JOURNAL LA MEDIHEALTICO

VOL. 07, ISSUE 02 (368-376), 2026
DOI: 10.37899/journallamedihealtico.v7i2.3194

Chronic Adenotonsillitis as a Cause of Airway Obstruction: A Case Report

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Article Info

Article history:
Received 15 March 2026
Received in revised form 8 April 2026
Accepted 25 April 2026

Keywords:
Chronic Adenotonsillitis
Airway Obstruction

Abstract

Chronic adenotonsillitis is a chronic inflammation of the palatine tonsils and adenoid tissue that lasts for more than three months or recurs several times a year. Chronic adenotonsillitis accompanied by enlargement of the adenoid tissue can cause airway obstruction. A 14-year-old boy came to the ENT clinic with a main complaint of pain when swallowing for the past ±3 months, which was intermittent, especially when swallowing hard or hot food. The complaint was accompanied by itching and discomfort in the throat and bad breath. The patient also experienced mild fever recurring every 2–3 days. In addition, the patient complained of chronic nasal congestion, especially at night, accompanied by thick mucus, mouth breathing, and loud snoring during sleep. Physical examination by pharyngoscopy revealed T2-T2 tonsils with widened crypts and an uneven surface, as well as visible adenoids. The patient was diagnosed with Chronic Adenotonsillitis and scheduled for surgical intervention. This case shows that chronic adenotonsillitis can cause airway obstruction. Based on theory, chronic adenotonsillitis is often accompanied by enlarged adenoid tissue that causes obstruction of the upper airway, leading to symptoms such as chronic nasal congestion, mouth breathing, and snoring during sleep. In this case, the patient presented with the same complaints, namely chronic nasal congestion and loud snoring during sleep. The habit of breathing through the mouth and restless sleep also indicated nasopharyngeal obstruction due to adenoid hypertrophy. Recurrent infections can cause chronic adenotonsillitis and lead to adenoid hypertrophy and tonsil hypertrophy, resulting in symptoms such as snoring and mouth breathing, as well as complications like posterior nares obstruction, perituba lymphadenitis, and otitis media.

Introduction

Chronic adenotonsillitis is one of the health problems commonly encountered in clinical practice in Ear, Nose, Throat, Head, and Neck Surgery (ENT-HNS). The palatine tonsils and adenoids are part of the body's defense system that functions as the first line of defense against microorganisms that enter through the respiratory and digestive tracts (Arambula et al., 2021; Samara et al., 2023; Ankathil et al., 2025). In children and adolescents, this lymphoid tissue is relatively more active, making it more susceptible to inflammation due to repeated exposure to bacterial and viral infections. If the infection process occurs continuously or is not optimally treated, this condition can develop into chronic inflammation that causes structural changes in the tonsils and adenoids (Yuliyani et al., 2025; Gaini et al., 2026; Marinov et al., 2026).

ISSN 2721-1215 (Print), ISSN 2721-1231 (Online)

Epidemiologically, the incidence of chronic adenotonsillitis is quite high in the school-age population. This is related to increased exposure to pathogens in the school environment, suboptimal hygiene habits, and a developing immune system. Environmental factors such as housing density, air pollution, passive smoking, and unhealthy eating habits also contribute to an increased risk of recurrent upper respiratory tract infections. These conditions can ultimately trigger hypertrophy of the tonsil and adenoid tissue, which can potentially cause upper respiratory tract dysfunction (Putra & Imanto, 2025; Sokolovs-Karijs et al., 2026; Kim et al., 2025).

Chronic enlargement of the tonsils and adenoids not only causes local complaints in the throat, but can also cause more widespread physiological disorders. Upper airway obstruction due to tissue hypertrophy can interfere with normal breathing patterns, especially during sleep. Children with this condition often experience snoring, mouth breathing, and sleep disorders such as sleep-disordered breathing. Chronic sleep disorders can lead to daytime fatigue, decreased concentration in learning, and physical and cognitive developmental disorders.

In addition to causing respiratory disorders, chronic adenotonsillitis can also cause various other complications if not treated properly. Chronic infection of the tonsils can become a focus of infection that has the potential to spread to surrounding structures, including the middle ear through the Eustachian tube. This can increase the risk of recurrent otitis media and conductive hearing loss. In the long term, undetected and inadequately treated hearing loss can affect language development, communication, and academic achievement in children (Dewi KN et al., 2020; Jain et al., 2026; Hana et al., 2026).

Chronic adenotonsillitis is also closely related to the persistent colonization of bacteria in the tonsil tissue (Abdul-Hussein et al., 2026; Murdiyo & Ghutama, 2026). Various studies have shown that chronically inflamed tonsils often become a breeding ground for bacterial biofilms, which are collections of microorganisms that attach to tissue surfaces and are protected by a polysaccharide matrix. The presence of this biofilm causes bacteria to be more resistant to the body's immune response and antibiotic therapy, so that infections tend to recur and are difficult to completely resolve. This condition explains why in some patients symptoms can persist for a long time even after conservative treatment.

In addition to infection, anatomical conditions and the development of lymphoid tissue during childhood and adolescence also contribute to chronic adenotonsillitis. During the growth phase, the tonsils and adenoids tend to undergo physiological hypertrophy as part of the immune system's activity. However, if this hypertrophy is exacerbated by repeated inflammation, the enlargement of the tissue can become pathological and cause narrowing of the upper airway lumen. This condition not only triggers respiratory complaints but can also affect swallowing function, voice resonance, and normal breathing patterns (Maharani et al., 2024; Nurrifki et al., 2023).

From a public health perspective, chronic adenotonsillitis is also a problem with significant implications for children's quality of life. Recurrent sore throat, difficulty swallowing, and sleep disturbances can lead to decreased appetite, fatigue, and increased school absenteeism. Children who experience chronic sleep disturbances due to airway obstruction are also at risk of behavioral changes such as fatigue, irritability, and decreased concentration. This shows that the impact of the disease is not only limited to medical aspects but also affects children's psychosocial development and daily activities.

In clinical practice, the management of chronic adenotonsillitis requires a comprehensive and individualized approach. Treatment may include conservative measures such as antibiotics, symptomatic therapy, and lifestyle improvements, including maintaining oral hygiene and a balanced diet. However, in certain conditions, especially when there is significant airway obstruction or recurrent infections that are unresponsive to medical therapy, surgical

procedures such as adenotonsillectomy may be an effective treatment option to address the source of infection and improve airway function (Mareintika et al., 2025; Nurrifki et al., 2023).

Considering the complexity of the causative factors and clinical impacts, a thorough understanding of the characteristics of chronic adenotonsillitis is crucial for healthcare professionals (Altaee et al., 2026; Srinivasan & Raja, 2024; Stanova et al., 2024). Documentation in the form of case reports can provide a realistic picture of the variety of clinical manifestations, predisposing factors, and management processes carried out in patients. Through systematic case presentation, it is hoped that clinical insight can be enhanced and serve as learning material in efforts to improve the quality of diagnosis and management of chronic adenotonsillitis in children.

Based on these various impacts, chronic adenotonsillitis with airway obstruction is a condition that requires serious clinical attention. Identification of risk factors, accurate diagnosis, and comprehensive management are very important to prevent further complications. Therefore, this case report is important to provide a clinical picture of chronic adenotonsillitis in children with certain predisposing factors, while emphasizing the importance of prevention, early detection, and appropriate management to improve the quality of life of patients. (Ayu & Khristiawati, 2025; Djuardi & Mayasari, 2023)

Methods

This study used a case report design with a clinical descriptive approach to describe the condition of chronic adenotonsillitis with airway obstruction in a pediatric patient. This approach was chosen because it allows researchers to systematically describe the patient's clinical characteristics, the diagnostic process, accompanying risk factors, and the management provided. The case report was conducted by comprehensively reviewing the patient's disease progression from the initial visit to the diagnosis and treatment, thereby providing a clear clinical picture of chronic adenotonsillitis complicated by airway obstruction (Kusumastuti & Khoiron, 2021).

The data collection procedure was carried out through a study of patient medical records, anamnesis interviews with patients and parents, and the results of physical and supporting examinations conducted by medical personnel. The data collected included patient identity, current medical history, past medical history, habits that could potentially be risk factors, and clinical complaints experienced. In addition, ENT examination results were also traced, such as oropharyngeal inspection, tonsil size assessment, adenoid condition, and other clinical findings related to airway obstruction. To increase data validity, information obtained from anamnesis was confirmed with data recorded in medical records and doctor's examination results.

The validity of the research data was maintained through a process of triangulation of sources and medical documentation. The patients' clinical data were compared with laboratory examination records, the results of ENT-KL specialist evaluations, and supporting documentation available in medical records. In addition, the researchers also conducted a review of scientific literature from medical journals and textbooks related to chronic adenotonsillitis to support the interpretation of clinical findings in the reported cases. With these data collection and verification procedures, it is hoped that the information presented in this case report will have a good level of credibility and can contribute scientifically to the understanding of chronic adenotonsillitis in children.

Result and Discussion

Case Report

A 14-year-old boy presented to the ENT clinic with the main complaint of pain when swallowing for the past ±3 months, which was intermittent, especially when swallowing hard

or hot food. The complaint was accompanied by itching and discomfort in the throat as well as bad breath. The patient also experienced recurrent mild fever for 2–3 days, which improved with antipyretics.

In addition, the patient complained of chronic nasal congestion, especially at night, accompanied by thick mucus, mouth breathing, and loud snoring during sleep. There were no complaints of ear pain, cough, or shortness of breath. Appetite decreased when the throat was painful, but weight was relatively stable.

The history shows that the patient has often experienced recurrent sore throats since childhood, with no history of chronic diseases (asthma, sinusitis, allergic rhinitis, tuberculosis, or rheumatic fever). Family and allergy history were denied. Eating habits were poor, with frequent consumption of oily foods and cold drinks, and poor dental and oral hygiene. Physical examination shows good general condition, compos mentis, weight 45 kg, height 150 cm, vital signs within normal limits. No enlargement of the cervical lymph nodes was found.

Figure 1. Throat Examination

Throat examination revealed that the right tonsil T2 and left tonsil T2 had an uneven surface, enlarged crypts, no debris, and hyperemia. No signs of acute infection were observed.

Chronic adenotonsillitis is a chronic inflammation of the palatine tonsils and adenoid tissue that lasts more than three months or occurs repeatedly within a year. This condition is usually caused by repeated infections due to colonization of pathogenic bacteria such as group A β-hemolytic Streptococcus, Staphylococcus aureus, Haemophilus influenzae, or Moraxella catarrhalis. This process of repeated infection causes repeated damage to the tonsil tissue, resulting in crypt enlargement, fibrosis, and accumulation of epithelial debris, which causes characteristic symptoms such as bad breath, discomfort in the throat, and persistent mild pain when swallowing. This is consistent with the clinical findings in this patient, where the complaints were prolonged, accompanied by bad breath, and did not show clear signs of acute infection, such as high fever or severe tonsil hyperemia (Amri et al., 2025).

According to theory, chronic adenotonsillitis is often accompanied by enlargement of the adenoid tissue, which causes obstruction of the upper airway, leading to symptoms such as chronic nasal congestion, mouth breathing, and snoring during sleep. In this case, the patient presented with the same complaints, namely chronic nasal congestion and loud snoring at night. The habit of breathing through the mouth and restless sleep also indicated nasopharyngeal obstruction due to adenoid hypertrophy. This is consistent with the theory that adenoid hypertrophy can obstruct airflow through the nasal cavity, causing chronic obstruction and sleep disorders known as *sleep-disordered breathing*. Therefore, the diagnosis of chronic adenotonsillitis with adenoid hypertrophy in this patient is consistent with the clinical picture and pathophysiology described in the literature (Basir et al., 2025).

ISSN 2721-1215 (Print), ISSN 2721-1231 (Online)

The predisposing factors supporting the occurrence of chronic adenotonsillitis in this patient are also consistent with the theory. The patient had poor oral hygiene habits, frequently consumed oily foods and cold drinks, and slept with an open mouth. Poor oral hygiene can increase bacterial colonization in the tonsillar crypts, exacerbate the chronic inflammatory process, and trigger recurrence. Additionally, sleeping with the mouth open is associated with nasopharyngeal obstruction due to adenoid hypertrophy, which causes inhaled air to be inadequately filtered and humidified, making the pharyngeal mucosa prone to chronic irritation (Puspasari et al., 2025).

From a physical examination perspective, findings of T2-T2 tonsils with widened crypts and an uneven surface without hyperemia or detritus support a diagnosis of chronic tonsillitis. The theory states that chronic tonsils do not always show signs of active inflammation, but rather exhibit morphological changes such as enlargement, fibrosis, and deep crypts due to repeated inflammatory processes. The absence of purulent secretions on anterior rhinoscopy indicates that nasal obstruction is more likely caused by adenoid hypertrophy than chronic sinusitis, which is consistent with the diagnosis of chronic adenotonsillitis.

Management of chronic adenotonsillitis can be conservative or surgical. Conservative therapies such as antibiotics, anti-inflammatories, and oral hygiene education are only effective in mild cases or infrequent acute episodes. However, in patients with recurrent infections, sleep disturbances, and symptoms of airway obstruction, adenotonsillectomy is the definitive treatment. Based on guidelines from the American Academy of Otolaryngology–Head and Neck Surgery (AAO-HNS), indications for surgery include recurrent tonsillitis more than three times per year for three consecutive years, or chronic adenotonsillitis with sleep-disordered *breathing*. This patient meets these criteria because he has recurrent chronic infections, accompanied by severe snoring and chronic mouth breathing, which indicate upper airway obstruction (Hadijah et al., 2025; Radharani & Ernawati, 2025).

In general, the prognosis for adenotonsillitis is good if treated appropriately and early. In this case, adenotonsillectomy surgery is planned. This case shows that chronic adenotonsillitis can cause airway obstruction based on the theory that enlarged tonsils and adenoids cause symptoms such as chronic nasal congestion, bad breath, and snoring during sleep, which are signs of upper airway obstruction.

One important aspect that can be analyzed from the findings in this patient is the relationship between chronic tonsil inflammation and changes in local immune function in the oropharyngeal lymphoid tissue. The palatine tonsils and adenoids are essentially part of Waldeyer's ring, which functions as mucosa-associated lymphoid tissue (MALT). In conditions of recurrent infection, this tissue undergoes continuous antigen stimulation, resulting in lymphoid hyperplasia and microanatomical structural changes. Prolonged immune stimulation can cause the immune response to become ineffective, so that the tonsils no longer function optimally as a barrier to infection, but instead become a reservoir for pathogenic microorganisms. The clinical findings of chronic complaints without dominant acute inflammatory signs in these patients indicate that the pathological process s more of a chronic immunological nature than an active acute infection (Naufal et al., 2022; Rahayu et al., 2021).

Another analysis that can be put forward is the relationship between adenotonsillar hypertrophy and upper airway ventilation disorders during sleep. Under normal conditions, pharyngeal muscle tone decreases during sleep, causing the airway lumen to become narrower. In patients with enlarged tonsils and adenoids, this narrowing becomes more significant and triggers airflow turbulence that produces snoring sounds. If the obstruction persists, intermittent ventilation disorders can occur, potentially causing mild hypoxia during sleep. In the long term, this condition can affect sleep quality and physiological functions, including metabolic regulation, concentration, and cognitive performance in children. Therefore, findings of severe

snoring and restless sleep in patients not only reflect local complaints but also indicate respiratory physiology disorders during sleep.

The clinical finding of persistent halitosis in patients also has interesting pathophysiological implications for analysis. Halitosis in chronic adenotonsillitis is generally associated with the accumulation of epithelial debris, food debris, and anaerobic bacterial colonies in the enlarged tonsil crypts. These anaerobic microorganisms produce volatile sulfur compounds (VSC) such as hydrogen sulfide and methyl mercaptan, which cause a characteristic mouth odor. This condition often does not improve simply by maintaining oral hygiene, as the source of the odor originates from the tonsil tissue itself. Thus, the finding of halitosis in this patient can be considered a clinical indicator of chronic structural changes in the tonsillar crypts, reinforcing the diagnosis of chronic tonsillitis (Harrypana & Putra, 2019; Triswanti et al., 2023).

From a clinical diagnostic perspective, this case also highlights the importance of integrating a comprehensive medical history and thorough physical examination in establishing a diagnosis of chronic ENT disease. Many cases of chronic adenotonsillitis do not show prominent signs of inflammation on initial examination, so the diagnosis may be missed if the focus is solely on acute symptoms. In this case, the identification of chronic symptoms such as prolonged throat complaints, snoring, mouth breathing, and halitosis were key indicators that led to further evaluation of possible adenotonsillar hypertrophy. This demonstrates that the diagnostic approach to chronic diseases requires a longitudinal assessment of the patient's history of complaints, not just momentary clinical findings.

Clinical findings in this patient also indicate a relationship between chronic adenotonsillar inflammation and long-standing changes in breathing patterns. The patient's mouth breathing is a physiological adaptation to the obstruction of airflow through the nose due to adenoid hypertrophy. This adaptation initially serves to maintain adequate ventilation, but in the long term can cause changes in upper airway function and mucosal moisture balance. Air entering through the mouth does not undergo optimal filtration, warming, and humidification , as it does with nasal breathing. As a result, the pharyngeal mucosa becomes more susceptible to chronic irritation, which can ultimately exacerbate the inflammatory process in the tonsils and surrounding tissues.

The findings in this case also illustrate the importance of a preventive approach in treating upper respiratory tract diseases in children. Behavioral factors such as poor oral hygiene and certain dietary patterns have the potential to worsen chronic inflammation of the tonsils. In addition, prolonged mouth breathing can cause dryness of the pharyngeal mucosa and increase susceptibility to irritation and colonization by microorganisms. Therefore, in addition to medical or surgical management, education on oral hygiene, dietary improvements, and efforts to maintain upper respiratory tract health are important components in preventing recurrence and improving patients' quality of life after therapy (Fitriani et al., 2024; Prihandini & Kandhi, 2023; Triola et al., 2020).

Overall, this case analysis confirms that chronic adenotonsillitis is a multifactorial condition with complex pathophysiological mechanisms. The combination of chronic inflammation, changes in tonsil structure, adenoid hypertrophy, and behavioral and environmental factors can exacerbate upper airway obstruction. Therefore, managing this condition requires a comprehensive approach, not only through medical or surgical intervention but also through modifying risk factors. This approach is expected to provide more optimal therapeutic outcomes and prevent recurrence in the future.

Conclusion

The recurrent infection process in chronic adenotonsillitis causes repeated damage to the tonsil tissue, leading to crypt enlargement, fibrosis, and accumulation of epithelial debris, which causes characteristic symptoms such as bad breath, discomfort in the throat, persistent mild

pain when swallowing, and if accompanied by enlargement of the adenoid tissue, it can cause symptoms of airway obstruction such as snoring and mouth breathing, as well as complications such as posterior nasal obstruction, perituba lymphadenitis, and otitis media.

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