

Evaluating the Characteristics of Central Nasal Polyposis

Tran Le MD¹, Shane Hamacher BS², Vidur Bhalla MD¹, Jennifer Villwock MD¹, D. David Beahm MD¹, Alexander Chiu MD¹

¹University of Kansas Medical Center, Department of Otolaryngology – Head and Neck Surgery

²University of Central Florida, College of Medicine



INTRODUCTION

- Certain patterns of nasal polyposis have been associated with increased inflammation, comorbidities, histology, disability, and radiographic findings.
- Traditionally, endoscopic sinus surgery (ESS) addresses the lateral sinonasal cavity while avoiding disease medial to the middle turbinates.
- Central nasal polyposis (CNP), defined as inflammation medial to the middle turbinate, is an understudied area. This study seeks to describe its associated clinical and radiographic findings.

METHODS

- A retrospective, cohort study was performed evaluating all patients who underwent ESS in 2016 at a tertiary care center.
- Patients' computed tomography (CT) scans were evaluated for olfactory cleft opacification (OCP), which were graded 0-4 [Table 1], and Lund-MacKay (LM) scores were calculated.
- Charts were reviewed for demographic information, polyposis, comorbidities, previous surgeries, need for revision ESS, and complaints of olfactory dysfunction.

RESULTS

- Of the 154 patients who had ESS, 67 patients demonstrated OCP (43.5%). [Image 1]
- There was no significant difference in age between the OCP and non-OCP groups ($p=0.539$), however, the OCP group was chiefly male (34.5% vs 64.2%, $p=0.025$).
- OCP patients compared to non-OCP patients were more likely to have aspirin exacerbated respiratory disease (AERD) (7.5% vs 1.1%, $p=0.045$), greater number of surgeries (1.12 vs 0.62, $p=0.031$), higher Lund-MacKay scores (14.1 vs 5.8, $p<0.001$), have nasal polyposis findings intraoperatively (73.1% vs 27.6%), and complain of hyposmia (49.3% vs 25.3%, $p=0.002$). [Table 2]
- There was no significant difference in the presence of asthma ($p=0.077$) and need for revision ESS ($p=0.171$).
- Patients with higher OCP scores on CT were significantly more likely to have asthma, AERD, hyposmia, higher LM scores, and nasal polyposis ($p<0.05$).

DISCUSSION

- Nasal polyps affect 1-4% of the U.S.¹ and are most commonly associated with chronic rhinosinusitis with nasal polyposis (CRSwNP)².
- Medically refractory patients are offered ESS with the goal to reduce polyp burden and improve topical delivery of therapeutics.
- Despite appropriate intervention, patients with nasal polyposis have less subjective improvement after surgery and a higher need for revision compared to non-polyp patients³.
- Traditional FESS is a lateral based surgery relative to middle turbinate. While it addresses ethmoid sinuses and opens outflow tracts, it does not address central nasal polyposis. This may contribute to higher olfactory dysfunction and less subjective improvement in this patient population.
- We utilized a grading system to evaluate olfactory cleft opacification on CT imaging. OCP scores were correlated with Lund-MacKay (LM) scores and other co-morbidities.
- In conjunction with LM scores and other qualitative measures, OCP grade may assist us in identifying which patients could have central nasal polyposis and require more aggressive management.
- There are several limitations to this study:
 - Given the retrospective nature of the study, there was a lack of objective outcomes
 - CT scans offer a radiographic diagnosis but often do not shed light on acute versus chronic processes.
 - Olfactory cleft opacification on imaging may represent polyps, secretions, or an allergic process.

CONCLUSION

- OCP patients have greater comorbidities, olfactory dysfunction, and disease burden than their non-OCP counterparts.
- Further studies are needed to evaluate CNP-related findings and the role of traditional FESS in adequately treating these patients.

Table 1. Olfactory Cleft Opacification Scale

Grade	Description
0	No mucosal thickening within olfactory cleft
1	Thickening within olfactory cleft to halfway down medial aspect of middle turbinate
2	Thickening halfway down to bottom of middle turbinate
3	Thickening from bottom of middle turbinate to floor
4	Entire olfactory cleft blocked from roof to floor

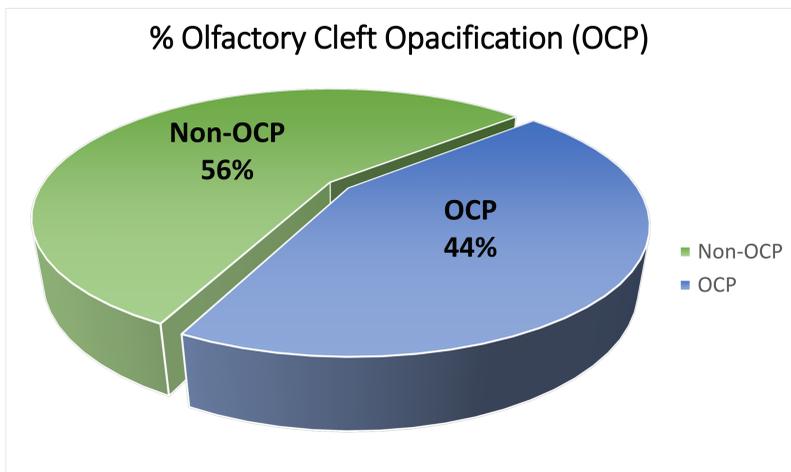


Image 1: Percentage of patients who underwent ESS with presence of olfactory cleft opacification on CT

	OCP	Non-OCP	
AERD	7.5%	1.1%	p=0.045
# of surgeries	1.12	0.62	p=0.031
LM scores (avg.)	14.1	5.8	p<0.001
Nasal Polyps	73.1%	27.6%	p=0.002
Hyposmia	49.3%	25.3%	p=0.077

Table 2: Comparison of OCP vs non-OCP. **P-value < 0.05 in bold.** OCP = Olfactory cleft opacification; AERD = Aspirin-exacerbated respiratory disease; LM = Lund-MacKay

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CONTACT

Tran Le MD
Resident Physician, University of Kansas School of Medicine
Department of Otolaryngology-Head & Neck Surgery
E-mail: tle3@kumc.edu

