Radiologic Study on Concha Bullosa of the Middle Turbinate and Nasal Septal Deviation: Perspective of Rhinology Surgeon

Young Ha Kim, MD, Ju Eun Kim, MD, Byung Jae Yu, MD, Jin Hee Cho, MD, PhD.
Dept. of Otorhinolaryngology—HNS, Yeouido St. Mary’s Hospital, The Catholic University of Korea, Seoul, Korea

ABSTRACT

The basic treatment method for nasal septal deviation (NSD), which is one of the most common causes of nasal stuffiness, is septoplasty. Rhinologists usually manipulate the inferior turbinate to correct conchal hypertrophy. However, problems in the middle turbinate are apt to be overlooked in patients with septal problems. One of the most common variations in the middle turbinate is concha bullosa (CB), pneumatization of the middle turbinate. CB has been frequently studied in conjunction with sinusitis; CB can be one of the causes of sinusitis. Recently, the relationship between CB and the prevalence of chronic rhinosinusitis (CRS) has been investigated. CB may be overlooked in patients with septal problems. Objective: This study was conducted to determine the clinical significance of CB in patients with nasal septal deviation (NSD).

Methods: 612 paranasal sinus CTs taken in a tertiary referral hospital were analyzed. We collected patient demographic data and the presence of NSD and CB was checked. Also, the degree of septal deviation and the presence or absence of CB was assessed. The prevalences of CB in the NSD and non-NSD groups were 33.1% and 23.68%, respectively (χ² test, p = 0.0359). When comparing the average of the maximum area of CB, no statistically significant difference was observed (Student’s t-test, p > 0.05). Subjects with bilateral CB were grouped into straight, mild, and severe groups and the interturbinate ratios were calculated. The average ratios increased as the deviated angle increased (one-way ANOVA, p < 0.01).

Conclusion: CB tends to be more pneumatized on the contralateral side in NSD subjects. When comparing the average area of CB between the NSD and non-NSD groups, there was no statistically significant difference in the straight septum side groups. However, when performing a septoplasty in NSD subjects who are planning CB removal, the CB can be one of the causes of sinusitis. CB has been frequently studied in conjunction with sinusitis; CB can be one of the causes of sinusitis. Recently, the relationship between CB and the prevalence of chronic rhinosinusitis (CRS) has been investigated. CB may be overlooked in patients with septal problems.

INTRODUCTION

The basic treatment method for nasal septal deviation (NSD), which is one of the most common causes of nasal stuffiness, is septoplasty. Rhinologists usually manipulate the inferior turbinate to correct conchal hypertrophy. However, problems in the middle turbinate are apt to be overlooked in patients with septal problems. One of the most common variations in the middle turbinate is concha bullosa (CB), pneumatization of the middle turbinate. CB has been frequently studied in conjunction with sinusitis; CB can be one of the causes of sinusitis. Recently, the relationship between CB and the prevalence of CRS has been investigated. CB may be overlooked in patients with septal problems. Objective: This study was conducted to determine the clinical significance of CB in patients with nasal septal deviation (NSD).

METHODS AND MATERIALS

Paranasal sinus CTs taken from May 2011 to October 2012 in a tertiary referral hospital were analyzed. CTs were taken during the evaluation of the presence of NSD (p = 0.359). When comparing the average area of CB between the NSD and non-NSD groups, there was no statistically significant difference (Student’s t-test, p = 0.05). Subjects with bilateral CB were grouped into straight, mild, and severe groups and the interturbinate ratios were calculated. The average ratios increased as the deviated angle increased (one-way ANOVA, p < 0.01).

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RESULTS

After excluding those with a previous history of nasal operation, intranasal tumors, or trauma, 520 CTs were included. The prevalence of CB in the NSD and non-NSD groups was 33.1% and 23.68%, respectively (χ² test, p = 0.0359). When comparing the average of the maximum area of CB, we found a statistically significant difference (Student’s t-test, p < 0.05). Subjects with bilateral CB were grouped into straight, mild, and severe groups and the interturbinate ratios were calculated. The average ratios increased as the deviated angle increased (one-way ANOVA, p < 0.01).

CONCLUSIONS

CB that results in a narrow nasal cavity tends to be more pneumatized on the contralateral side in NSD subjects. NSD subjects who are planning septoplasty should undergo preoperative CT to evaluate the presence of CBs and, if they exist, they should be managed properly, especially those on the contralateral side, to improve the results.