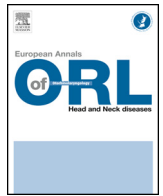




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Review

Chronic respiratory rhinitis

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ABSTRACT

The clinical distinction of chronic respiratory rhinitis appears to confirm the evo-devo theory of the three noses. The authors report two cases of advanced allergic rhinitis, in which chronic inflammation had induced a violaceous colour of the mucosa of the respiratory nose and a whitish polypoid appearance of the free edge of the middle turbinate. Nose and paranasal sinus CT scan revealed, beyond the virtual nasal cavities observed on nasal endoscopy and CT imaging, normal radiolucency or only minor opacities of the ethmoid (i.e. olfactory nose) and paranasal sinuses that could not explain the severity of the chronic nasal dysfunction. The hypothesis of non-allergic chronic respiratory rhinitis is developed according to these two observations. The differential diagnosis between chronic respiratory rhinitis and dysfunction of the cavernous plexuses of the respiratory nose is discussed. A precise diagnosis appears to be a prerequisite for appropriate and effective management. Surgery of the respiratory nose can associate septoplasty to inferior turbinoplasty, but must be preceded and combined with medical treatment adapted to the underlying inflammatory process.

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1. Introduction

The respiratory nose is formed during evolution and development underneath the olfactory nose by repositioning and rearrangement of the bones of the secondary palate, which delineate two anatomically and physiologically distinct passages allowing air to be transported from the nares to the glottis without transiting via the oral cavity [1].

The objective of this paper is to report two clinical cases of chronic rhinitis anatomically and pathophysiologically limited to the respiratory nose, not affecting either the olfactory nose or the paranasal sinuses. These two case reports illustrate the possibilities offered by the evo-devo theory to revise the classification of nasal and paranasal sinus diseases.

2. Case 1

A 52-year-old woman consulted for chronic nasal dysfunction present for about thirty years. She spontaneously reported positive skin tests for house dust mites and pollens and desensitization therapy that was not completed due to her first pregnancy, and which was never subsequently resumed.

Clinical interview did not reveal any history of asthma. Nasal obstruction was permanent, accompanied by closed rhinolalia experienced while on the telephone, regular nocturnal awakenings, and discomfort while eating. Nose blowing was particularly productive in the morning, then more irregular during the day, with no post-nasal drip. She described a poor sense of smell since the age of twenty, transiently improved by systemic corticosteroids, which she had used only exceptionally since the onset of glaucoma and hypertension. Clinical interview reflected her responses to the Dynachron® quality of life questionnaire filled in before the visit.

The results of nasal endoscopy, performed without local anaesthesia or vasoconstrictor, are illustrated in Fig. 1a–d. The nasal cavities were difficult to explore due to the presence of intense mucosal oedema, resulting in only virtual spaces, with difficult passage of the endoscope between the inferior turbinate and septum as far as the healthy nasopharynx. Middle meatus endoscopy demonstrated the participation of the free edge of the middle turbinates in the oedema, with a polypoid appearance in certain parts of the turbinates with clear secretions.

The patient's nasal and paranasal sinus CT scan (Fig. 2) eliminated any ethmoidal (olfactory nose) and paranasal sinus cause for her symptoms. Slight opacity lining the floor of the two maxillary sinuses was not sufficient to explain the patient's chronic nasal dysfunction. CT scan confirmed marked and diffuse hypertrophy of the mucosa of the respiratory nose, extending to the floor of the olfactory nose on either side of the free edge of the middle turbinates.

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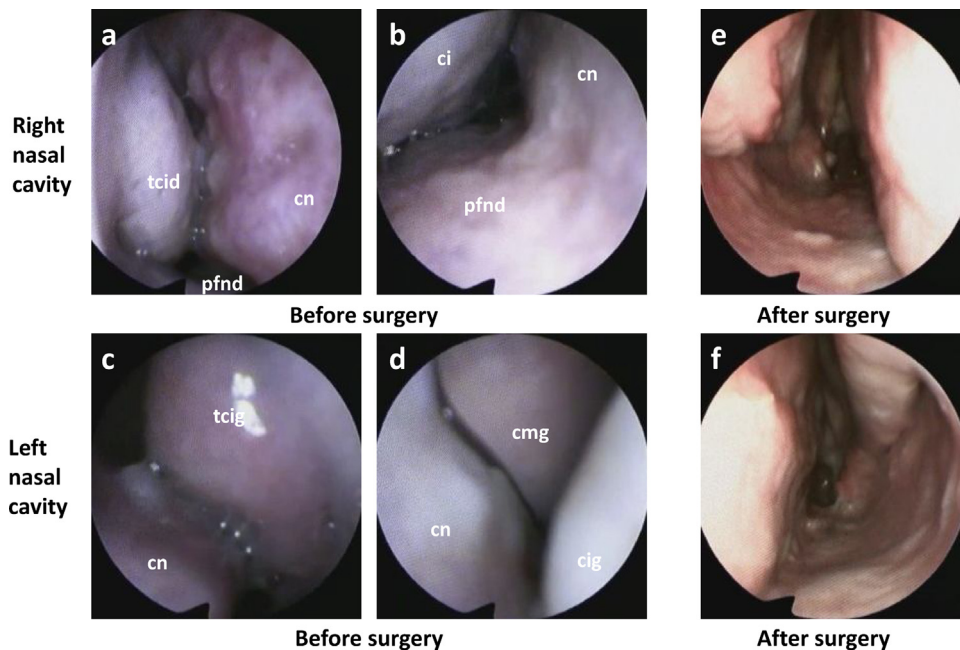


Fig. 1. Illustrations of nasal endoscopy in case 1. a: The mucosa of the head of the right inferior turbinate (tcid) and nasal septum (cn) is oedematous, giving it a violaceous colour and narrowing the lumen of the respiratory nose (pfnd = floor of the right nasal cavity). b: Oedema of the floor of the right nasal cavity (pfnd), inferior turbinate (ci) and nasal septum (cn) is observed throughout the endoscopic examination, from the right respiratory nose to the choana. c: The same appearance is observed in the left nasal cavity (tcig = head of the left inferior turbinate; cn = nasal septum). d: The mucosa of the free edge of the left middle turbinate (cmg) appears to be slightly pink and less oedematous than that of the left inferior turbinate (cig) and nasal septum (cn), which has a whitish appearance.

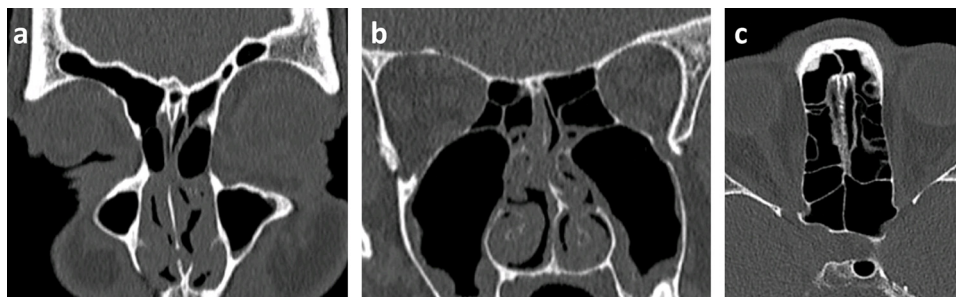


Fig. 2. CT features of chronic respiratory rhinitis in case 1. a: Anterior coronal section through the frontal and maxillary sinuses showing them to be intact and the integrity of the olfactory nose (anterior ethmoid) in contrast with opacification of the respiratory nose due to diffuse mucosal hypertrophy. b: Posterior coronal section showing marked hypertrophy of the mucosa of the inferior turbinates, which appears to extend to the mucosa of the free edge of the turbinates and the middle meati; the posterior ethmoid (olfactory nose) has a healthy appearance; slight opacity lining the floor of the maxillary sinus. c: Axial section showing the integrity of the ethmoid (olfactory nose) and sphenoid sinuses.

3. Case 2

A 32-year-old man presented a history of asthma since early childhood due to house dust mite, cat and dog allergy. Despite treatment with inhaled corticosteroids, asthma remained poorly controlled, requiring frequent doses of Ventolin® (salbutamol). He was referred by his pulmonologist for an ENT assessment.

The patient had become used to his respiratory state, especially his chronic nasal dysfunction that he was nevertheless able to describe in detail. His responses to the Dynachron questionnaire were identical to those of the previous patient.

Nasal endoscopy and CT findings are shown in Fig. 3. The nasal cavities were poorly accessible to the endoscope, as they were almost virtual due to the intense mucosal oedema and clear nasal secretions. CT scan showed normal radiolucency of the maxillary, frontal and sphenoidal sinuses. Several focal opacities were disseminated throughout the ethmoidal air spaces, but appeared to be insignificant in view of the intense oedema of the nasal mucosa.

4. Discussion

These two cases illustrate that the natural history of chronic allergic rhinitis, in the absence of adequate treatment, results in intense oedema of the mucosa of the respiratory nose (situated underneath the ethmoid or olfactory nose), taking on the classically described violaceous appearance [2]. Allergic inflammation can also spread to the floor of the olfactory nose, essentially involving the free edge of the middle turbinate, resulting in a polypoidal appearance, suggesting a diagnosis of nasal polyposis on endoscopy [3].

However, nasal and paranasal sinus CT scan in chronic allergic rhinitis shows normal radiolucency of the ethmoid (or olfactory nose) and paranasal sinuses (maxillary, frontal, sphenoidal) (or several insignificant focal opacities that are unable to explain the patient's chronic nasal dysfunction [4]).

The clinical and radiological description of chronic respiratory rhinitis is consistent with the evo-devo theory of the three noses, which proposes a specific pathogenesis for each of the

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