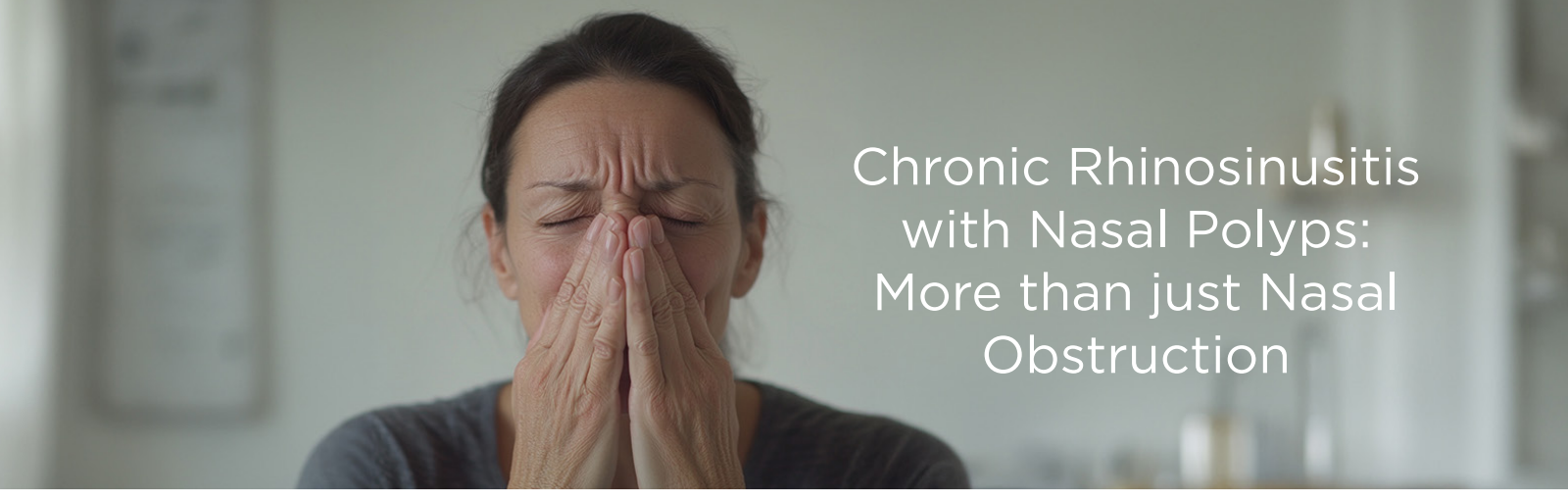


Chronic Rhinosinusitis with Nasal Polyps: More than just Nasal Obstruction

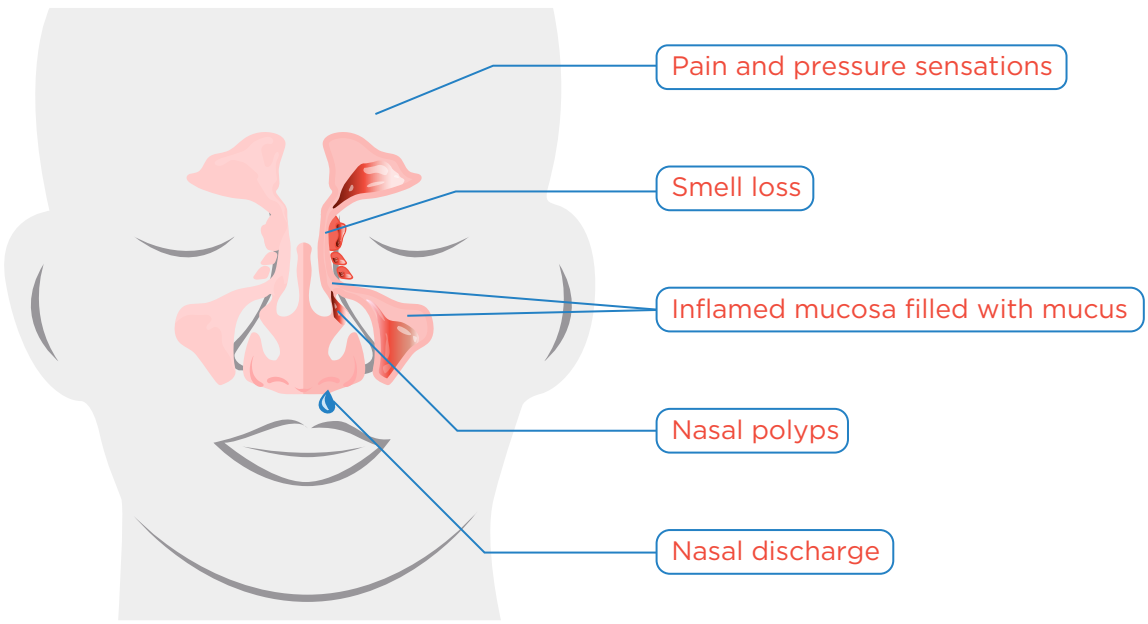
Chronic type 2 inflammation worsens nasal congestion and may cause polyp growth[1,2]

Nasal congestion is a key symptom in CRSwNP, but does not fully capture the multitude of other symptoms such as smell loss[3]

Persistent type 2 inflammation can contribute to nasal polyp recurrence[2–7]

Nasal congestion is a manifestation of the underlying disease rather than the disease itself[8]

Inflammatory changes associated with CRSwNP[6]



Nasal polyps can cause significant congestion, obstructing airflow to the olfactory cleft[3,9,10]

Treating congestion without addressing inflammation potentially cause recurring symptoms in CRSwNP such as smell loss and facial pain[4,7,11–13]

Effective management of CRSwNP requires targeting the root cause of type 2 inflammation[3–5,7,9]

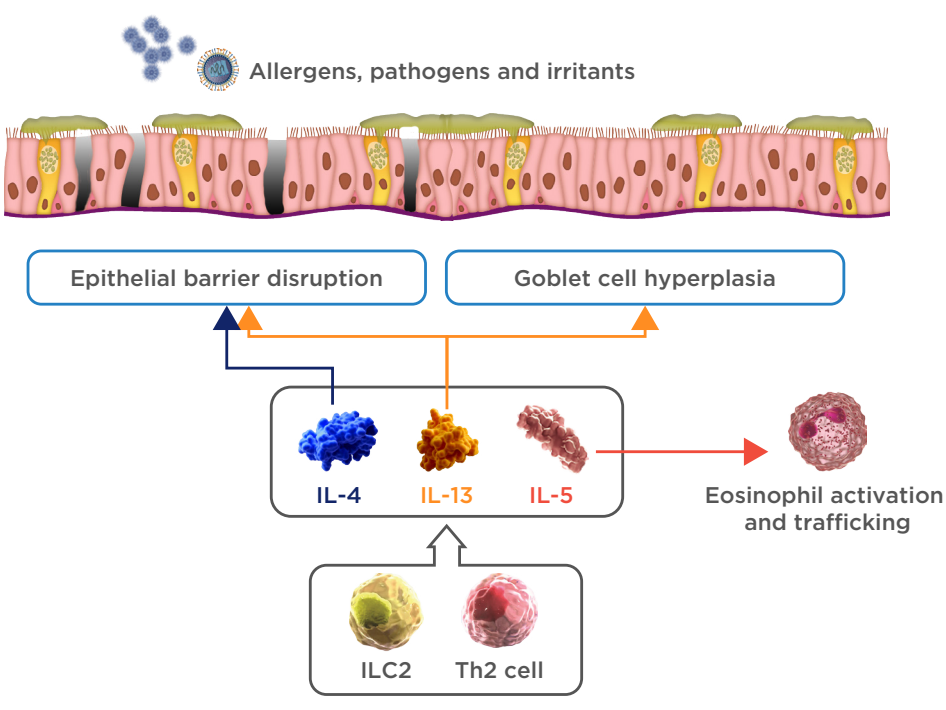
CRSwNP is marked by elevated levels of type 2 inflammatory cytokines (IL-4, IL-5, and IL-13)[4,7]

IL-4	IL-13	IL-5
Differentiation of Th2 and ILC2 cells		
Activation of M2 macrophages; B-cell switching and IgE production		Eosinophil activation in bone marrow
Mast cell activation and trafficking to tissue; mast cell and basophil degranulation		
Epithelial barrier dysfunction and microbiome imbalance		
Tissue remodeling (e.g., subepithelial fibrosis)		
	Goblet cell hyperplasia and mucus production	
Eosinophil recruitment and trafficking to tissue		

Type 2 inflammation leads to nasal congestion, rhinorrhea, loss of smell and facial pain/pressure

In CRSwNP, chronic type 2 inflammation causes abnormal changes in the nasal mucosa[1]

Epithelial remodeling in CRSwNP[1,4,5,7]



In CRSwNP, IL-4 and IL-13 increases perisotin expression, causing fibrosis, edema, and barrier dysfunction[4]

Eosinophil infiltration releases inflammatory mediators, causing epithelial damage[1]

Type 2 cytokines increase matrix protein, worsening congestion and potentially contributing to formation of nasal polyps[2]

Nasal polyp recurrence remains a significant challenge in the management of CRSwNP[1,3,6,7,11,12,14]

Factors associated with the recurrence of nasal polyps

Persistent type 2 inflammation[2,3,7]

- Potentially drives nasal polyp growth despite initial treatment

Comorbid conditions[3,7]

- Asthma
- Allergic rhinitis
- Aspirin-exacerbated respiratory disease

Genetic factors[5]

- Increase susceptibility
- First-degree relatives of CRSwNP patients are at 4-fold increased risk

In CRSwNP, nasal symptoms can have a profound effect on patient's quality of life (QoL)[3,9]

Reduced sleep quality | Social impact | Fatigue/ tiredness | Depression/ anxiety | Frustration/ irritability | Impact on daily activities/work

The chronic nature of CRSwNP requires long-term management strategies to control symptoms and prevent exacerbations[2]

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ABBREVIATIONS:
CRSwNP, chronic rhinosinusitis with nasal polyps; IgE, immunoglobulin E; IL, interleukin; ILC2, type 2 innate lymphoid cells; QoL, quality of life; Th2, T-helper 2 cells.

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