

# Uncinectomy with Transcanine Sinoscopy Approach for Treatment of Antrochoanal Polyp

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## Abstract

**Objective:** The objective of the present study was to evaluate the efficacy and the rate of recurrence in endoscopic assisted polypectomy with Uncinectomy and transcanine sinuscopy for the treatment of Antrochoanal polyp.

**Materials and Methods:** In this cross sectional study, we evaluated 17 cases of Antrochoanal polyp for treatment efficacy and recurrence rate. A detailed history was taken from all the patients. Endoscopic examination for anterior view was carried out with 0°, 30° and 45° endoscopes. Seventy-degree endoscope was used transorally for nasopharyngeal view. Computed tomography findings were recorded for all the patients. All patients had endoscopic assisted polypectomy with uncinectomy and transcanine sinuscopy.

**Results:** Seventeen patients, 13 males (76.4%) and 4 female (23.5%), age range 11-54 years, (mean age:38 years) of Antrochoanal polyp were included in this study. Unilateral persistent nasal obstruction was the major complaint with almost all the patients. Endoscopic assisted polypectomy with Uncinectomy and transcanine sinuscopy was the standard procedure for all the cases. No case of recurrence was reported.

**Conclusion:** The method of removing the antrochoanal polyp with the help of rigid nasal endoscope, widening of natural maxillary ostia by uncinectomy and finally removing the remnants of maxillary mucosa with the help of transcanine sinuscopy is an extremely safe and effective procedure with minimal complications and no

recurrence.

**Keywords:** Accessory ostium, Antral cyst, Antrochoanal polyp, Endoscopic Surgery, Maxillary ostium

## Introduction

Antrochoanal polyp (ACP) also known as Killions polyp, represents 4-6 % of nasal polyps. It is a non -atopic, benign lesion with male dominance, more common in younger age, always unilateral, having antral cystic part, attached a thin stalk in maxillary ostium and a solid nasal part, covered by respiratory epithelium. This benign lesion originates from the mucosa of the maxillary sinus. It protrudes into the nasal cavity either through the accessory ostium or through the natural maxillary ostium, and then moves posteriorly to the choana and nasopharynx and attain pear shape.<sup>1</sup> Recurrence after surgery is due to incomplete removal of antral part. Causes like allergy, infection and burnollis phenomina in pre-existing antral cyst, have been mentioned as predisposing factors. Maxillary sinus which is the largest PNS, is pyramidal in shape with 35 x 34 mm base and 25mm height. It drains in middle meatus through the natural ostium in most of cases but in few cases it drains through accessory ostium.

Elliptical shape natural ostium of maxillary sinus is 7-10 mm long and 2-5 mm wide. Mucosa of antrum is lined by the ciliated respiratory epithelium which transports secretions towards the natural ostium of the maxillary sinus. In addition to sympathetic and parasympathetic influence, physical and environmental factors also control the production of mucus secretion. Since the natural ostium is placed several millimeters above the floor of maxillary antrum, secretion is drained by genetically determined much-ciliary active transport system. This system works against the gravity in a star shaped pathway from the floor toward the natural ostium. Even in the presence of surgically made lower opening in medial wall of maxilla the direction of flow remains the same. Conditions which impair the mucosal function are going to effect the ostium patency resulting in mucosal edema. ACP are always unilateral having antral, ostial and nasal or nasopharyngeal part. Antral part is always cystic and nasal part is solid.<sup>2</sup> Mostafa in his study found only 5% of antral part to be cystic.<sup>3</sup> Kizil

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observed that choanal polyp may come from sphenoid sinus, septum or other parts of nasal cavity.<sup>4</sup>

Site of origin for antral part of polyp is either posterior, inferior, lateral or from medial walls of the maxillary antrum.<sup>5-7</sup> Lee and Huang found that the most common site of origin was the Posterior wall (92%).<sup>8</sup>

ACP presents with unilateral nasal obstruction in almost all cases. In case with larger nasopharyngeal part patient can present with bilateral nasal obstruction. Other common clinical symptom includes, foreign body sensation, rhinorrhea, headache, and sleep disorder. Nasal septum deviation has also been observed in large nasal part of polyp. It is followed by mucous or muco-purulent nasal secretion and it may eventually obstruct the Eustachian tube ostium. Secretary otitis media is also one of the presentation in children because of large polyp blocking the Eustachian tube. Rarely patient can present with epistaxis. CT-scan usually shows homogeneous opaque maxillary antrum of the involved side with presence of soft-tissue mass passing through a natural or accessory ostium into the nasal cavity. In case of larger polyp, it almost completely fills the nasal cavity, nasopharynx, oropharynx. It should be differentiated from mucocele, retention mucous cysts, maxillary antrum tumor, angiofibroma, olfactory neuroblastoma, inverted papilloma, lymphoma, maxillary sinusitis and meningelephalocele.

Since surgery is the only option for treatment, many surgical approaches have been described for the treatment of ACP. In the past Caldwell-luc approach was used for recurrent disease, but its most serious after effects on teeth development and the risk of damaging the growth centers of the maxilla in children, cheek anaesthesia, cheek swelling and injury of the infraorbital nerve, effected its popularity. Currently the gold standard technique in practice is FESS (Functional endoscopic sinus surgery), which allows the complete removal of disease with minimal or no recurrence. With the help of endoscope nasal part is removed and after widening the maxillary ostium the antral part is examined first and then removed. El Guindy et al treated ACP by combining endoscopic middle meatal surgery and transcanine sinuscopy. Hong et al. inserted trocar through canine fossa. First they passed trocar in the canine fossa, then after removing the cannula of the trocar, they inserted microdebrider through it. Than with the help of endoscopic control via already made wide ostium, antral part of the polyp was removed with microdebrider.<sup>9</sup>

## Materials and Methods

This cross-sectional study was conducted between 2009 and 2014. We enrolled 17 patients having ACP for this study. There were 13 males (76.5%) and 4 females (23.5%) with a mean age of 38 years. Parents were briefed about the details of the surgical procedure. Informal consent was obtained from parents before endoscopic examination in OPD. Patients were examined with 0° and 30° endoscopic twice, first without applying vasoconstriction and then by applying vasoconstriction packing for 10 minutes. Site of exit of ACP

from ostium was seen more easily after applying vasoconstriction. Proper consent was obtained on consent form after explaining them the detail of the surgical procedure and the complication which patient can encounter post operatively. Any associated history of nasal allergy, asthma or chronic sinusitis were recorded. Four mm endoscopes (0°, 30°, 70°) angle was used for examination. Efforts were made to remove the polyp end block through nasal rout but in cases where the posterior part of polyp was large it was removed transorally after applying the Davis mouth gag. For widening of maxillary ostium, lower portion of the uncinata was removed with back biting force. Through the ostium examination was made with 30° and 70° endoscopes and remnant of polyp were removed with backslay forceps. Canine sinusotomy was performed. Trocar and cannula were inserted in canine fossa. Later on cannula was left in while the trocar was removed. Sinus was viewed with endoscopic via the wide ostium and microdebrider was inserted into the maxillary sinus through Trans canine cannula. Antral part of polyp was debrided. Maxillary antrum was irrigated after the procedure while the healthy mucosa was left intact. Nose was packed with bismuth iodine paraffin paste nasal packing. Statistical analysis was done by using SPSS version 20. Frequency and percentages were evaluated for categorical data.

## Results

A total of 17 patients of ACP were treated with this method. Nine (52.94%) patients had ACP in left maxilla where as eight (47.04%) had ACP in RT maxilla. Eleven (64.70%) had DNS to opposite site. In 4(23.52%) cases ACP was found to be coming out through accessory ostium. All patients were satisfied with their results with no history of any recurrence. Patients were having followed up for 12 months' duration. In all cases, the hospital stay was not more than 24 hours. In three cases mild swelling over the cheek/face was observed which resolved in 2-3 days. One case had antral haematoma and one case had acute maxillary sinusitis (Table-1).

Post-operative complications	Number of Patients	%
Swelling of cheek/face	3	17.64
Antral haematoma	1	5.88
Acute maxillary sinusitis	1	5.88

## Discussion

Surgery is the only option for treatment of ACP. In the past simple avulsion of the polyp was in practice which carried high rate of recurrence because of left over antral part.<sup>10</sup> Later on Caldwell-Luc procedure was performed for complete removal of the antral part of the polyp but this procedure has its own complications, like cheek anaesthesia, cheek swelling and injury of the infraorbital nerve. It also carries the risk of damaging the growing teeth and the

growth centers of the maxilla in children.<sup>11-12</sup> Yanagisawa K et al in a study has mentioned Caldwell-Luc procedures association with maxillary damage and effect on dental growth centers.<sup>13</sup> Functional endoscopic sinus surgery is now considered to be the most effective and safe surgical procedure, in which uncinectomy is associated with endoscopic assisted removal of ACP.<sup>14,15</sup> Ozer et al. found that endoscopic assisted removal of ACP with uncinectomy is safe but is with recurrence, whereas adding trans canine endoscopic approach is more effective and safe surgical procedure with no recurrence.<sup>16</sup> Hong et al used powered instrumentation during FESS and recommended it very effective technique. Their success rate was 96.4% without any significant complications. Hong SK et al also had same good results by using powered instrumentation in the treatment of antrochoanal polyp and found excellent outcomes and minimal complication rate.<sup>17</sup> El-Guindy et al, on the other hand, used endoscopic middle meatal surgery in combination with transcanine sinuscopy for the complete removal of Antrochoanal and found excellent results.<sup>23</sup> For antrochoanal polyp originating from the inferior and posterior walls of the maxillary sinus. Lee and Huang et-al used the Trans nasal endoscopic approach and for antrochoanal polyp originating from the lateral walls of the maxillary sinus; they combined transcanine approach and had success rate of 76.9% and 100%, respectively. In our study nasal part of antrochoanal polyp was removed by using endoscopic either through nasal route or from oral route. Our results are comparable with other studies mentioned. Polyp arising from lateral, anterior and inferior walls are better removed by transcanine approach.<sup>18</sup> Lathi and colleagues discussed the clinic-pathological aspects of sinonasal masses.<sup>19</sup> Powered instruments and 30° and 70° endoscopes are essential for complete removal of ACP.<sup>20</sup> Mega middle meatus antrostomy allows good ventilation to the sinuses.<sup>21</sup> On the other hand many surgeons prefer a limited surgical technique in pediatric patients.

## Conclusion

We recommend endoscopic removal of nasal part of polyp through nasal or oral route and transcanine sinuscopy with microdebrider for antral part to be most effective and safe procedure for dealing with antrochoanal polyp.

## Conflict of Interest

This article has no conflict as declared by any author.

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