

Sex-specific differences in chronic rhinosinusitis with nasal polyps: toward more personalized management

Chronic rhinosinusitis with nasal polyps (CRSwNP) is increasingly recognized as a biologically heterogeneous disorder, in which patient-specific factors strongly influence outcomes. Among these, sex-related differences have been observed clinically, yet their underlying pathological basis and impact on postoperative recurrence remain incompletely understood. In a large cohort of over 400 patients undergoing endoscopic sinus surgery, Chen et al. ⁽¹⁾ demonstrate that sex influences disease behavior beyond comorbidities and symptom burden. Although no major sex-related differences were observed in conventional histopathological endotypes, significant disparities emerged in inflammatory modulation and recurrence risk. Specifically, increased body mass index and a higher prevalence of allergic rhinitis were associated with male sex, suggesting sex-specific metabolic and atopic contributions to the CRSwNP phenotype.

Male sex was identified as an independent predictor of recurrence. In contrast, among patients who experienced recurrence, female patients showed a more pronounced eosinophilic and type 2 inflammatory profile than males. Higher tissue eosinophil and Charcot–Leyden crystal thresholds were required to predict recurrence in women, indicating that standard histopathological cut-offs may not equally apply across sexes.

Previous studies have shown that sex affects symptom burden and surgical outcomes in CRSwNP. Ryan et al. ⁽²⁾ have performed a meta-analysis in which they have shown that female patients tend to report higher SNOT-22 scores both before and after surgery.

These findings also parallel observations in asthma, with adult women exhibiting higher type 2 inflammation and more severe disease compared with men ⁽³⁾. This suggests that sex-specific immune modulation may be a shared feature across upper and

lower airway type 2 diseases.

These outcomes highlight the need for additional research to explore the mechanisms driving these disparities and to develop therapeutic strategies to reduce gender-related differences in outcomes.



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References

1. Chen W, Wang H, Wang D, Li W, Li Y, Chen J, Yang Q, Zhang Y. Sex differences in CRSwNP: focus on histopathological endotypes and recurrence. *Rhinology*. 2026 (1): pages.
2. Ryan MT, Patel K, Fischer JL, Tolisano AM, McCoul ED, Lawlor C, Parsel SM, Riley CA. Gender differences in outcomes following endoscopic sinus surgery: a systematic review and meta-analysis. *Rhinology*. 2024;62(5):514–525.
3. Melgert BN, Oriss TB, Qi Z, Dixon-McCarthy B, Prakash YS, Chiarella SE. Sex and gender in asthma. *Am J Respir Crit Care Med*. 2021;204(8):893–897.