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Case Report

Antro-Choanal Polyp in Adult: Managed by Endonasal Endoscopic Excision

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Abstract

A benign lesion called an antrochoanal polyp (ACP) begins in the mucosa of the maxillary sinus, grows into the middle meatus through the accessory ostium, and then protrudes posteriorly into the choana and nasopharynx. The most frequent presenting symptoms are nasal discharge and blockage. The reasons for unilateral nasal obstruction should be included in the differential diagnosis. The primary methods of diagnosis for ACPs are computed tomography scans and nasal endoscopy, and surgical intervention is the only course of therapy available. For the entire removal of ACPs, powered instrumentation during functional endoscopic sinus surgery (FESS) and FESS itself are incredibly safe and successful treatments. To stop recurrence, surgeons should concentrate on determining the precise cause and scope of the polyp. Recurrence of an antrochoanal polyp is nearly invariably caused by incomplete resection.

Keywords: Antrochoanal polyp, benign lesion, maxillary sinus, computed tomography scan, nasal endoscopy, functional endoscopic sinus surgery (FESS)

1. Introduction

Antrochoanal polyps (ACPs) are benign polyps of the nasal mucosa that originate in the maxillary sinus and travel via the ostium into the choana. They were initially identified in 1753 by Palfyn and were finally defined by [1]. In the majority of people, ACPs have been found to account for 4–10% of nasal polyps; however, in children and young adults, ACPs may be responsible for up to 33% of nasal polyps [2]. However, bilateral, and even bifid polyps have been described, in addition to the relatively typical unilateral form. Although postnasal drip, headaches, dysphagia, dysphonia, dyspnoea, and unilateral nasal blockage and rhinorrhoea are the most typical presentations of ACPs, they can also produce epistaxis. Acute respiratory distress has been reported in rare cases when ACPs have prolapsed or auto-amputated into the oral cavity [3-6]. For the purpose of diagnosis and treatment planning, computed tomography (CT) scans and nasal endoscopy are necessary. Different reasons for unilateral nasal obstruction and ipsilateral nasal tumors should be considered in the differential diagnosis [7-9]. ACPs are constantly managed by surgery, particularly functional endoscopic sinus surgery (FESS) serving as the current gold standard [2].

1.1 Case Report

The patient, a 37-year-old man, reported eight to ten weeks of headache, post-nasal discharge, and left-sided nasal blockage. The patient had no severe allergy or medical history in the past. A white soft tissue mass was observed in the left nasal cavity by means of a nasal speculum examination, and when the mass was felt using a suction tube, it was found to be movable. The polypoidal tissue originated in the left middle meatus and extended into the nasopharynx, as demonstrated by a nasal endoscopy. (figure 1 and 2) A non-enhanced CT scan of the paranasal sinuses (figure 3 and 4) was carried out. The ethmoidal, frontal, and sphenoid sinuses were all visible and unremarkable. The whole left maxillary sinus was opacified, and the bone contour revealed modest remodelling and polypoidal mucosal thickening.

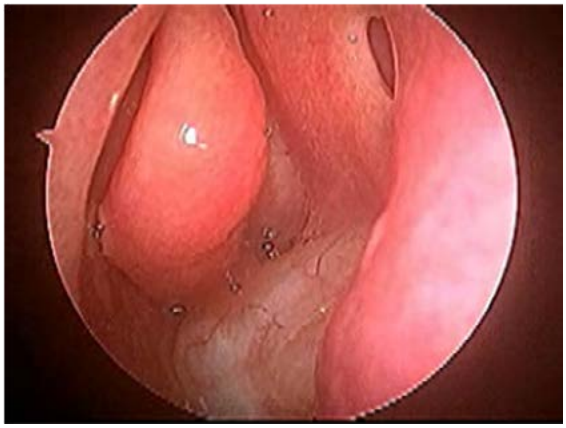

Figure 1: Endoscopic View of Left Nasal Cavity Showing Antrochoanal Polyp and Accessory Ostium (Small Arrow)

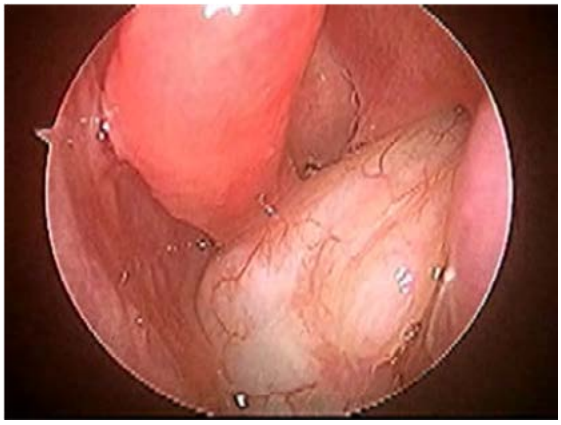

Figure 2: Endoscopic View of Left Nasal Cavity Showing Antrochoanal Polyp Occupying the Posterior Choana

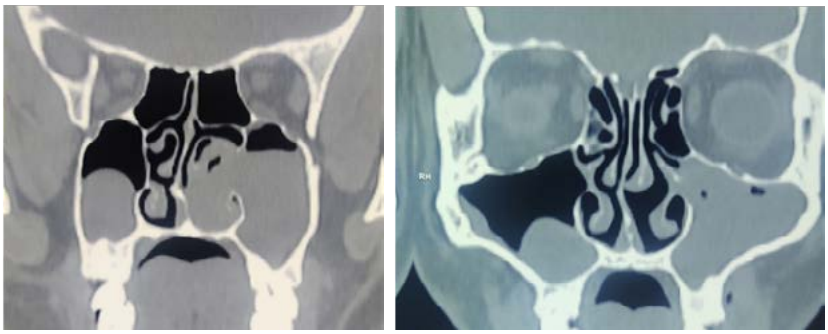

Figure 3: Computed Tomography (Ct)Scan Paranasal Sinuses (Coronal View) Showing Left Maxillary Sinus Filled Up with Homogenous Soft Tissue.

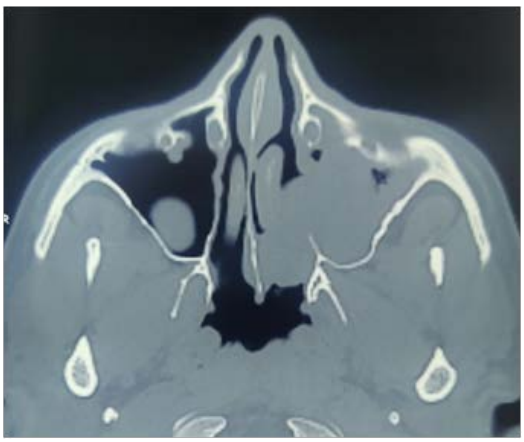

Figure 4: Computed Tomography (Ct)Scan Paranasal Sinuses (Axial View) Showing Left Nasal Cavity Filled Up with Polypoidal Tissue Arising from Left Maxillary Sinus.

In addition, the left maxillary ostium was opacified and widened, and the mucosa around the uncinate process, infundibulum, and left side hiatus semilunaris was thickened. This thickening extended to the lateral aspect of the mid-to anterior left nasal cavity. With a maximum thickness of 1 mm, the nasal cavity had mild circumferential smooth thin mucosal thickening associated with rhinitis. Furthermore, a sizable (1.5 x 1 cm) polypoidal mucosal thickening was observed blocking the communication between the mucosal thickening of the left maxillary antrum and the anterior to mid-section of the mid to inferior left nasal cavity. (figures 3 and 4). Following the acquisition of appropriate permission, the patient was brought under general anaesthesia to the operating room in order to have the polyp excised endoscopically. The origin of the tumor in the nasal cavity was determined to be the left middle meatus during a left nasal cavity endoscopy. Following the intranasal component of the mass's separation, the nasopharyngeal part was extracted through the oral cavity.

The left nasal cavity came into sight once again. It was discovered that the stalk of the antrochoanal polyp was emerging from the right maxillary sinus's natural ostium. Using a backbiter (figure 5), the natural maxillary sinus opening was expanded and the uncinate process was eliminated. The polypoid mass was discovered to be inside the left antrum and was extracted using cup forceps. The posteroinferior wall was found to be the polyp's source. The inferior base of the antral polyp was clearly seen by the creation of a large maxillary antrostomy by connecting the two ostia (main and accessory ostium), which allowed for its removal with an angulated Blakesley forceps. (figure 6). The patient tolerated the procedure well. Post-operatively, the nasal pack was removed on the second day and the patient was discharged from hospital on the third day. The patient progressed very well and experienced complete relief of his nasal and oral airway. obstruction. One year later, during follow-up, the patient was still asymptomatic and disease-free.

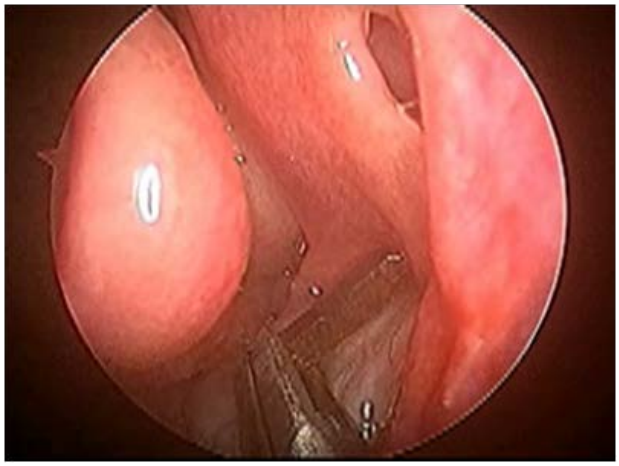

Figure 5: Intraoperative Endoscopic Image Demonstrating the Use of a Backbiting Ostrum Forcep to Create a Common Aperture Between the Native Ostium and the Accessory Ostium.

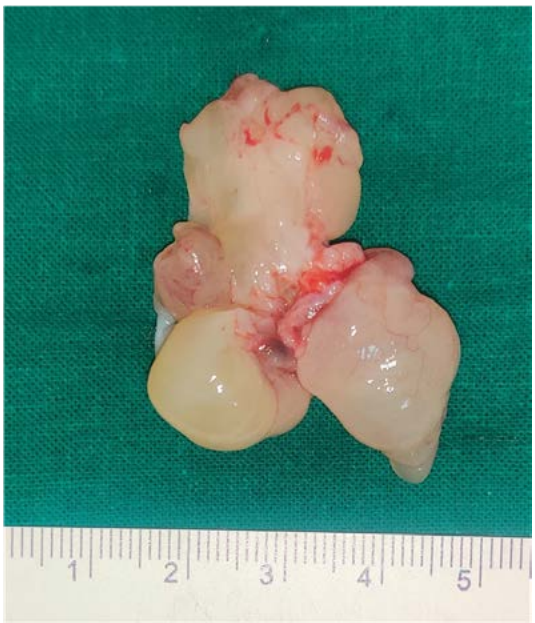

Figure 6: Main Surgical Specimen of Antrochoanal Polyp (Trifoliate Shaped).

2. Discussion

In 1691, Fredrik Ruysch, the famous Dutch anatomist, described. two cases of nasal polyps. Arising in the Highmoro. Antrum [10]. In described the case of a polyp arising from the maxillary sinus and coming out. through a wide accessory ostium [11]. The first person to define antrochoanal polyp (ACP) and provide a specificity among nasal polyposis was Freiburg, whose work "The origin of Choanal polypi" was published in The Lancet on July 14, 1906. Choanal polypi often occur alone and unilaterally. Their morphology is unusual, like a pear. Usually, a sizable cystic gap exists in the thick region of the polypus. The stalk may have a thin wall of a cyst or it may extend far into the stalk. All choanal polyps actually need to resemble a narrowed sac, with half of them located in the antrum and the other half in the nose and nasopharynx. As a result, a naso-pharyngeal component and a maxillary part are identified.

A polypus is occasionally forced out of the cavity and into the nose by irrigation or flooding of the antrum through the accessory ostium [12]. Palfyn had previously seen one of these cases in 1753, according to an intriguing claim found in the literature [13]. A link between antral cyst and the existence of a broad accessory ostium was shown by Brown Kelly in 1909, three years following Gustav Killian's discovery [14]. Of all nasal polyps, ACPs account for 4-6% [15]. A clinical disorder called nasal bilateral polyposis affects around 1-4 percent of the Caucasian population [16]. ACPs are often unilateral; the literature has only documented three bilateral instances [17–19]. Stammberger Hawke discovered that in 70% of the instances they examined [20]. ACP exited the sinus by an accessory ostium, however this is most likely the situation in 100% of cases. A pathogenetic theory can be advanced. To begin with, the same chronic immune (allergic or viral) causes that induce antral cyst and mucosal oedema may also cause thickening at the ostio-meatal complex/ middle meatus level. This suggests that it may be feasible to partially clog the maxillary natural ostium and completely close the accessory maxillary ostium that is blocked by the medial surface of an antral cyst at the same time.

Because of mucosal oedema or swelling at the ostio-meatal complex/middle meatus level, air that reaches the sinus through the constricted natural ostium cannot be expelled on expiration. Complete blockage of the natural ostium when breathing out is more likely to occur when breathing out, according to the Bernoulli theory, since the velocity of flow is higher at the stricture, causing a pressure decrease perpendicular to the stricture wall. The occlusion of both the natural and accessory ostium at the same time raises the pressure inside the maxillary antrum. Consequently, an intramural cyst may be pushed to herniate outside through the accessory ostium as a result of the elevated pressure level in the maxillary sinus, resulting in the development of an ACP. All the anatomical characteristics (septal deviation or spur, modification of the uncinate process, hypertrophy of the inferior turbinate and bulla ethmoidalis, or concha bullosa) that may cause changes in the pressure gradient between the middle meatus and maxillary antrum level are likely to exacerbate this mechanism.

According to reports ACPs make up 4-6% of all nasal polyps in the general population; however, cook [21-23]. discovered a greater prevalence of ACPs (10.4%). ACPs are more prevalent in children and young adults [7- 22]. However, they can appear at any age [21-1]. This prevalence rises to 33% in children [7-24]. About 70% of patients in prior research were between the ages of 30 and 70 [21]. Men are more likely than women to have ACPs [25,1-26]. According to Cook et al. [21], 30% of females and 70% of males had ACPs. The most typical sign of ACP is unilateral nasal obstruction, particularly during the expiratory phase. However, depending on the occlusion of the nasopharynx, bilateral nasal obstruction may occur in 20–25% of instances [27]. Additional clinical signs and symptoms include post-nasal drip, headache, halitosis, rhinorrhoea, bleeding, snoring, foreign body feeling, and loss of smell. On rare occasions, cases have been reported involving epistaxis polyp strangulation spontaneous amputation dysphagia and dyspnoea and speech abnormalities obstructive sleep apnoea, and cachexia [28-33].

When diagnosing ACP, nasal endoscopy, and computed tomography (CT) are considered the gold standards. ACP manifests as a brilliant, white mass in the middle meatus and nasal cavity during nasal anterior rhinoscopy or nasal endoscopy, with a stalk ascending to the accessory ostium. Occasionally, during the examination of the oral cavity, ACP manifests as a white egg-shaped mass behind the uvula. A tumor filling the maxillary sinus and extending via the accessory or natural ostium into the middle meatus and posterior choana is the diagnostic for ACP using computed tomography (CT) [34]. A hypo-attenuating mass that occupies the maxillary sinus, extends through the middle meatus into the nasal cavity, and occasionally extends posteriorly into the choana is clearly seen on CT scans. In the differential diagnosis of ACPs, one should consider the following conditions: substantially enlarged adenoids, lymphoma, nasopharyngeal malignancy, juvenile angiofibroma, nasal glioma, meningoencephalocele, inverted papilloma, mucocele, mucus retention cyst, Thornwalt's cyst. [35-37]. It is important to consider additional bone-destroying conditions like rhabdomyosarcoma and Wegener granulomatosis [38]. There is no other practical option than surgery. The literature has descriptions of several surgical methods.

The Caldwell-Luc method was employed previously. The polyp and related antral mucosa are completely removed with the Caldwell-Luc technique, which also provides excellent exposure [39]. But the Caldwell-Luc treatment entails hazards for children's growing teeth as well as potential side effects as cheek anaesthesia and edema [40]. The gold standard procedure at the moment is functional endoscopic sinus surgery (FESS) [41]. Removal of the nasal portion of the polyp and its cystic antral half, which is attached to the maxillary wall via the middle meatus, are the acknowledged treatments for ACP. This procedure is called FESS [42]. Following the removal of the bottom portion of the uncinate process, the maxillary ostium expanded. In case the polyp is too big to be removed in one piece, the intra-

nasal section of the ACP is sliced using scissors. The maxillary antrum and the location of the cystic portion of ACP's origin are located using endoscopes (45°-70°-120°). To reduce the risk of recurrence following surgery, the antral part of an ACP and the base of its origin should be excised [43]. It may be appropriate to utilize a microdebrider in addition to endoscopic surgery [43]. Rarely do the polyps originate from the front wall of the maxillary antrum; instead, they often come from the posterior, inferior, lateral, or medial walls [44]. One of the most important aspects of treating ACPs successfully is locating and eliminating the polyp's source in the maxillary antrum as well as the majority of it. El-Guindy Mansour have detailed yet another surgical procedure. Treatment for ACP involves a combination of transcanine sinusoscopy and endoscopic middle meatal surgery [45,46]. The antral cystic portion of the ACP polyp is removed using a trocar placed via the canine fossa, as reported by Hong et al. in a more recent report using powered instruments 16. The trocar's sheath remains in the canine fossa after the cannula is withdrawn. A microdebrider is placed into the sinus and the antral section of the ACP is excised using powered instruments while being controlled endoscopically through the middle meatus.

For the treatment of ACPs originating from the lateral and anterior wall of the antrum, a combined endoscopic and transcanine approach is recommended, whereas a transnasal endoscopic approach is advised for other localizations. [43-45]

3. Conclusion

ACPs are benign polypoid masses that extend into the choana and originate from the maxillary antrum. When diagnosing a nasal tumor and unilateral nasal obstruction, ACPs should be considered. A thorough history, clinical tests, nasal endoscopic exams, and radiographic exams can all be used to identify ACPs. FESS is a very safe and efficient method for fully removing ACPs. To stop recurrence, an ENT surgeon should concentrate on determining the precise cause and scope of the polyp.

Compliance with Ethical Standards

The procedure performed in this case report was in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards."

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