Concurrence of Left Maxillary Antrolith and Right-Sided Nasal Inverted Papilloma: Case Report

Keywords: Inverted papilloma; Maxillary diseases; Epistaxis; Nasal obstruction

Abstract

Antroliths are calcified masses within the maxillary sinus and are detected incidentally on radiological examinations. They occur as a result of the solidification of mucus and nasal debris by mineral salts, calcium, magnesium phosphate and carbonate. The origin of the nidus of calcification may be extrinsic (foreign body in sinus) or intrinsic (stagnant mucus and fungal ball). Inverted papilloma (IP) is the most common benign tumor of the nose and the paranasal sinuses and comprises almost 0.5% to 4% of the primary nasal tumors. Herein, we present a case of a 65-years old woman with complaints of right-sided nasal obstruction, epistaxis, and headache for the last 6 months, report the concurrence of left maxillary antrolith and right-sided nasal inverted papilloma which is the first case report in the literature and discuss the pathophysiologies of these two entities in the light of the literature.

Introduction

Inverted papilloma (IP) or inverted type of Schneiderian papilloma is a benign, locally aggressive nasal lesion with a tendency for local recurrence. IP was described first by Ward and Billroth in 1854 and later characterized histologically by Ringert in 1938 [1,2]. It comprises 0.5-4% of all nasal tumours and is associated with a sinonasal carcinoma in 5% of patients [3]. In contrast with nasal inflammatory polyp, IP has historically been considered as a true neoplasm [4]. It was suggested that IP is the terminal stage of chronic inflammatory process rather than a real neoplasm [5]. Microscopically, IP shows digitiform proliferation of squamous epithelium into the underlying stroma [3]. Unlike most papillomas of the body, IP inverts, rather than everts, into the underlying connective tissue stroma [2].

Antrolith (AL) is a calcified mass in maxillary sinus. Maxillary sinus stones are uncommon and their development is similar to that of a sialolith. They have been described in various names as antral rhinoliths, antral calculi, antroliths, sinaloliths and antro-rhinoliths. ALs may form around a nidus or a concentrated mucus, which continues to grow because of the precipitation of calcium salts in concentric layers [6,7]. Smaller ALs are usually asymptomatic and found incidentally on radiographic imaging [8].

MRI and CT, the most commonly used imaging modalities in paranasal sinus evaluation, may incidentally detect the pathologies other than the patient complains about. Herein, we present a case of a 65-years old woman with complaints of right-sided nasal obstruction, epistaxis, and headache for the last 6 months, report the concurrence of left maxillary antrolith and right-sided nasal inverted papilloma which is the first case report in the literature and try to discuss the pathophysiologies of these two entities in the light of the literature.

Case Report

A 65-years old woman with complaints of right-sided nasal obstruction, epistaxis, and headache for the last 6 months presented to our clinic. Nasal endoscopy showed irregular, polypoid mass in right ostiomeatal region and moderate deviation of the nasal septum convexity to the left. Paranasal sinus CT revealed an irregular, polypoid, hypodense mass composed of right antral and choanal parts, and an irregular, 1x2 cm in size, left antral hyperdense lesion with surrounding hypodense area (Figure 1).

Endoscopic sinus surgery revealed that right ethmoid and maxillary sinuses are fulfilled with an irregular polypoid mass (Figure 2). Histopathologic examination of the soft tissue revealed that epithelial proliferation which grows down into preexisting mucosal glands, displacing and replacing normal epithelium, characteristic findings of inverted papilloma, and this specific fungiform pattern is caused by the invagination of mucosal epithelium into the underlying

Figure 1: Coronal paranasal sinus CT reveals hypodense lesion in right nasal cavity originating possibly from right maxillary sinus and irregular, hyperdense lesion in left maxillary sinus.
stroma (Figures 3 and 4). Left maxillary sinus was successfully managed by uncinctomy, maxillary sinusotomy, and inferior meatal antrostomy to remove the antrolith (Figure 5). There is no recurrence of IP at the end of first year, postoperatively (Figure 6).

**Discussion**

Clinical presentation of IP is most commonly a male subject with unilateral nasal obstruction and intermittent epistaxis who is 50–69 years old and it arises from the lateral nasal wall, particularly in the osteomeatal complex area of the middle meatus, and adjacent inferior and middle turbinates, and subsequently involves the contiguous paranasal sinuses, with the maxillary sinus [3]. Human papilloma virus (HPV), alterations in tumor suppressor gene p53, and chronic inflammation are suggested to be inducing and/or promoting agents in the pathogenesis of IP. The HPV serotypes, most commonly associated with IP, are 6, 11, 16, and 18 and serotypes 16 and 18, similar to cervical cancer, are more commonly associated with malignancy [5,9]. Although the role of exposure to pollutants and toxins in the pathogenesis of IP remains controversial, there is growing evidence that these factors may be contributory. Exposure to diethylnitrosamine has been shown to cause IP in animal models [10]. A case control study on 47 patients with IP demonstrated a higher degree of exposure to smoke, dust, and aerosol among patients with IP [11]. Patients with IP most commonly have opacifications in adjacent maxillary antrum on plain film [12]. IP appears as a soft tissue density mass with some enhancement on CT. Focal hyperostosis which tends to occur at the site of tumour origin is sometimes detected on CT [13]. This finding is helpful not only in suggesting the diagnosis, but also to guide surgical planning, as the location of tumour origin determines the extent of surgery required. As IP enlarges bony resorption and destruction may occur and it may interfere with squamous cell
radiopaque material may be found. AL may be outlined as rugged or various consistency, they may show homogenous and heterogenous radiographic imaging have also been reported [26,27]. Due to their [7,24,25]. Asymptomatic ALs encountered incidentally on routine common signs and symptoms of patients with AL in the literature intraoral discharge, postnasal drip, tenderness over the involved sinus persistence of chronic sinusitis result in chronic inflammation than 3 months, could result from untreated acute sinusitis. Thereby drainage. Chronic sinusitis, defined as recurrent episodes for more for its function and sinusitis is caused by blockage of that normal ostium opening, cilia, and secretion quality are necessary for pseudostratified columnar epithelium which is required for secretion of mucous. Ostium opening, cilia, and secretion quality are necessary for its function and sinusitis is caused by blockage of that normal drainage. Chronic sinusitis, defined as recurrent episodes for more than 3 months, could result from untreated acute sinusitis. Thereby persistence of chronic sinusitis result in chronic inflammation associated with poor sinus drainage, deposition of salts and enzymatic activities of bacterial pathogens which are needed for the formation of an antrolith [23]. Pain, nasal stuffiness and obstruction, epistaxis, foul intraoral discharge, postnasal drip, tenderness over the involved sinus and, oro-antral fistula foul-smelling discharge, facial pain are the most common signs and symptoms of patients with AL in the literature [7,24,25]. Asymptomatic ALs encountered incidentally on routine radiographic imaging have also been reported [26,27]. Due to their various consistency, they may show homogenous and heterogenous density and sometimes alternating laminations of radiolucent and radiopaque material may be found. AL may be outlined as rugged or smooth and its shape may be round, oval or irregular. Antral mucosal swelling, fluid, and polyps sometimes accompany ALs [24]. CT is very useful in displaying a sinolith, detecting the type of calcification considering fungal or nonfungal origin of the sinolith and localizing it precisely in relation to adjacent tissues, specifically the medial orbital lamina and skull base bones [23]. Treatment of ALs includes surgical removal of stone together with appropriate treatment of coexisting sinus pathology. Most of ALs in the literature have been extracted via the outer approach [23,28]. Patient was subjected to left uncinctomy, maxillary sinusotomy, and inferior meatal antrostomy, then antrum was visualized with angled endoscopy. There was an irregular, black mass embedded in purulent secretion and it was extracted through dilated maxillary sinus ostium. There was no need for fenestration on anterior wall of maxillary sinus (Caldwell-Luc). Inferior meatal antrostomy was closed properly at the end of operation. Patient had no any pathology other than minimal mucosal thickening in left maxillary sinus on CT at postoperative year 1.

In conclusion, MRI and CT, the most commonly used imaging modalities in paranasal sinus evaluation, may incidentally detect the pathologies other than the patient complains about. Herein, we present a case of a 65-years old woman with complaints of right-sided nasal obstruction, epistaxis, and headache for the last 6 months. CT revealed moderate deviation of the nasal septum convexity to the left and the concurrence of left maxillary antrolith and right-sided nasal inverted papilloma which is the first case report in the literature. In the pathogenesis of both IP and AL, chronic inflammation is the only shared pathway and patients with chronic inflammatory sinonasal disease should be managed as soon as possible to prevent complications like IP and AL.

References


