INTERNATIONAL CONFERENCE **Dehli, India, 2026**
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CHRONIC RHINOSINUSITIS WITH NASAL POLYPS IN CHILDREN: CLINICAL FEATURES, DIAGNOSIS, AND MANAGEMENT

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Abstract: Chronic rhinosinusitis with nasal polyps (CRSwNP) is relatively uncommon in the pediatric population compared with adults, yet it represents an important clinical entity due to its association with systemic diseases and its significant impact on quality of life. Pediatric nasal polyposis is often linked to underlying conditions such as cystic fibrosis, primary ciliary dyskinesia, immunodeficiency, and allergic fungal rhinosinusitis. Children with CRSwNP commonly present with persistent nasal obstruction, chronic rhinorrhea, mouth breathing, snoring, and impaired olfaction. Early diagnosis is essential to identify associated systemic disorders and to prevent long-term complications. Management of pediatric CRSwNP relies primarily on pharmacological therapy, with surgery reserved for refractory cases. This article reviews the epidemiology, etiology, pathophysiology, clinical presentation, diagnostic approach, and current treatment strategies for chronic rhinosinusitis with nasal polyps in children.

Keywords: Pediatric rhinosinusitis; Nasal polyps; Children; Chronic inflammation; Medical management

Introduction

Chronic rhinosinusitis (CRS) is defined as persistent inflammation of the nasal cavity and paranasal sinuses lasting longer than 12 weeks. When associated with nasal polyps, the condition is classified as chronic rhinosinusitis with nasal polyps (CRSwNP). While CRSwNP is common in adults, it is relatively rare in children, and its presence often signals an underlying systemic or genetic disorder.

Nasal polyps in children are benign, edematous protrusions of inflamed mucosa that most commonly originate from the ethmoid sinuses. Unlike adults, in whom CRSwNP is often idiopathic and associated with type 2 inflammation, pediatric nasal polyposis frequently has identifiable predisposing factors. Recognizing these factors is critical for appropriate evaluation and management.

CRSwNP in children can significantly affect physical health, sleep, school performance, and overall quality of life. Chronic nasal obstruction and mouth breathing may contribute to facial growth abnormalities, while persistent infection and inflammation can lead to lower airway involvement. This article aims to provide a comprehensive overview of pediatric CRSwNP, emphasizing its unique clinical characteristics and management principles.

Discussion

Epidemiology

The prevalence of nasal polyps in children is low, estimated at less than 0.1% in the general pediatric population. The incidence increases in children with chronic systemic diseases. Nasal polyps are rare in children under 10 years of age, and their presence in very young children should prompt investigation for conditions such as cystic fibrosis.

Etiology and Risk Factors

In pediatric patients, CRSwNP is commonly associated with underlying disorders, including:

- **Cystic fibrosis (CF):** One of the most common causes of nasal polyposis in children, resulting from defective mucociliary clearance and thick mucus secretions.
- **Primary ciliary dyskinesia (PCD):** Impaired ciliary function leads to chronic sinonasal and respiratory infections.
- **Allergic fungal rhinosinusitis (AFRS):** A hypersensitivity reaction to fungal antigens causing extensive nasal polyposis.
- **Immunodeficiency disorders:** Both primary and secondary immunodeficiencies increase susceptibility to chronic sinonasal inflammation.
- **Allergic rhinitis and asthma:** These conditions may coexist with CRSwNP and contribute to chronic inflammation.

Pathophysiology

The pathophysiology of pediatric CRSwNP involves chronic mucosal inflammation, epithelial barrier dysfunction, and impaired mucociliary clearance. In contrast to adults, where eosinophilic inflammation predominates, children may exhibit a mixed inflammatory pattern depending on the underlying cause.

Persistent inflammation leads to mucosal edema, glandular hyperplasia, and tissue remodeling, resulting in polyp formation. In conditions such as CF and PCD, defective mucus transport plays a central role, while in AFRS, IgE-mediated immune responses and eosinophilic inflammation are predominant.

Clinical Presentation

Children with CRSwNP typically present with nonspecific but persistent symptoms, including:

- Chronic nasal obstruction
- Continuous nasal discharge, often mucopurulent
- Mouth breathing and snoring
- Hyponasal speech
- Reduced or absent sense of smell
- Facial pressure or headache (less common in younger children)

On physical examination, pale, edematous, grape-like masses may be visualized in the nasal cavity on anterior rhinoscopy or nasal endoscopy. Enlarged adenoids and signs of chronic rhinitis are frequently present.

Diagnostic Evaluation

The diagnosis of pediatric CRSwNP is based on clinical history, endoscopic findings, and imaging studies. Nasal endoscopy is the preferred method for visualizing polyps and assessing the extent of disease.

Computed tomography (CT) of the paranasal sinuses is indicated in selected cases to evaluate disease severity, sinus development, and anatomical variations, particularly when surgery is being considered. Routine use of CT should be minimized to reduce radiation exposure.

Importantly, identification of underlying systemic conditions is a key component of evaluation. Sweat chloride testing or genetic analysis for cystic fibrosis, assessment for primary ciliary dyskinesia, allergy testing, and immunological workup may be required depending on clinical suspicion.

Medical Management

Pharmacological therapy is the mainstay of treatment for pediatric CRSwNP. The goals are to control inflammation, reduce polyp size, improve symptoms, and prevent recurrence.

Intranasal corticosteroids are the first-line treatment and are effective in reducing mucosal inflammation and polyp size. They are generally safe for long-term use in children when administered at recommended doses.

Systemic corticosteroids may be used for short periods in severe cases but should be prescribed cautiously due to potential adverse effects on growth and metabolism.

Antibiotics are indicated for acute bacterial exacerbations but are not recommended for routine long-term use.

Saline nasal irrigation is a valuable adjunctive therapy that improves mucociliary clearance and enhances the efficacy of topical medications.

Treatment of underlying conditions, such as aggressive airway clearance in CF or immunotherapy for allergic disease, is essential for successful management.

Surgical Management

Surgery is reserved for children with severe or refractory disease who fail to respond to optimal medical therapy. Functional endoscopic sinus surgery (FESS) aims to restore sinus ventilation and drainage while preserving normal anatomy.

In pediatric patients, surgical intervention should be conservative, and postoperative medical therapy remains crucial to prevent recurrence.

Conclusion

Chronic rhinosinusitis with nasal polyps in children is an uncommon but clinically significant condition that often indicates an underlying systemic disorder. Early recognition, thorough diagnostic evaluation, and identification of associated diseases are essential for effective management.

Medical therapy, particularly intranasal corticosteroids and saline irrigation, remains the cornerstone of treatment. Surgical intervention should be considered only in carefully selected cases. A multidisciplinary approach involving otolaryngologists, pediatricians, pulmonologists, and allergists is critical to optimizing outcomes and improving quality of life for affected children.

REFERENCES

1. Fokkens WJ, Lund VJ, Hopkins C, et al. European Position Paper on Rhinosinusitis and Nasal Polyps 2020. Rhinology. 2020;58(Suppl S29):1–464.
2. Brietzke SE, Shin JJ, Choi S, et al. Clinical consensus statement: Pediatric chronic rhinosinusitis. Otolaryngol Head Neck Surg. 2014;151(4):542–553.
3. Ramadan HH. Nasal polyposis in children. Laryngoscope. 2004;114(8):1370–1374.
4. Klossek JM, Serrano E, Péloquin L, et al. Functional endoscopic sinus surgery in children. J Laryngol Otol. 1997;111(12):1141–1146.
5. Lee JT, Kennedy DW, Palmer JN. Management of chronic rhinosinusitis in children. Otolaryngol Clin North Am. 2005;38(6):1291–1313.