

Giant angiomatous choanal polyp originating from the middle turbinate: a case report

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Abstract

Choanal polyps (CPs) can be defined as histologically benign, solitary, soft tissue lesions extending towards the junction between the nasal cavity and the nasopharynx through the choana. They usually originate from the maxillary sinus. In this report, we present an unusual case of a giant angiomatous CP arising from the inferior part of the middle turbinate that completely filled the nasopharynx. A 24-year-old man presented with five-year history of left-sided nasal obstruction, nasal discharge and mild-to-moderate epistaxis. The diagnosis was supported by contrast-enhanced computed tomography scan of the paranasal sinuses with angiography and confirmed by histopathological examination. The lesion was removed by combined endoscopic and transoral approach. In addition, we discuss the pathogenesis, clinical, radiological and pathological characteristics of angiomatous CPs, and their differential diagnosis.

Keywords: High altitude, allergic rhinitis, bronchial hyperreactivity.

Özet: Orta konkadan kaynaklanan dev anjiyomatöz koanal polip: Olgu sunumu

Koanal polip (KP) histolojik olarak benign, nazal kavite ile nazofarenks arası birleşme noktasına koana yoluyla uzanan, soliter yumuşak doku lezyonu olarak tanımlanır. Genellikle maksiller sinüsten köken alır. Bu olgu sunumunda orta konkadan alt bölümünden çıkan ve nazofarenksi tamamen dolduran olağandışı bir dev anjiyomatöz KP'yi sunmaktayız. Burnun sol tarafında tıkanma, burun akıntısı ve hafif-orta derecede burun kanaması üzerine 5 yıllık öyküsü olan 24 yaşındaki erkek hasta kliniğimize başvurdu. Tanı, paranasal sinüslerin kontrastlı bilgisayarlı tomografi taramasıyla kombine anjiyografiyle desteklendi ve histopatolojik incelemeyle doğrulandı. Lezyon kombine endoskopik ve transoral yaklaşımla çıkartıldı. Sunumumuzda ayrıca, anjiyomatöz KP'lerin patogenezi, klinik, radyolojik ve patolojik özelliklerini ve ayırıcı tanıları tartışmaktayız.

Anahtar sözcükler: Epistaksis, nazal polipler, nazal cerrahi prosedür, konkada.

Choanal polyps (CPs) are solitary, benign soft tissue lesions which originate from the nasal cavity or paranasal sinuses and extend into the nasopharynx through the choana. Although CPs most commonly originate from the maxillary antrum, named antrochoanal polyps (ACPs), other sites of origin may be sphenoid, ethmoid, nasal septum, cribriform plate, inferior and middle turbinate.^[1] CP of middle turbinate is extremely rare and, according to the English literature, there are only six cases reported previously.^[1–5] Angiomatous nasal polyps are rare subtypes of CPs, characterized by extensive vascular proliferation and ectasia.^[6] As well as other CPs, angiomatous nasal polyps usually origi-

nate from maxillary sinus. We present an unusual case of a giant angiomatous polyp arising from the inferior part of the middle turbinate and, to our knowledge, this is the first such case reported.

Case Report

A 24-year-old male patient presented with a five-year history of bilateral nasal obstruction, snoring, left-sided nasal discharge and recurrent mild-to-moderate nasal bleeding. He had no significant past medical history. Anterior rhinoscopy and endoscopic examination identified a big,

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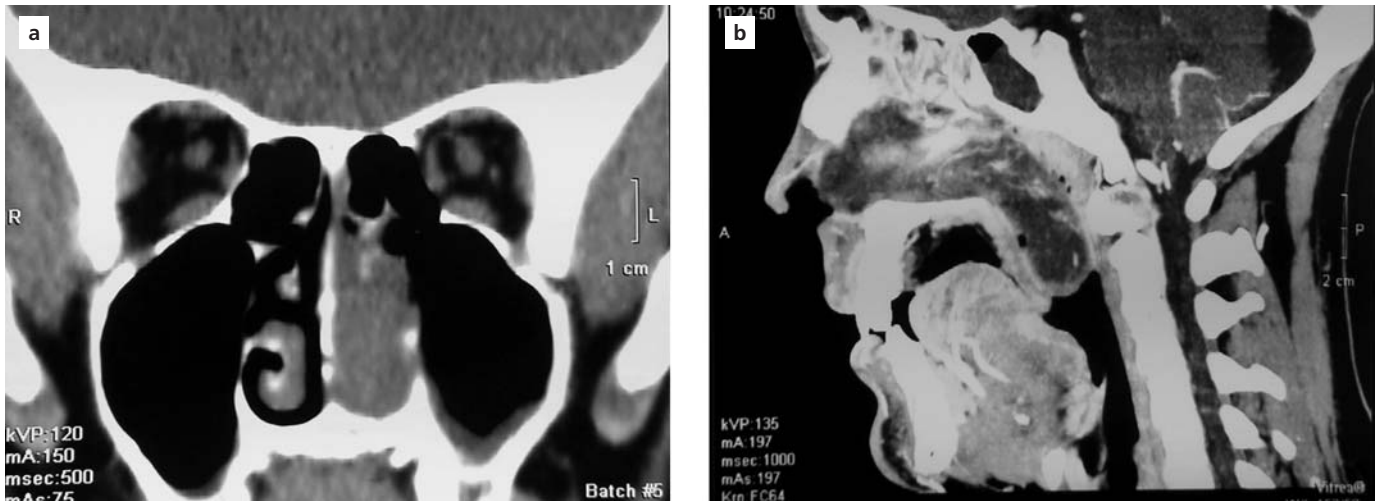


Fig. 1. (a) Coronal CT scan shows soft tissue lesion arising from the inferior part of the left middle turbinate extending to the choana. Note that the left maxillary and ethmoid sinus is clear. (b) Sagittal contrast-enhanced CT scan shows a giant soft tissue mass involving nasal cavity and extending to the nasopharynx which is completely filled by lesion. Note the presence of small feeding vessels and the absence of rich, irregular vascular supply characterized for angiofibroma.

reddish-grey polypoid mass originating from the inferior portion of the left middle concha, obliterating the left nasal cavity and extending posteriorly to the choana. Posterior rhinoscopy revealed a huge polypoid mass which completely filled the nasopharynx. Endoscopic finding of the right nasal cavity was normal. Computed tomography (CT) of the paranasal sinuses demonstrated a soft-tissue mass completely filling the left nasal cavity and nasopharynx. However, all paranasal sinuses were clear (Fig. 1a). As we supposed to diagnose an angiofibroma with extranasopharyngeal origin, we performed a contrast-enhanced CT scan with angiography. We found a vessel-like marked enhancement on contrast-enhanced CT scans of the mass in both early and delayed phase scans. These findings suggested that vessel-like marked enhancement is attributed to dilated neovascularization. On angiography, we found only a few demonstrable feeding vessels, without significant enlargement, and small areas of neovascularity are also seen within the mass in the late capillary-venous phase (Fig. 1b). So, CT angiography did not confirm a vascular lesion, and the diagnosis of angiofibroma was excluded.

At surgery, the nasal part of the lesion was debulked endoscopically. The nasopharyngeal part was removed transorally. This was followed by profuse bleeding, which was controlled by anterior nasal packing. The gross appearance of the excised mass demonstrated reddish-grey, soft, translucent areas, alternating with firm, black necrotic areas which were associated with a strong, offensive odor. The nasal part of the polyp with stalk arising from the anteroinferior part of the left

middle turbinate was 5.5 cm in length, with maximum diameter of 1.4 cm. The dimension of nasopharyngeal part of the mass was 4.5×4.2×2.6 cm (Fig. 2). A nasal pack consisting of cotton gauze with ointment was removed on the fourth post-operative day. Histopathological analysis confirmed the diagnosis of an angiomatous CP. In the nasal part, the lesion was covered with ciliated pseudostratified respiratory epithelium. The stroma was strongly infiltrated by plasma cells, neutrophils and macrophages (Fig. 3a). In the nasopharyngeal part of the polyp, the metaplasia of the respiratory epithelium in stratified epithelium of the transitional type was found. A



Fig. 2. The nasopharyngeal part of mass, excised transorally.

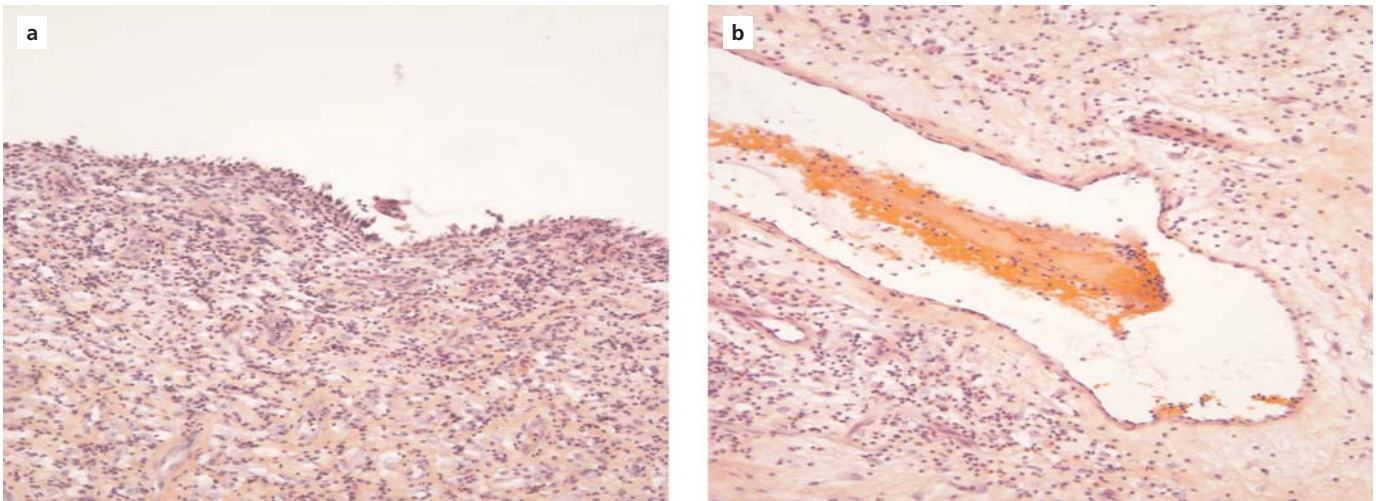


Fig. 3. (a) Photomicrograph of an angiomatous CP shows pseudostratified respiratory ciliated epithelium and strong plasma cell and macrophage infiltration of the polyp stroma. (b) Large, dilated, thin-walled capillary-like blood vessels in the polyp stroma. (Hematoxylin & Eosin, magnification $\times 100$).

small number of goblet cells and a paucity of submucous glands were also seen in all sections of the excised mass. The examination revealed large, dilated, but thin-walled capillary-like blood vessels in the polyp stroma (Fig. 3b). The postoperative course of the patient was uneventful and 12 months of follow-up showed no recurrence.

Discussion

The etiology of CPs, first described by Killian in 1906, remains unclear. However, chronic inflammation is considered to play a role in the etiology of CPs.^[7] CPs of the middle turbinate are extremely rare and there have been only six reported in the literature, of which one arose from the inferior, three arose from the medial and two arose from the posterior region.^[1-5] One of the main characteristics of CPs is the tendency for rapid growth, resulting in their impressive dimensions. This could be due to the fact that expressions of basic fibroblast growth factor (bFGF) and transforming growth factor beta (TGF- β) are significantly higher in tissue of CPs than in bilateral nasal polyposis and, especially, in healthy nasal mucosa.^[4] Angiomatous nasal polyps are an uncommon subtype of CPs, which are characterized by large numbers of dilated capillary spaces, with strong inflammatory infiltrates and abundant extracellular fibrin.^[6] Batsakis and Sneige^[8] suggests that angiomatous polyp most often develop secondary to change in a CP because of vascular compromise in four sites of the upper airway: the ostium of the paranasal sinus, the posterior end of the inferior turbinate, the choana and the nasopharynx. It is hypoth-

esized that the initial vascular dilatation, stasis, edema, and infarction occur in these sites following compression of blood vessels. Reactive and repetitive changes lead to neovascularization and fibrosis.^[8] In the case of our patient, instead of the paranasal sinus ostium, the first site of vascular compromise could be the inferior portion of the middle turbinate.

On the other hand, Sayed and Abu-Dief^[9] suggest that angiomatous polyp is a distinct type of nasal polyp and not a derivate of the ordinary CP. They found that only angiomatous variant of nasal polyps presents with epistaxis. One of the main histological characteristics of angiomatous nasal polyps is strong plasma cell infiltration of the polyp stroma. This finding could be linked with angiogenesis and vascular endothelial proliferation within the polyp stroma suggesting that significantly increased number of plasma cells may be the main cause of histological changes found in this variant of inflammatory nasal polyps. Blood flow in ordinary CPs is decreased with smaller number of blood vessels compared to with healthy nasal mucosa. The stroma of angiomatous polyps have large numbers of dilated capillary spaces and numerous large hemosiderin-laden macrophages suggesting the presence of two parallel processes: blood extravasation and stromal tissue reparation.^[6,9]

Clinically and radiologically, angiomatous CPs may be confused with vascular neoplasms, including nasopharyngeal angiofibroma. The early identification of cases similar to angiofibroma is of crucial importance. This finding can have important implications for pre-surgical and surgical

management. A contrast-enhanced CT scan of the paranasal sinuses with angiography should be used to differentiate between nasopharyngeal angiofibroma and angiomatous CP. Regarding our case, it is particularly important in cases of angiofibroma with extranasopharyngeal primary localization. This is the rare form of angiofibroma originating from the paranasal sinuses, inferior and middle turbinate, and from the nasal septum.^[10] On angiography, angiomatous CPs have only a few demonstrable feeding vessels compared to the rich irregular vascular supply of a nasopharyngeal angiofibroma. This is explained by the fact that angiomatous CPs do not have a normal arborizing vascularity pattern but rather irregular arrangements of dilated capillary-type vessels and newly endothelialized spaces with endoluminal thrombosis.^[6] Thus, preoperative embolization is not necessary for management of angiomatous CPs. In contrast, the resection of a nasopharyngeal angiofibroma requires preoperative embolization due to the possible severe intraoperative bleeding. In patients with angiomatous CP, there was no finding on paranasal CT scan indicating bony destruction, which is a frequent radiological characteristic of angiofibroma. So, the excision of an angiomatous CPs, similarly to ordinary CPs, is a relatively simple surgical procedure and polyp recurrence is relatively rare.

Conclusion

We present an extremely rare case of an angiomatous CP originating from the middle nasal concha with its clinical, radiological and pathological characteristics. Angiomatous CPs should be considered as a subtype of CPs with unilateral nasal obstruction and epistaxis as main symptoms. Despite

the benign nature of these lesions, they may be confused with neoplastic processes and vascular malformations. The main differential diagnostic problem is nasopharyngeal angiofibroma which can be excluded by contrast-enhanced CT scan with angiography.

Conflict of Interest: No conflicts declared.

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