ARAŞTIRMA MAKALESİ/ORIGINAL RESEARCH

DOI: 10.5505/ktd.2022.79999
Kocaeli Med J 2022;11(3)124-128

Sinonasal Angiomatous Polyp: A Case-based Review of A Rare Benign Lesion of Sinonasal Tract

Sinonazal Anjiyomatöz Polip: Sinonazal Bölgenin Nadir Görülen İyi Huylu Bir Lezyonunun Vaka Bazlı İncelemesi

Fatih Yilmaz[1], Mustafa Fuat Acikalin[1], Ercan Kaya[2], Ugur Toprak[3]

[1]Eskişehir Osmangazi Üniversitesi Tıp Fakültesi, Patoloji Anabilim Dalı, Eskişehir, Türkiye

[2]Eskişehir Osmangazi Üniversitesi Tıp Fakültesi, Kulak Burun Boğaz Hastalıkları Anabilim Dalı, Eskişehir, Türkiye

[3]Eskişehir Osmangazi Üniversitesi Tıp Fakültesi, Radyoloji Anabilim Dalı, Eskişehir, Türkiye

ABSTRACT

Sinonazal anjiyomatöz polipler nadir görülen lezyonlardır ve tüm inflamatuar sinonazal poliplerin yaklaşık %4-5'ini oluştururlar. Mikroskobik olarak, sinonazal anjiomatöz polipler, çok sayıda ince duvarlı dilate kapiller boşluklar ve bol, amorf, amiloid benzeri eozinofilik materyal ile karakterize edilir. Burada sol maksiller sinüsün sol nazal geçişini dolduran ve orofarenkse uzanan bir anjiyomatöz polip olgusunu sunuyoruz. Zengin vaskülariteleri, enfarktüs eğilimi, stromal bizar atipik hücrelerin varlığı ve hızlı büyüme gösterme yetenekleri neoplastik bir süreci taklit edebilir ve bu nedenle tanısal zorluklara neden olabilir. Bu lezyonların klinik, radyolojik ve patolojik ayırıcı tanısında çok sayıda iyi huylu ve kötü huylu lezyon yer almaktadır. Bu nedenle bu antitenin klinikopatolojik ve radyolojik özelliklerinin farkında olmak doğru tanıya ulaşmak için çok önemlidir.

Anahtar Kelimeler: nazal polipler, sinonazal trakt, paranazal sinüsler, patoloji

ÖZ

Sinonasal angiomatous polyps are rare lesions and represent approximately 4-5% of all inflammatory sinonasal polyps. Microscopically, sinonasal angiomatous polyps are characterized by a large number of thin-walled dilated capillary spaces and abundant amorphous, amyloid-like eosinophilic material. Here we report a case of angiomatous polyp of the left maxillary sinus, filling the left nasal passage and extending to the oropharynx. Their rich vascularity, the tendency to infarction, the presence of stromal bizarre atypical cells, and the ability to exhibit rapid growth can mimic a neoplastic process, and may, therefore, cause diagnostic difficulties. Numerous benign and malignant lesions are included in the clinical, radiological and pathological differential diagnosis of these lesions. Therefore, being aware of this entity and its clinicopathological and radiological properties is crucial to reach the correct diagnosis.

Keywords: nasal polyps, sinonasal tract, paranasal sinuses, pathology

Kabul Tarihi: 06.09.2022

Correspondence: Fatih Yilmaz, Eskişehir Osmangazi Üniversitesi Tıp Fakültesi, Patoloji Anabilim Dalı, Eskişehir, Türkiye
E-mail: faatiihyiilmaaz@yahoo.com.tr

Kocaeli Medical Journal

INTRODUCTION

Inflammatory sinonasal polyps (SNPs) are the most common lesions of the sinonasal region. Based on the predominant element in the histological examination, inflammatory or allergic SNPs have been classified into five types: edematous, glandular, fibrous, cystic, and angiectatic or angiomatous (1, 2). Sinonasal angiomatous polyps (SNAPs) are rare and represent approximately 4-5% of all SNPs (1, 3-6). Histologically, SNAPs are characterized by a large number of thin-walled dilated capillary spaces, scanty inflammatory infiltrates, and abundant amorphous, amyloid-like (but Congo red-negative) eosinophilic material (1). Their rich vascularity, the tendency to infarction, the presence of stromal bizarre atypical cells, and the ability to exhibit rapid growth and aggressive clinical behavior are clinical, radiological, and pathological features that mimic a neoplastic process, and may, therefore, cause diagnostic difficulties (1, 4, 6). In this study, we present a case of SNAP because of its distinct histological and clinical features.

CASE REPORT

A 38-year-old female has operated on for nasal polyps about 2 years ago. She benefited from medical treatment for a while after the operation. However, her complaints (difficulty in breathing and discharge from the left nostril) started again. During the examination, nasal polyps were observed in the left middle meatus. The left nasal passage was almost completely obstructed and there was excessive nasal discharge. Endoscopic examination showed that it was seen that the mass filled the left nasal passage and extended from the choana to the oropharynx Fig. 1. Apart from this, her physical examination was normal. She had no smoking and significant past medical history. Computed tomography (CT) and magnetic resonance imaging (MRI) findings are presented in Fig. 2(a-f).

The polypoid tissues in the nasal passage and maxillary sinus were removed and the operation was completed following hemostasis.

Gross examination revealed edematous, gray-white, gray-purple tissue fragments, the largest of which was 4 cm in diameter. Microscopically, the surface of the lesion was covered by respiratory epithelium with squamous metaplasia. There were large areas of ulceration on the surface. Clusters of irregularly shaped, different sizes and thin-walled blood vessels mostly surrounded by pools of congo red and crystal violet negative eosinophilic, amyloid-like extracellular material were noted (Fig. 3a-b). Many blood vessels contained fibrin thrombi in their lumina, some of which had neovascularization, recanalization, and papillary endothelial hyperplasia (Fig. 3c). The stroma also contained necrotic areas with calcification, marked mixed inflammatory cell infiltration, erythrocyte extravasation, and edema. Other areas showed features of classic inflammatory SNPs (Fig. 3d).

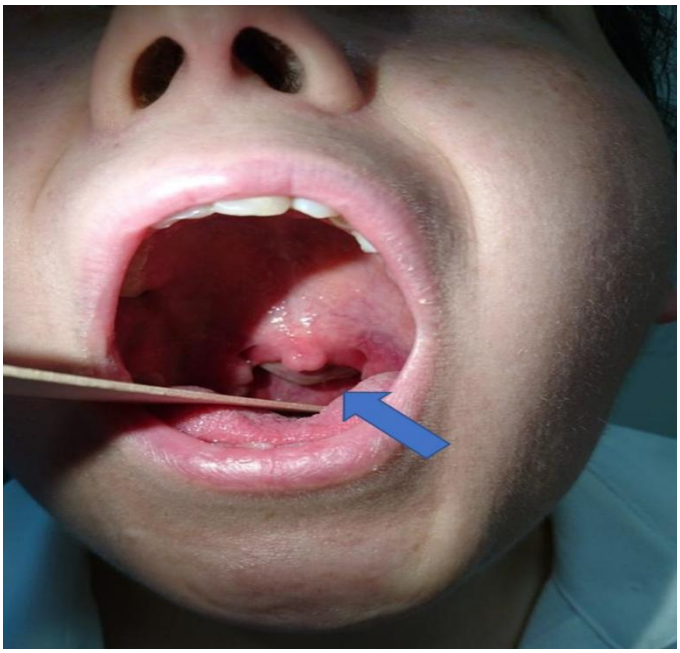

Figure 1. The appearance of the mass on oral examination as it fills the left nasal passage and extends from the choana to the oropharynx (arrow).

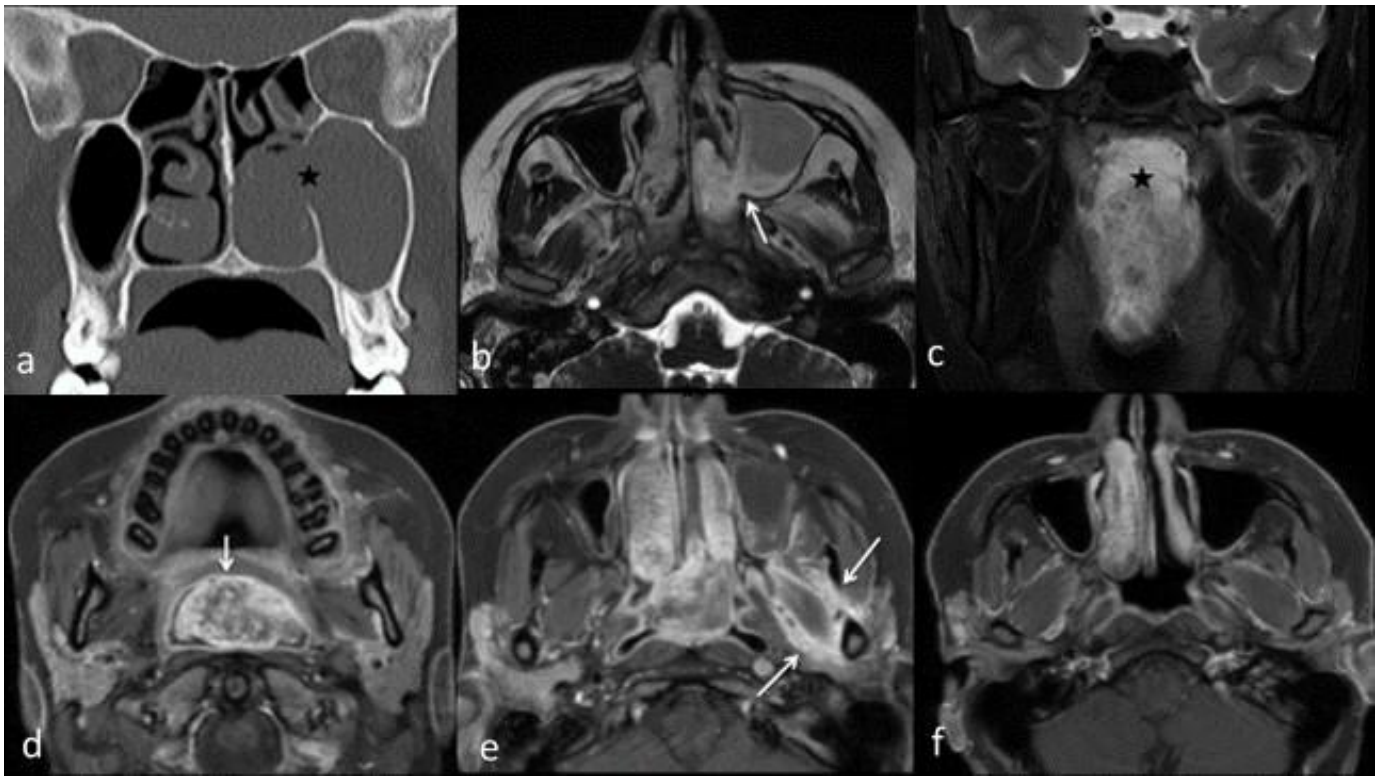

Figure 2a. On the coronal paranasal sinus CT cross-section, a maxillary sinus lesion extending into the nasal cavity is seen (asterisk). Figure 2b. The T2-weighted MRI image shows that the lesion protrudes to the nasal cavity through the accessory maxillary ostium. The sphenopalatine foramen and pterygopalatine fossa were normal in size without bowing or expansion (arrow). Figure 2c. In the coronal T2 image, the lesion extends to the oropharyngeal plane and has hypointense foci (asterisk). Figure 2d. The lesion shows punctate and peripheral contrast enhancement without evidence of flow voids (arrow). Figure 2e. Left masticator space has increased vascularization (arrows). Figure 2f. In the masticator space, neither mass nor increased vascularization is observed on MRI 3 months after the operation.

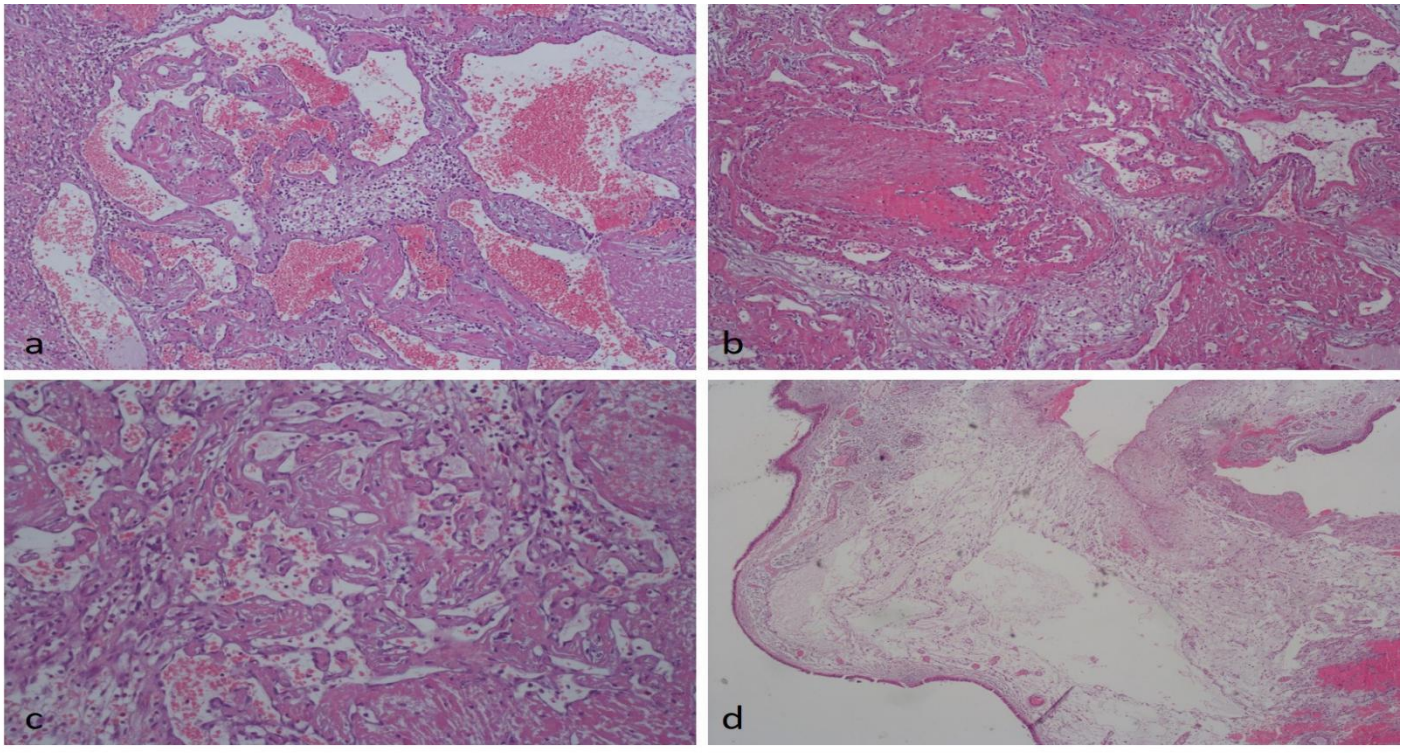

Figure 3a. Clusters of irregularly shaped, different sizes and thin-walled blood vessels (H&E; original magnification, x100). Figure 3b. Many blood vessels contained fibrin thrombi in their lumina, some of which had recanalization (H&E; original magnification, x100) and Figure 3c. Papillary endothelial hyperplasia (H&E; original magnification, x200). Figure 3d. Features of classic inflammatory sinonasal polyp (H&E; original magnification, x40).

DISCUSSION

Inflammatory sinonasal polyps (SNPs) are the non-neoplastic proliferation of the sinonasal mucosa consisting of epithelial and stromal components. The most common symptoms of polyps include nasal congestion, loss of smell, nasal discharge, nasal speech, and mouth breathing (1, 7, 8). Rarely, SNPs can cause exophthalmos, proptosis, visual disturbances, extensive bone erosion, remodeling, or epistaxis (1, 8-10).

Sinonasal angiomatous polyps, a rarest of the five histological subtypes of SNPs, are characterized by extensive hyperplastic, irregularly shaped, dilated thin-walled vessels, fibrosis, and thrombus formation (8). These lesions have been reported under different names in the past; "inflammatory granuloma telangiectaticum", "vascular granuloma", "pseudoangioma", "angiomatous polyp", "organized or organizing hematoma", "cavernous hemangioma", "the hematoma-like mass of the antrum", "hemorrhagic necrotic polyp" (3, 4, 11). In fact, all of these lesions showed similar pathological, radiological, and clinical features. In recent studies, the term "angiomatous polyp" is preferred because it is a term that reflects pathological features well. SNAPs have been reported with a wide age range from 11 to 81 years (3, 4, 11-13). Although different results have been reported in the case series in the literature, gender distribution seems to have a mild male predominance in most studies (3, 4, 11-13). The most common clinical symptoms are recurrent epistaxis, nasal obstruction, mucus or pus discharge, and rhinorrhea (3, 4, 12). Most SNAPs originate from the maxillary sinus, but they frequently extend into the ipsilateral nasal cavity, toward the choana, and into the nasopharynx (3, 4, 11, 12).

The pathogenesis of SNAPs remains to be elucidated, but the researchers have proposed different hypotheses. Batsakis and Sneige (6) suggested that SNAPs are most often a secondary change in a choanal polyp. They hypothesized that angiomatous polyps develop as a result of occlusion or compression of feeder vessels in the choanal polyps. Because choanal polyps arise from the paranasal sinuses and extend into the nasopharynx through the sinus ostia, the repeated episodes of compression of the feeder vessels cause stasis, edema, infarction, and then reparative changes (1). Extensive extravasation of blood components (fibrin, platelets, etc) through thin-walled blood vessels causes accumulation of these elements in the extracellular space, microscopically appearing as perivascular pools of eosinophilic amorphous material. Som et al. (14) suggested that SNAPs are fibrosed and vascularized nasal and/or nasopharyngeal mass, presumably formed as a response to minor trauma. Another hypothesis is based on the formation of hematoma as a result of various situations such as trauma, surgery, bleeding diatheses, and the loss of mechanical integrity of an arterial branch, as seen in a ruptured aneurysm or inflammatory erosion of an arterial wall (15). Angiomatous polyps are most commonly seen in the maxillary sinus region because it is the largest paranasal sinus that allows conditions of negative pressure and decreased ventilation (11, 15). Tam et al. (3) believed that the presence of diabetes mellitus and the use of aspirin may account for the development of SNAPs in some cases. In our case, the history of operation for nasal polyps in the past, the maxillary sinus location of the lesion, and extension into the nasal cavity, with involvement of the choana and nasopharynx suggest that all the above-mentioned hypotheses are reasonable. In our opinion, each of these factors contributes more or less to the development of these lesions.

Extensive vascular proliferation, deposition of extracellular amorphous eosinophilic material, and atypical stromal cells are described as characteristics of SNAPs (1). Other remarkable pathological features are the presence of intraluminal thrombosis, and the considerable extent of necrosis, with extravasation of blood components into the surrounding stroma (5). Squamous metaplasia in the surface epithelium, pseudopapillary proliferations covered by endothelial cells in the stromal cystic degeneration areas, granulation tissue, and calcification are the other common findings (1, 3-5). Also, some of the lesions may include classic inflammatory nasal polyp areas. In our case, although almost all of the above-mentioned findings were present, the atypia of stromal cells was not very prominent. Because of the presence of vascular and stromal features, several conditions resemble the pathological changes seen in SNAPs. These include vascular tumors (juvenile angiofibromas, capillary or cavernous hemangiomas), inverted papilloma, soft tissue sarcomas, fungal infections, granulomatous inflammations, or other infectious causes (1, 3-5). Awareness of this entity and the combination of its various histopathological features will facilitate differential diagnosis.

CT findings of SNAPs are non-specific (4, 11, 15). A heterogeneous iso-attenuated lesion is observed in non-contrast CT, that is expansile, causing a bulge or destruction in bone walls. Remodeling, thinning, and

hyperostosis can also be seen in bone walls; these findings indicate that the growth process of the lesion is long and it is a benign one (11). However, findings such as rapid growth and bone erosion can be seen in some SNAPs and may suggest a malignant process (10). MRI can make an important contribution to discrimination in such cases. In addition low [18F]-2-fluoro-2-deoxy-D-glucose (FDG) accumulation throughout the lesion in positron emission tomography (PET/CT) contributes to the correct diagnosis (10).

MRI can characterize the lesion. A well-defined margin, expansile soft tissue mass, blockage of ostium are typical imaging features (11). Also, the lesions are in heterogeneous isointense signal intensity. The lesion with pronounced heterogeneity, obviously hyperintense, but linear hypointense septum and rim is the subject. The peripheral hypointense rim around the mass is a very specific finding in accurate diagnosis (11, 13). In the post-contrast series, a clearly enhanced lesion with non-enhanced hypointense rims and septa is observed (11). In a recent study, it has been reported that progressive enhancement on dynamic contrast-enhanced (DCE) MRI gives the most reliable findings in differentiating SNAPs from malignant tumors (13).

In conclusion, SNAPs are benign lesions of the sinonasal region and total surgical resection is curative. Numerous benign and malignant lesions are included in the clinical, radiological, and pathological differential diagnosis of these lesions. Therefore, being aware of this entity and its clinicopathological and radiological properties is crucial to reaching the correct diagnosis.

Ethical statement: Informed consent was obtained from the patient. This report did not require ethical approval.

Funding: No financial support was received.

Informed Consent: Informed consent was obtained from all participants.

REFERENCES

1.Yfantis HG, Drachenberg CB, Gray W, Papadimitriou JC. Angiectatic nasal polyps that clinically simulate a malignant process: report of 2 cases and review of the literature. Arch Pathol Lab Med. 2000;124(3):406-10.

2.SINHA SN. Observations on histology of nasal polypi. Indian Journal of Otolaryngology. December 1967; 19(4):164–8.

3.Tam YY, Wu CC, Lee TJ, Lin YY, Chen TD, Huang CC. The clinicopathological features of sinonasal angiomatous polyps. Int J Gen Med. 2016;9:207-12.

4.Dai LB, Zhou SH, Ruan LX, Zheng ZJ. Correlation of computed tomography with pathological features in angiomatous nasal polyps. PLoS One. 2012;7(12):e53306.

5.Sheahan P, Crotty PL, Hamilton S, Colreavy M, McShane D. Infarcted angiomatous nasal polyps. Eur Arch Otorhinolaryngol. 2005;262(3):225-30.

6.Batsakis JG, Sneige N. Choanal and angiomatous polyps of the sinonasal tract. Ann Otol Rhinol Laryngol. 1992;101(7):623-5.

7.Mills SE, Greenson JK, Hornick J, Longacre TA, Reuter VE. Sternberg's diagnostic surgical pathology: Sixth edition, 2015.

8.Assiri KS, Al-Ahmari MS, Alshahrani MS, Mastor A, Elhawary R. Clinical and Pathological Features of Angiomatous Nasal Polyps: A Report of Four Cases and Review of Literature. Cureus. 2020;12(4).

9.Kaufman LM, Folk ER, Chow JM. Invasive sinonasal polyps causing ophthalmoplegia, exophthalmos, and visual field loss. Ophthalmology. 1989;96(11):1667-72.

10.Iemura-Kashiwagi M, Kikuchi M, Koyasu S, Kitada Y, Sugimoto A, Haga H, et al. Angiomatous Nasal Polyp Diagnosed by Preoperative Imaging and Successfully Resected by Endonasal Endoscopic Surgery: A Case Report. Cureus. 2021;13(10).

11.Zou J, Man F, Deng K, Zheng Y, Hao D, Xu W. CT and MR imaging findings of sinonasal angiomatous polyps. Eur J Radiol. 2014;83(3):545-51.

12.Hadravsky L, Skalova A, Kacerovska D, Kazakov DV, Chudacek Z, Michal M. Angiomatoid change in polyps of the nasal and paranasal regions: an underrecognized and commonly misdiagnosed lesion--report of 45 cases. Virchows Arch. 2012;460(2):203-9.

13.Wang X, Liu Y, Chen Q, Xian J. Evaluation of multiparametric MRI differentiating sinonasal angiomatous polyp from malignant tumors. Neuroradiology. 2019;61(8):891-6.

14.Som PM, Cohen BA, Sacher M, Choi IS, Bryan NR. The angiomatous polyp and the angiofibroma: two different lesions. Radiology. 1982;144(2):329-34.

15.Kim EY, Kim HJ, Chung SK, Dhong HJ, Kim HY, Yim YJ, et al. Sinonasal organized hematoma: CT and MR imaging findings. AJNR Am J Neuroradiol. 2008;29(6):1204-8.