CASE REPORT

Hashimoto's Thyroiditis: A Rare Cause for Rhinosinusitis

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Summary

Rhinosinusitis is a common disorder with various etiological factors. In our clinical practice allergy seems to be a predominant cause followed by other less common causes like infection, drugs and aspirin hypersensitivity. We present a case of chronic rhinosinusitis secondary to hypothyroidism. Although hormonal causes like hypothyroidism have been proven to cause nasal congestion and rhinosinusitis, this is the first reported case of chronic rhinosinusitis in Hashimoto's thyroiditis in our center. This is a diagnosis of exclusion for chronic rhinosinusitis not responding to optimal medical therapy.

Key Words: Hashimoto's thyroiditis, Rhinosinusitis, Hypothyroidism

Case report

A middle – aged gentleman was diagnosed with adult onset bronchial asthma and was treated with inhaled steroids and beta – 2 – agonists. Two years later he developed nasal symptoms i.e. nasal congestion, rhinorrhoea and sneezing.

He was referred to an otorhinolaryngologist and was diagnosed to have allergic rhinitis. Diagnostic endoscopy revealed boggy and hyperplastic turbinates with no evidence of polyposis or mucopurulent discharge. He was prescribed intranasal steroids and antihistamines and after 3 months of medical treatment did not show any improvement. A CT scan performed showed features of pansinusitis with mucosal edema obstructing the osteo - meatal complex bilateral.

He underwent endoscopic sinus surgery for bilatera mucosal disease following which he was well for about a year. His symptoms then recurred and on subsequent endoscopy revealed edematous mucosa obstructing the osteo – meatal complex. CT scan revealed sinusitis with mucosal disease obstructing the right osteo – meatal – complex. After optimal medical therapy for 2 to 4 weeks with antibiotics, oral and intranasal steroids, there was no significant improvement and patient opted for revision endoscopic sinus surgery. After surgery his symptoms persisted and was referred to our center.

Our initial endoscopic findings showed the right nasal cavity to have edematous mucosa obstructing the maxillary ostia and frontal recess. The sphenoid ostia was patent. The left nasal cavity showed similar findings but with an adequate middle meatal antrostomy. Both nasal cavities were filled with thick mucoid discharge and cytology confirmed it as allergic mucin.

Skin Prick Test was positive with moderate reactivity to mixed mites, cat fur and aspergillus correlating with the specific IgE test. CT scan showed bilateral mucosal disease involving both maxillary sinuses and

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obstructing the osteo – meatal – complex bilaterally. (Fig 1) He was given a trial of medical therapy and option for a third revision surgery if he did not respond to treatment.

During this time, the patient had done a screening blood test on his own including blood counts, renal, liver, cholesterol and thyroid panels. He was incidentally found to have normal free thyroxine levels with an elevated thyroid stimulating hormone level. He was referred to an endocrinologist and was investigated further. Interestingly, he had low serum cortisol levels and tests for thyroid microsomal antibodies and thyroglobulin antibodies were positive. He was diagnosed with Hashimoto 's thyroiditis and was put on hydrocortisone and thyroxine. On his subsequent follow - up 2 months later, diagnostic endoscopy showed normal mucosa in both nasal cavities with patent ostia bilaterally and absence of thick mucoid discharge.

Symptomatically he was feeling better and was on maintenance therapy with intranasal steroids. A repeat scan done recently showed marked disease resolution with minimal residual disease in the maxillary sinus. (Fig. 2) At present he is only on thyroxine tablets and intranasal steroids and is doing well on follow - up.

Discussion

Chronic rhinosinusitis is a common problem encountered in otolaryngology clinics worldwide and most people including physicians tend to lump these group of patients into the allergy category. Recent data seems to suggest otherwise as epidemiological studies indicate only 15% to 20% of individuals are truly atopic. Among patients with rhinitis 50% are not allergic and this is supported by negative skin prick tests in 28% to 60% of individuals with rhinosinusitis. Non - allergic rhinitis is widely recognized today as a condition encompassing a rather broad variety of disorders giving rise to rhinitis.

In this case, the initial diagnosis of allergic rhinitis was made based on the presenting symptoms without confirmatory allergy testing. Both allergic and non - allergic rhinitis have similar symptoms and signs. To provide an accurate diagnosis in a patient with

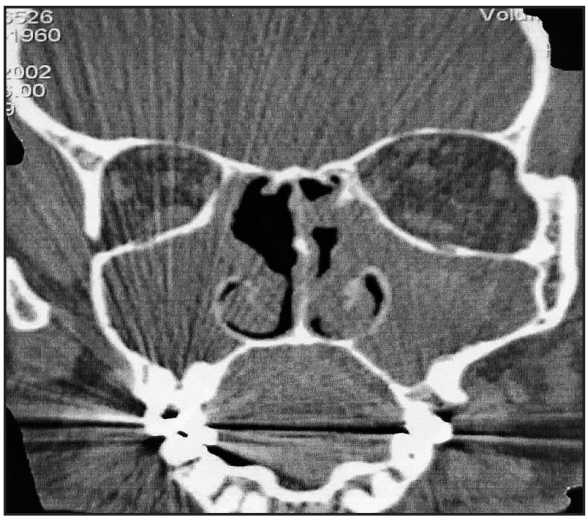

Fig 1: Coronal section of paranasal sinuses done a month after the second surgery revealing almost complete obstruction of both osteo - meatal units with mucosal thickening within both maxillary sinuses and part of the ethmoid sinus cavity. Both inferior turbinates are enlarged bilaterally.

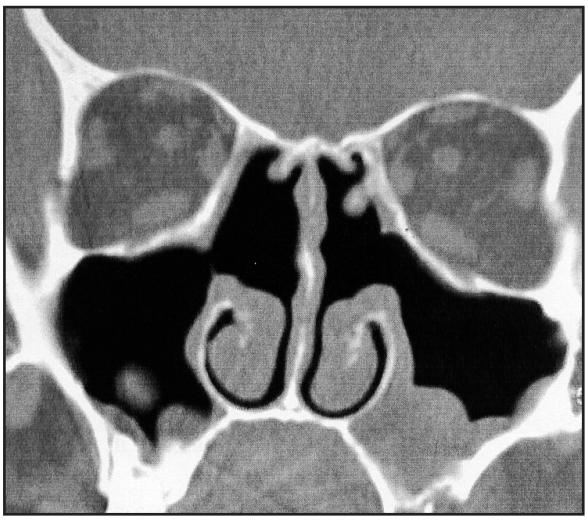

Fig 2: CT scan done after 3 months of treatment with thyroxine showing almost complete resolution of the mucosal disease except for minimal residual disease on the floor of the left maxillary sinus.

rhinosinusitis, the clues begin in the history taking where one must be aware not only of nasal disorders but also systemic conditions with nasal manifestations. Examination of the nasal passages and the nasopharynx including the nature of the discharge may give an idea about the etiology. However, more often then not, boggy and edematous mucosa of the turbinates and lateral nasal wall may be the only non – specific finding.

With both medical and surgical treatment failing after one year, it should have raised suspicion about the etiology more so after the failed second surgery. Though allergy testing was done at a later date with a positive result, the poor response to therapy should lead one to consider the possibility of less likely causes of rhinosinusitis like allergic fungal sinusitis or non – allergic rhinitis with eosinophilia syndrome among others. The incidental finding of hypothyroidism in this patient was not considered initially as a cause for rhinosinusitis as only 3% of patients with non – allergic rhinitis is due to hypothyroidism[1]. Chavanne in 1936 reported the relationship between hypothyroidism and rhinitis where after surgical thyroidectomy, he found engorgement of the turbinates with pale mucosa which could be reversed with thyroxine injections[2]. This was confirmed by Proetz, Tolczynski and Withers in their studies which showed increase nasal secretions in hypothyroid patients[3, 4]. However, the frequency of which nasal symptoms occurring in hypothyroid patients remain uncertain.

It is postulated that the generally hypoactive sympathetic status in hypothyroidism leads to predominance of parasympathetic activity in the nose, with resultant vasodilation and congestion. Limited animal studies have attempted to reproduce these changes, however have only produced further uncertainties. The largest study reviewing the effects of hypothyroidism on the upper airway was by Gupta et al in 1977 where 64% of sixty – six patients were found to have nasal congestion[5]. He found 41% of these patients on examining the nose had pale, edematous nasal mucosa. Nasal biopsies from patients with hypothyroidism showed an increase in ground substance with an acid mucopolysaccharide and proliferation of mucus glands.

Gupta et al and Weisskopf though finding these histopathlogical changes concluded that nasal biopsies were nonspecific, mainly showing chronic inflammatory changes[5].

We can conclude that in patients with rhinosinusitis not responding to conventional therapy, an underlying cause must be looked for. In our case though we had evidence to suggest that we were dealing with allergic rhinitis, poor response to treatment should have been an indicator to investigate further. To infer that hypothyroidism was the sole cause of rhinosinusitis would be conjectural and difficult to prove. However, his good response to thyroxine seems to concur with the findings of Chavanne that the only treatment necessary for rhinitis associated with hypothyroidism is the correction of thyroid deficiency[2].

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