sciendo

DOI: 10.2478/rjr-2019-0017

Romanian Journal of Rhinology, Volume 9, No. 35, July - September 2019

LITERATURE REVIEW

Bleeding angiomatous polyps of the maxillary sinus: Review of literature and a rare case report

Padmanabhan Karthikeyan, Sneha Mary Joy, Davis Thomas Pulimootil, Neelima Vijayan

Department of ENT, Mahatma Gandhi Medical College and Research Institute, Pondicherry

ABSTRACT

ENT surgeons frequently encounter a variety of neoplastic, non-neoplastic and inflammatory masses involving the nasal cavity, the paranasal sinuses or the nasopharynx. Among these, the angiomatous polyp or angiectatic nasal polyps are rare and account for 4-5% of all inflammatory nasal polyps. They have variable growth patterns and clinical features. In angiomatous nasal polyps, there is a prominent component of dilated capillary-type blood vessels. We present a review of the literature regarding the most important features of this pathology and an unusual case of a large angiomatous polyp arising from the maxillary sinus.

KEYWORDS: epistaxis, nasal polyps, maxillary sinus.

INTRODUCTION

Choanal polyps (CPs) originate from the nasal cavity or the paranasal sinuses and extend into the nasopharynx through the choana and they are usually solitary, benign soft tissue lesions[1]. The choanal polyps frequently arise from the maxillary antrum, and they are hence named antrochoanal polyps (ACPs), but other sites of origin may include the sphenoid and the ethmoid sinuses, the nasal septum, the cribriform plate and the inferior and the middle turbinates. A less frequent subtype of sinonasal polyp is the sinonasal angiomatous polyp (SAP) or bleeding angiomatous polyp, which accounts for 4-5% among all sinonasal polyps. It is also known as angiectatic polyp[2]. Characteristically, these tumors show extensive proliferation of the vessels and angiectasis, with certain areas that may be prone to vascular compromise, leading to venous stasis, thrombosis and, eventually, infarction[3].

PATHOGENESIS OF SINONASAL ANGIOMATOUS POLYPS

Inflammatory sinonasal polyps have been histopathologically classified as glandular, fibrous, edematous, cystic, or angiomatous/angiectatic, based on the predominant stromal element[1].

There are two important hypotheses for the pathogenesis of SAPs which are widely accepted. The first hypothesis suggests that SAP is a derivative of an antrochoanal polyp. Antrochoanal polyps originate from the anterolateral wall or from the floor of the maxillary sinus and exit the sinus through the ostium into the nasal cavity, and may then extend posteriorly to the choana and sometimes, even to the nasopharynx[3]. Four extra-antral sites where vascular compromise or strangulation can occur were identified by Batsakis, and it included the sinus ostium, the polyp pedicle, the posterior end of the inferior turbinate, the posterior choana, or the nasopharynx[4]. If these vessels

Corresponding author: Sneha Mary Joy

Address: Department of Otorhinolaryngology and Head and Neck Surgery, Mahatma Gandhi Medical College and Research Institute, SBV University, Pillaiyarkuppam, Pondy – Cuddalore Main Road, Pondicherry – 607402

e-mail: snehamaryjoy@gmail.com;

Received for publication: June 10, 2019 / **Accepted:** July 10, 2019

were to be compressed, it would lead to vascular dilatation, stasis, edema and ischemia of the polyp[3,5-7]. This, in turn, could subsequently produce venous infarction, thrombosis formation, and neovascularization and fibrosis of the polyp.

The second hypothesis suggests that SAPs originate from haematoma formation in the sinus ostium. The haematoma develops initially from the accumulation of blood in the sinus antrum resulting from various causes, such as trauma, surgery, bleeding diathesis and the loss of mechanical integrity of an arterial branch, as seen in ruptured aneurysm or inflammatory erosion of an arterial wall[5]. The blood remains in the sinus ostium because of the poor ventilation and the drainage conditions, especially in the maxillary sinus. Persistent negative intrasinusal pressure and decreased ventilation leads to difficulties in expelling fresh blood from the maxillary sinus and, subsequently, organization and fibrous degeneration of the haematoma ensue. Reactive and reparative changes with neovascularization can lead to the eventual formation of SAP.

CLINICAL FEATURES

Frequently, bleeding angiomatous polyps present with symptoms of epistaxis and nasal obstruction and can be treated by surgical excision, with a postoperative rare recurrence. These polyps can cause extensive bone destruction due to local aggressiveness and can resemble the neoplastic process and should be distinguished from malignancy. These polyps most often present as a unilateral gelatinous, soft, translucent and painless polypoidal mass with unilateral nasal discharge. They result in gradual obstruction of the nasal cavity. Other presenting clinical symptoms are loss of smell, epistaxis, exophthalmos, proptosis and visual disturbances.

Angiomatous polyps do not present age or sex predilection.

The propensity of CPs for rapid growth resulting in massive dimensions is one of their primary characteristics. This may be attributed to the fact that the tissue of CPs shows significantly higher expressions of basic fibroblast growth factor (bFGF) and transforming growth factor beta (TGF-β), as compared to bilateral nasal polyposis or especially, to the healthy nasal mucosa[1].

PATHOLOGY

Predominant histomorphological features of angiomatous polyps are clusters of ectatic blood vessels to begin with, surrounded by abundant fibrin-like eosinophilic pseudoamyloid material, both lamellated and diffusely deposited extravascularly, and superimposed fibrinoid necrosis, luminal thrombosis of ectatic blood vessels[2,6].

Li-Bo Dai et al. studied 31 cases and observed that 24 masses out of 31 were located in the maxillary sinus and 21 involved the ipsilateral nasal cavity. Of these 21 patients, two presented orbital extension of the tumor and 16 had ipsilateral ethmoid sinus invasion, while in three cases the tumor involved the choana extending into the contralateral nasal cavity[7].

SAPs DIAGNOSIS

The radiologic and histologic differential diagnosis for SAPs includes haemangioma, juvenile angiofibroma and inverted papilloma. Since the prognosis and management of these conditions are quite dissimilar, an early and accurate diagnosis is necessary. Non-specific CT findings of SAPs make them more difficult to be radiologically differentiated. Distinctive characteristics include an expansive mass in the maxillary sinus with bony wall destruction and remodelling. Contrast-enhanced CT scans may show angiomatous polyps as non-enhancing or minimally enhancing nasal vault masses without pterygopalatine fossa involvement; this may help differentiate them from a classical angiofibroma that has a hypervascular appearance with frequent involvement of the pterygopalatine fossa. Another important differentiating feature is that on angiography, unlike the rich irregular vascular supply of angiofibromas, angiomatous SAPs may have only a few demonstrable feeding vessels. Infrequently, SAPs can also extend into the sphenoid and into the ethmoid sinuses.

According to Zou, MRI may be a more valuable investigation for SAPs, as they exhibit certain characteristic findings, such as an expansive soft tissue mass with well-defined margins, extending to the choana or to the nasopharynx, with ostial blockage and secondary obstruction, and an obvious hyperintense or hypointense linear septum internally and a peripheral rim surrounding the lesion[5].

Antronasal polyps may be distinguished from haemangiomas, as haemangiomas classically arise from the nasal vestibule or nasal septum, which are usually of the capillary type, while some may originate from the lateral wall of the nose, and they are usually cavernous[8]. Inverted papillomas appear as homogeneous soft tissue

densities on CT scans and show heterogeneous enhancement on contrast imaging.

TREATMENT MANAGEMENT

There are no standardized clinical guidelines for the management of antronasal angiomatous polyps. However, the transnasal endoscopic surgical excision with restoring of the sinusal drainage continues to be the treatment of choice. Regular post-operative follow-up is recommended in order to diagnose a possible recurrence.

The prognosis of the sinonasal angiomatous polyps with proper surgical treatment is good and the recurrence is usually rare.

In order to sustain the data found in the literature, we present an unusual case of a large angiomatous polyp arising from the maxillary sinus.

OUR EXPERIENCE

A 28-year-old male with poor socio-economic status presented to the Department of Otorhinolaryngology of a tertiary care centre with the complaints of intermittent episodes of moderate bleeding from the right nasal cavity within the previous two months. He had had a similar episode of epistaxis two months back, which was controlled by anterior nasal packing. It was not associated with nasal obstruction or any other specific nasal complaints. He did not present a history of any aggravating or relieving factors and the patient was not under any constant medication. In his anamnesis, there was no previous history of trauma or bleeding diathesis. There was no history in the family of similar illness or of any bleeding or clotting disorders.

Anterior rhinoscopy revealed mild deviation of the nasal septum to the left with thick blood clots in the right nasal cavity. Diagnostic nasal endoscopic examination revealed clots in the right middle meatus with a haemorrhagic polypoidal growth arising from the right middle meatus.

Plain computerised tomography of the nose and paranasal sinuses showed a soft tissue density with opacification in the right maxillary sinus, with widening of the maxillary antrum and ostium, and projection into the nasal cavity with a completely blocked osteomeatal complex (Figure 1). As all other sinuses were normal and there was no further extension of the lesion with bony destruction, other benign and malignant lesions were excluded.

The patient was taken up for transnasal endo-

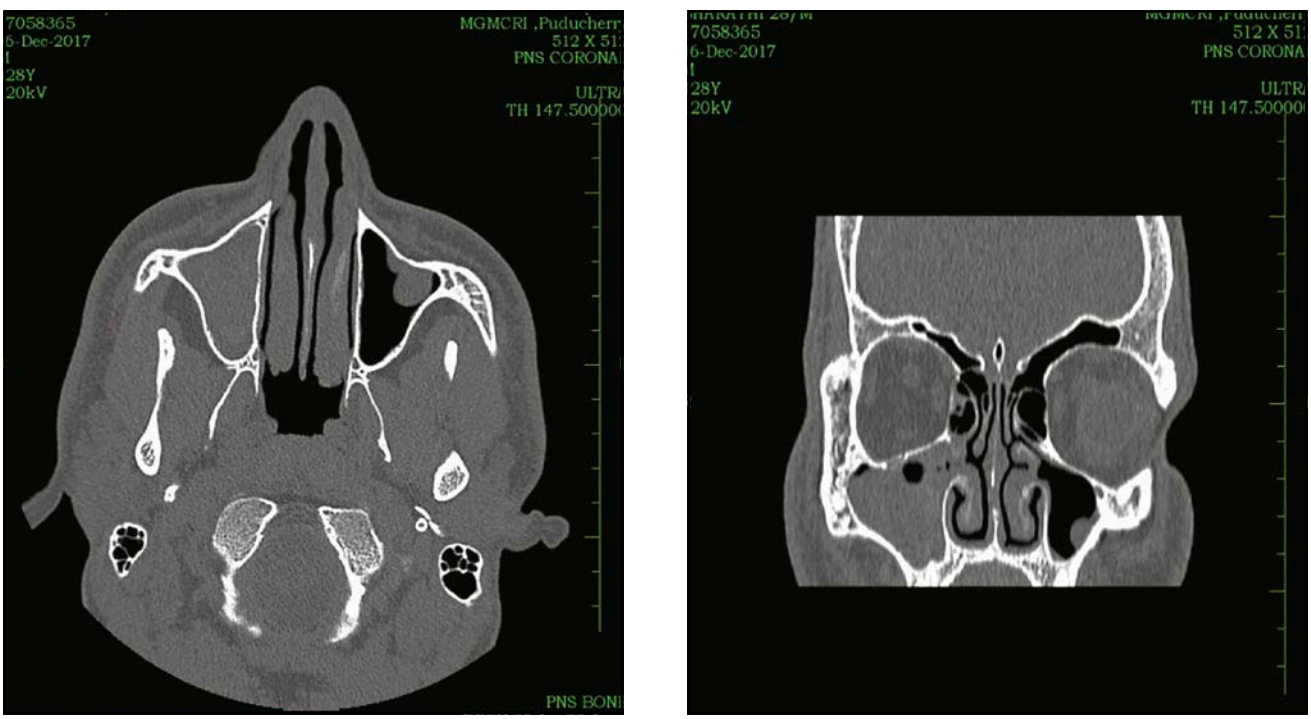

Figure 1. Plain CT of the nose and paranasal sinus (axial and coronal view) showing soft tissue density with opacification seen in the right maxillary sinus with widening of the maxillary antrum and ostium, and projection into the nasal cavity with completely obscured osteomeatal complex.

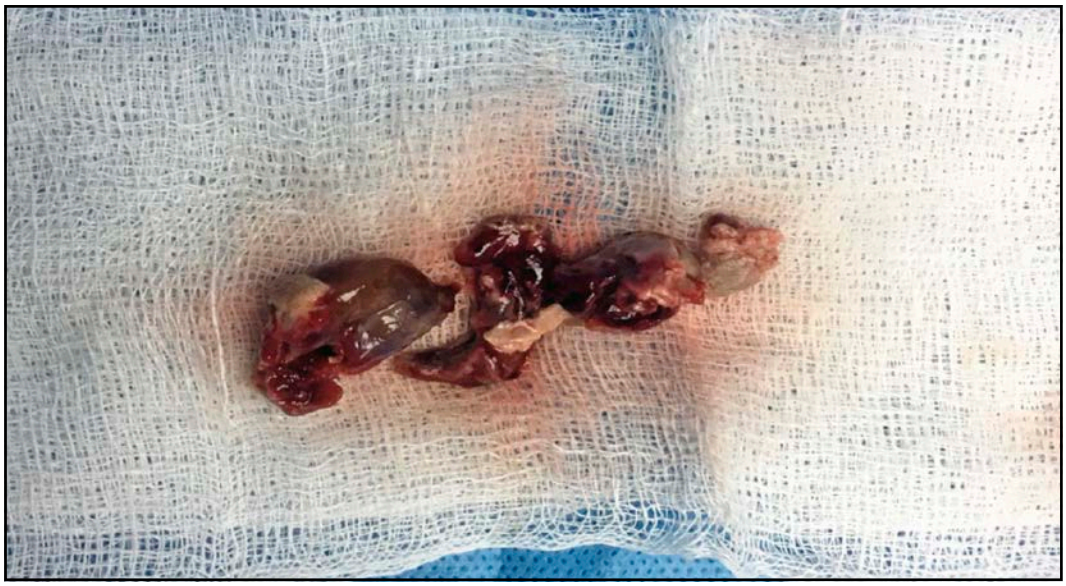

Figure 2 Haemorrhagic polypoidal mass removed from the right maxillary antrum.

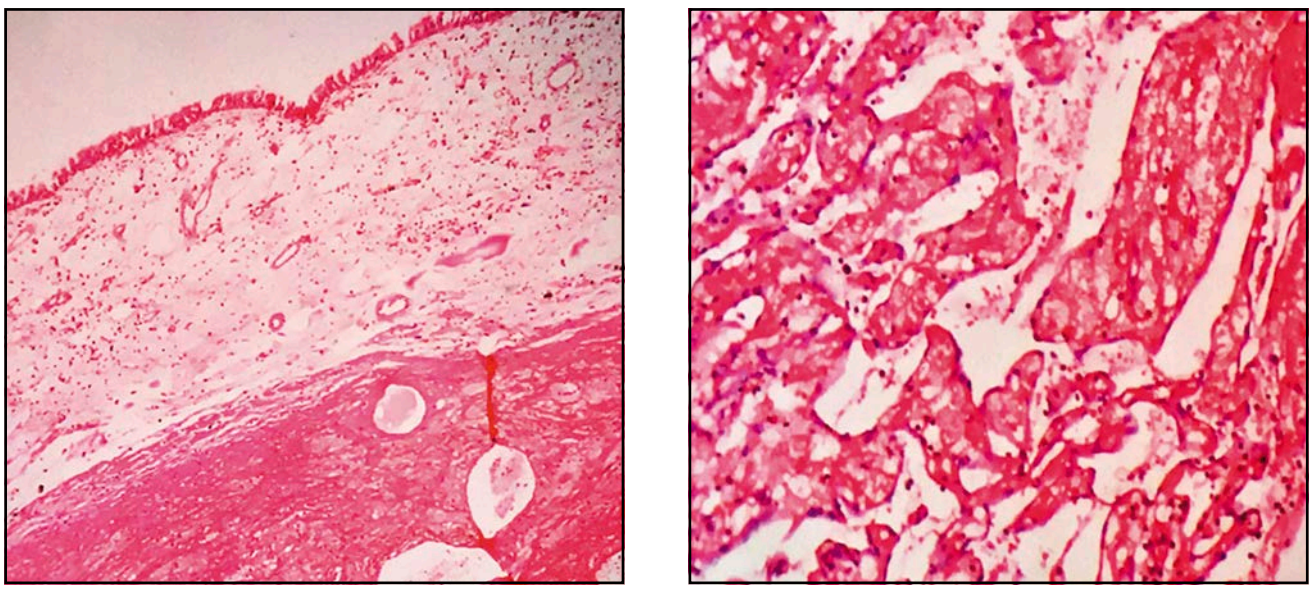

Figure 3 Haematoxylin-eosin staining section of the specimen – polyp covered by respiratory epithelium with ulceration. The subepithelium shows numerous dilated blood vessels lined by endothelial cells.

scopic excision of the lesion and, intraoperatively, a tumoral reddish polypoidal mass was occupying the right maxillary sinus cavity. Uncinectomy was performed and the ostium was widened, with complete removal of the tumor (Figure 2).

The specimen was sent for histopathological examination, which revealed a polyp covered by respiratory epithelium with ulceration. The subepithelium showed numerous dilated blood vessels lined by endothelial cells. The surrounding tissue showed infarction, haemorrhage, calcification, oedema and lymphoplasmacytic infiltration (Figure 3). These findings were consistent with the angiomatous polyp.

After one year, the patient is still recurrence-free.

CONCLUSIONS

Bleeding angiomatous nasal polyp is a rare unique benign sinonasal tumor which behaves locally aggressively and may mimic malignancy. This is a distinct type of nasal polyp and presents with atypical features. Detection of the charac-

teristic gross findings of the angiomatous polyp will help prevent misdiagnosis as vascular neoplasm. Angiography is often unnecessary and the histopathological analysis confirms the diagnosis. Complete endonasal excision with restoration of the drainage system of all the sinus cavities is the treatment of choice. Regular postoperative follow-up is recommended in order to diagnose a possible recurrence.

Conflict of interest: The authors have no conflict of interest.

Contribution of authors: All authors have equally contributed to this work.

REFERENCES

1. Peric A, Jovanovski A, Vukomanovic B. Giant angiomatous choanal polyp originating from the middle turbinate: a case report. ENT Updates. 2017;7(1):53-6. DOI: 10.2399/jmu.2017001007.
2. Goyal S, Jayvardhan G, Goyal S, Saini I. Angiomatous nasal polyp: Clinical diagnostic dilemma. Int J Cancer Ther Oncol. 2015;3(1):03018. DOI: 10.14319/ijcto.0301.8.
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 DOI: 10.2147/IJGM.S104628. eCollection 2016.
4. Batsakis JG, Sneige N. Choanal and angiomatous polyps of sinonasal tract. Ann Otol Rhinol Laryngol. 1992;101(7):623-5.
5. 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. DOI: 10.1016/j.ejrad.2013.12.002. Epub 2013 dec 13.
6. Ding C, Wang Q, Guo Q, Wang Z, Lu X, Zhang J. Sinonasal angiomatous polyp: evaluation with 2-phase helical computed tomography. Medicine (Baltimore). 2015;94(29):e1196. DOI: 10.1097/MD.0000000000001196.
7. 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. DOI: 10.1371/journal.pone.0053306.
8. Kumar B, Pant B, Pant JB. Angiomatous–angiectactic nasal polyp: A varied clinical, radiological and histomorphological spectrum. Ann Int Med Den Res. 2018;4(3):PT01-PT05.