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Turbinate hypertrophy following COVID-19 infection masks choanal atresia in adult

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\textbf{ABSTRACT}

A 34-year-old female 4 weeks post COVID-19 infection was diagnosed with inferior turbinate hypertrophy and a deviated nasal septum. The patient underwent inferior turbinate bone resection and nasal septoplasty with minimal improvement in nasal obstruction. Upon reevaluation, unilateral choanal atresia was discovered. Subsequent repair of the choanal atresia resolved all complaints of nasal obstruction. This unique presentation of a missed diagnosis of choanal atresia contributes to the idea that a variety of conditions may precede and at times delay the discovery of choanal atresia in adults.

1. Introduction

Choanal atresia (CA) is a congenital malformation of the sinonasal cavity that blocks the nasal passages. Typically, these malformations are diagnosed and treated shortly after birth due to their impedance of the baby’s breathing. CA remaining undiagnosed into adulthood is uncommon but well-documented. Adults with CA typically have chronic nasal drainage from the affected nostrils and are restricted to mouth breathing to varying degrees [1].

1.1. Case presentation

A 34-year-old female who is 4 weeks post COVID-19 infection presents with nasal congestion, anosmia, ageusia, and headaches. Upon physical examination, she is found to have a purple, lobulated inferior turbinate obstructing her left nasal passage and deviating her nasal septum to the right. While the inferior turbinate hypertrophy (ITH) has only developed in the past several weeks, it is revealed that the patient has been incapable of breathing through her left nostril for her entire life. The patient is prescribed amoxicillin, prednisone, and a fluticasone nasal spray. A CT scan is also ordered (Fig. 1).

Two weeks later, the patient returns for a follow up. She is experiencing minimal relief with the medications and is scheduled for an inferior turbinate bone resection and nasal septoplasty. At this time, the choanal atresia had not yet been appreciated, and surgery is performed without repairing the nasal choana. Pathology reports of the biopsied turbinate showed signs of subepithelial chronic inflammation without signs of dysplasia or malignancy. Following surgery, the patient remains unable to breathe through her left nostril. Upon nasal endoscopy, left-sided CA is discovered, and the patient is scheduled for a second procedure. The choana is made patent, and a portion of the posterior nasal septum is resected. The patient recovers well and is now able to breathe through her left nostril.

2. Discussion

Typically, unilateral CA is diagnosed at birth and is rarely seen in adulthood. In this instance, unilateral CA was identified after the resection of an inflamed left inferior turbinate and a nasal septoplasty were insufficient to restore normal nasal function, prompting further exploration of the nasal passages.

Because the patient was diagnosed with CA secondary to her diagnosis of ITH and deviated nasal septum (DNS), her CA would have likely continued to remain undiagnosed and untreated if the patient had not developed ITH and DNS. This begs the question, if a patient with CA remains undiagnosed at childbirth, what leads to their diagnosis later in life? A review of the literature revealed that the majority of patients with undiagnosed CA present with complaints of nasal obstruction and rhinorhea. Their cases are relatively uncomplicated, with lifelong symptoms that have eventually provoked them to seek medical help. While

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this is the most common presentation, a wide range of other clinical presentations may precede the diagnosis of CA. Obstructive sleep apnea, septal deviation, sinusitis, and nasal polyposis have all been documented as pathologies leading to a diagnosis of choanal atresia [2–5]. This report adds to the list, ITH. At times, these pathologies will distract from the underlying choanal atresia, causing it to remain undiagnosed until treatment plans are ineffective and physicians reevaluate their diagnoses.

The presence of ITH was most likely secondary to the CA and potentially precipitated by the COVID-19 infection. This is supported by the lack of inflammation on the right side and the ability of COVID-19 and CA to inflame the nasal passages. Also, the patient-reported anosmia points to COVID-19 infection of the nasal passages. The combined inflammatory effects of choanal atresia and COVID-19 likely constitutes a unique etiology for ITH.

3. Conclusion

This report documents a presentation of unilateral CA in a 34-year-old female masked by ITH and DNS. The diagnosis of CA was made after an inferior turbinate bone resection and nasal septoplasty were unable to resolve unilateral nasal obstruction. This represents one of many patient presentations that can lead to the discovery of CA. For this reason, practitioners should be wary of undiagnosed CA underlying a patient’s initial presentation and be cognizant of the myriad of clinical presentations possible with undiagnosed CA.

Ethical statement

Written consent for publication of patient presentation, treatment, and imaging was obtained from the patient. Documentation of written consent is available for review if needed. The collection and evaluation of all protected patient health information was performed in a Health Insurance Portability and Accountability Act (HIPAA)–compliant manner, and all identifying information was removed from the report.

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Consent

Written consent was obtained from the patient.

Declaration of competing interest

None.

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Fig. 1. CT image showing the inflamed left inferior turbinate, septal deviation, and choanal atresia of the left nasal passage.