subepithelial edema, angiogenesis, and fibrosis (Radajewski et al. 2019). However, fibroepithelial polyps have less eosinophil, lymphocyte and inflammatory cell infiltration than inflammatory nasal polyps (Nishijima and Yagi 2012). Moreover, inflammatory nasal polyps often occur bilaterally with sinusitis, and their surface is smooth (Stevens et al. 2016). Respiratory epithelial adenomatoid hamartoma tends to have a polypoid appearance and occurs in the nasal cavity, paranasal sinuses, and nasopharynx. The most common site of occurrence is the nasal cavity, specifically the posterior nasal septum. Histological findings show stromal edema, and vascular and fibroblastic proliferation, which are similar to fibroepithelial polyps, but submucosal proliferative glands lined by ciliated respiratory epithelium originating from the surface respiratory epithelium are a typical finding of respiratory epithelial adenomatoid hamartoma (Fitzhugh and Mirani 2008).

Our patient showed an ipsilateral lobular tumor without sinusitis, which is not consistent with the features of inflammatory nasal polyps. The pathological examination revealed a few inflammatory cells and a few glands lined by ciliated respiratory epithelium in the submucosa. Furthermore, there were no signs of papilloma or pyogenic granuloma.

Recurrence after resection in the ureteral region and skin is rare (Graff et al. 2019; Belgam Syed et al. 2021). In nasal fibroepithelial polyps, recurrence was not reported in three cases (follow-up period, three months to one year). There was no follow-up data in one case (Peric et al. 2009; Nishijima and Yagi 2012; Stoiljkov and Perić 2019; Lee 2021). Ludwig et al. (2015) reported that the median follow-up was 12 months (range 1-180 months) after excision of ureteral fibroepithelial polyps and that complications and recurrence occurred within one year. Therefore, it would be appropriate to follow a patient for more than one year after surgery. Moreover, we should explain to the patient that recurrence seldom occurs when the tumor is completely removed, but that follow-up is necessary due to the possibility of rare events.

In conclusion, we encountered a 76-year-old woman with fibroepithelial polyps arising from the posterior nasal septum. We diagnosed the patient based on the observation of a lobular mass and the histopathological findings, which denied the possibility of other tumors, and the presence of a low degree of inflammatory cell infiltration in the submucosa. Two possible causes, female hormones and traumatic stress, did not fit the present case. Thus, further studies are needed to clarify the mechanism underlying the development of nasal fibroepithelial polyps.

Acknowledgments

This work was supported by the JSPS KAKENHI (grant number JP19K08948).

Conflict of Interest

The authors declare no conflict of interest.

References

- Belgam Syed, S.Y., Lipoff, J.B. & Chatterjee, K. (2021) Acrochordon, In *StatPearls*, StatPearls Publishing, Tresure Island, FL.
- Cukic, O. & Jovanovic, M.B. (2020) Large fibroepithelial polyp of the palatine tonsil. *Ear Nose Throat J.*, **99**, 247-248.
- Farboud, A., Trinidade, A., Harris, M. & Pfleiderer, A. (2010) Fibroepithelial polyp of the tonsil: case report of a rare, benign tonsillar lesion. J. Laryngol. Otol., **124**, 111-112.
- Farzal, Z., Ulualp, S.O. & Rakheja, D. (2014) Fibroepithelial polyp of the epiglottis. Am. J. Case Rep., 15, 340-342.
- Fitzhugh, V.A. & Mirani, N. (2008) Respiratory epithelial adenomatoid hamartoma: a review. *Head Neck Pathol.*, 2, 203-208.
- Graff, J., Patnaik, S., Cohen, T. & Memo, M. (2019) Ureteral polyp managed by endoscopic techniques. *Rev. Urol.*, 21, 45-48.
- Jabbour, J., Chappell, J.R., Busby, M., McCubbery, N.W., Brown, D.F., Park, S.J.K. & O'Neill, J.G. (2019) Glottic obstruction from fibroepithelial polyp. *Am. J. Case Rep.*, **20**, 219-223.
- Lee, J.H. (2021) Fibroepithelial polyp arising from the nasal vestibule. *Ear Nose Throat J.*, **100**, 590S-591S.
- Li, M., Zhang, G., Peng, A. & Wang, C. (2013) Bronchial fibroepithelial polyp: a case report and review of the literature. *Intern. Med.*, **52**, 373-376.
- Ludwig, D.J., Buddingh, K.T., Kums, J.J., Kropman, R.F., Roshani, H. & Hirdes, W.H. (2015) Treatment and outcome of fibroepithelial ureteral polyps: a systematic literature review. *Can. Urol. Assoc. J.*, 9, E631-637.
- Mishra, A. & Pandey, R.K. (2016) Fibro-epithelial polyps in children: a report of two cases with a literature review. *Intractable Rare Dis. Res.*, 5, 129-132.
- Nishijima, H. & Yagi, M. (2012) Multiple fibroepithelial polyps arising from the inferior turbinate. *Otolaryngol. Head Neck* Surg., 146, 1031-1032.
- Peric, A., Matkovic-Jozin, S. & Vukomanovic-Durdevic, B. (2009) Fibroepithelial polyp arising from the inferior nasal turbinate. *J. Postgrad. Med.*, 55, 288-289.
- Radajewski, K., Wierzchowska, M., Grzanka, D., Antosik, P., Zdrenka, M. & Burduk, P. (2019) Tissue remodelling in chronic rhinosinusitis - review of literature. *Otolaryngol. Pol.*, 73, 1-4.
- Rexhepi, M., Trajkovska, E., Besimi, F. & Rufati, N. (2018) Giant fibroepithelial polyp of vulva: a case report and review of literature. *Pril. (Makedon. Akad. Nauk. Umet. Odd. Med. Nauki)*, **39**, 127-130.
- Stevens, W.W., Lee, R.J., Schleimer, R.P. & Cohen, N.A. (2015) Chronic rhinosinusitis pathogenesis. J. Allergy Clin. Immunol., 136, 1442-1453.
- Stevens, W.W., Schleimer, R.P. & Kern, R.C. (2016) Chronic rhinosinusitis with nasal polyps. J. Allergy Clin. Immunol. Pract., 4, 565-572.
- Stoiljkov, M. & Perić, A. (2019) Fibroepithelial polyp originating from the nasal septum. *Turk. Arch. Otorhinolaryngol.*, 57, 206-208.