



Chronic Tonsillitis with Anemia in Children: A Case Report

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ABSTRACT

Chronic tonsillitis is a persistent inflammation of the palatine tonsils, frequently occurring in children and potentially leading to systemic complications, including anemia. This report discusses a 10-year-old female patient presenting with recurrent painful swallowing for 3 months, accompanied by fever, noisy breathing ("grok-grok"), and snoring. Physical examination revealed grade T4-T4 hypertrophic tonsils, erythematous, with detritus. A complete blood count showed anemia (Hb 12.3 g/dL) with normocytic normochromic erythrocyte indices. The patient was diagnosed with chronic tonsillitis and anemia, suspected to be related to the chronic inflammatory process (anemia of chronic disease). Initial management included pharmacotherapy, with tonsillectomy planned as definitive therapy to eliminate the chronic infection focus. This case

illustrates the importance of comprehensive evaluation of hematological status in children with chronic tonsillitis.

Keywords: Chronic tonsillitis, anemia, child, tonsillectomy, inflammation.

INTRODUCTION

Tonsillitis is an inflammation of the palatine tonsils, which are part of Waldeyer's ring and function as an initial immune defense. Tonsillitis falls under acute respiratory infections (ARI), which remain a significant cause of morbidity among children in Indonesia. The highest incidence occurs in school-age children (5-12 years). Etiology can be bacterial (especially group A β -hemolytic *Streptococcus*) or viral. Chronic tonsillitis is defined as inflammation lasting more than 3 months with recurrent exacerbations and can act as a chronic infection focus (1,2).

Chronic inflammation is known to cause systemic disorders, including anemia known as anemia of chronic disease (ACD). The main mechanism involves increased proinflammatory cytokines (such as interleukin-6/IL-6) which stimulate hepcidin production, thereby inhibiting iron metabolism and erythropoiesis. In children with chronic tonsillitis, anemia can be worsened by reduced nutrient intake due to dysphagia. This case report aims to describe the relationship between chronic tonsillitis and anemia in children, as well as a comprehensive management approach (3,4).

CASE REPORT

A 10-year-old female child presented to the ENT outpatient clinic with a chief complaint of pain during swallowing for three months. This complaint was accompanied by fever that had appeared in the last three days. The patient also complained of noisy breathing ("grok-grok"), snoring during sleep, cough, runny nose, as well as nausea and vomiting each time she ate or drank. History of systemic diseases such as hypertension, allergies, or vertigo was denied by the patient.

On physical examination, the patient's general condition was good. Vital signs showed blood pressure 100/70 mmHg, pulse 108 beats per minute, respiratory rate 24 breaths per minute, and body temperature 37.1°C. Examination of the oropharyngeal local status showed enlarged palatine tonsils with grade T4 hypertrophy on both sides, appearing erythematous, with detritus on their surface.



Figure 1. Pre – Operative Presentation



Figure 2. Post – Operative Presentation

Supportive blood tests revealed a hemoglobin level of 12.3 g/dL (below the reference value), while other parameters such as leukocytes ($6.16 \times 10^3/\mu\text{L}$), hematocrit (38.1%), MCV (82 fL), and MCH (26 pg) were within normal limits. A

posterior-anterior (PA) chest X-ray showed findings within normal limits without abnormalities in the heart, lungs, or mediastinum.

Based on history, physical examination, and supportive investigations, the established diagnosis was Chronic Tonsillitis and Anemia. Initial management provided was pharmacotherapy consisting of cefixime 100mg twice daily, methylprednisolone 4mg three times daily, ambroxol syrup three times daily, and flutrop tablet three times daily. Considering the chronic course of the disease and significant degree of hypertrophy, the patient was planned to undergo a tonsillectomy procedure as definitive therapy.

DISCUSSION

The clinical presentation in this patient aligns with the criteria for chronic tonsillitis, characterized by symptom duration of over three months, high-grade tonsillar hypertrophy (T4), and the presence of detritus (1). Massive tonsillar enlargement often causes obstructive symptoms as complained by the patient, namely noisy breathing ("grok-grok") and snoring. These obstructive symptoms, along with a history of recurrent infection, are indications for considering tonsillectomy (5).

The finding of anemia with a hemoglobin level of 12.3 g/dL and normocytic normochromic erythrocyte indices points towards the diagnosis of anemia of chronic disease (ACD). In ACD, the chronic inflammatory process triggers an increase in cytokines like IL-6, which stimulates the liver to produce hepcidin. Hepcidin then inhibits iron absorption in the intestine and the release of iron from macrophage stores, thereby disrupting hemoglobin synthesis even though body iron stores may be sufficient (3,4). In pediatric patients, this mechanism can be exacerbated by nutritional factors, where chronic painful swallowing (odynophagia) leads to decreased food intake and potentially causes nutritional deficits that worsen anemia (6).

Management of this case was done in stages. Initial pharmacotherapy aimed to control acute infection and reduce local inflammation. However, in chronic tonsillitis with severe hypertrophy, conservative therapy often does not provide

long-term cure. Tonsillectomy was chosen as definitive therapy to remove the chronic infection focus. Several studies report improvement in hematological parameters, including increased hemoglobin levels, after children with chronic tonsillitis undergo tonsillectomy, presumably due to the reduction in systemic inflammatory burden (7,8).

The normal chest X-ray in this patient is important to rule out other possible causes of anemia or infection, thereby strengthening the association between anemia and the patient's chronic tonsillitis.

CONCLUSION

Chronic tonsillitis in children can be accompanied by anemia as a systemic manifestation of chronic inflammatory state. The anemia that occurs is generally normocytic normochromic and related to increased hepcidin due to proinflammatory cytokine response. Evaluation of hematological status is an important part of comprehensive management for children with chronic tonsillitis. Tonsillectomy, in addition to addressing local indications such as obstruction and recurrent infection, can also be considered as an intervention to improve anemia associated with chronic inflammation following initial pharmacotherapy.

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