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**MANAGEMENT OF CHRONIC LYMPHADENOPATHY WITH POOR ORAL
 HYGIENE IN CHILDREN
 (CASE REPORT)**

¹Renie Kumala Dewi

¹Department of Pediatric Dentistry, Faculty of Dentistry, Lambung Mangkurat University, Banjarmasin

ABSTRACT

Background. *Lymphadenopathy is a common clinical feeding an anomaly in the size and consistency of lymph nodes. Local bacterial infection causes cervical adenopathy when the lymph nodes responded to local infection. Cervical lymphadenopathy is a common problems in pediatric. Lymph node with more than 10 mm diameter is usually considered abnormal. Lymph node enlargement caused by a chronic infection is known as chronic lymphadenopathy.*

Objectives. *Discovery management of chronic lymphadenopathy in children with poor oral hygiene.*

Case. *A 9-year-old boy came to Pediatric Dentistry Specialist Gusti Hasan Aman Dental Hospital with his parents with a complaint of pain in his right tooth posterior mandible for the last week. The patient had received medication, however the pain still existed. Extraoral examination revealed symmetrical face, a node on the middle neck sizing 30 mm in diameter for 4 years. The lump was treated several times with no progress in size. Intraoral examination revealed a cavity in posterior lower left tooth and painful in the last 5 days without any treatment. Plaque score showed poor oral hygiene.*

Case Management. *Based on extraoral examination, the nodule on the neck reduced in size from 30 mm to 7 mm after treatment with antibiotic, anti-inflammatory medication, dental care and control periodic for oral hygiene management.*

Conclusion. *Early detection and accurate lymphadenopathy diagnosis is important for successful therapy. Oral hygiene improvement can help in the healing process of chronic lymphadenopathy which occurred for 4 years.*

Keyword: *Lymphadenopathy chronic, Oral hygiene, Staphylococcus aureus*

Corresponding : Renie Kumala Dewi, Department of Pediatric Dentistry, Faculty of Dentistry Universitas Lambung Mangkurat, Jl. Veteran 128B Banjarmasin, Indonesia. Telp. +6281230000769. Email: renie.dewi@ulm.ac.id.

INTRODUCTION

Lymph nodes are important parts of the immune system, affected by infectious disease, autoimmune, metabolism, and malignancy. Lymph nodes are found in the neck, trunk, axilla, abdomen, and groin. Lymph node contains T cells and B cells along with macrophage known as dendritic cells, which will create a part of the immune system and acts against disease and infection^{1,2}.

The primary function of lymph node is to filter microorganisms and abnormal cells which will then collected in lymph fluid. Lymphadenopathy refer to a disease process which affects lymph nodes accompanied by abnormal size and consistency. Lymphadenitis refer to lymphadenopathy caused by inflammation, marked by node swelling, pain, skin changes, fever, edema, with or without fistula. Cervical lymphadenitis is more often

found in children, and especially caused by bacterial, viral and fungal infection³.

The cause of lymphadenitis can be local and systemic. Local causes of lymphadenitis include pathogenic bacteria (*Staphylococcus aureus*, *Streptococcus pyogenes*, *Streptococcus tuberculosis*, *Mycobacterium tuberculosis*, *Mycobacterium non-tuberculosis*, syphilis, and tularemia), and viral infection such as genital herpes. Meanwhile, systemic lymphadenitis infection varies, from bacterial infection (brucella, syphilis), fungal (histoplasmosis), parasite (toxoplasmosis), and viral infection (cytomegalovirus, mononucleosis). Lymph node diameter of more than 10 mm indicated abnormal condition. Malignancy should be considered when lymph nodes are palpable in supraclavicular area with hard and rubbery consistency^{3,5}.

Diagnosis is established by detailed history and clinical examination. Radiographic adjunctive examination such as chest x-ray, CT-scan and MRI is needed to determine diagnosis and ultrasound (sonography) is performed to determine differential diagnosis of lymph node swelling in children and malignancy. Laboratory test is performed to explain medical and physical history, such as FNAB biopsy to determine specific cause of lymphadenopathy, Mantoux test to determine *Mycobacterium tuberculosis* infection^{6,5}.

CASE

A 9-year-old boy and his parents reported to Gusti Hasan Aman Dental Hospital, Banjarmasin with a complaint of painful right posterior tooth mandible in the last week. Extraoral examination revealed symmetrical face, a node on the middle neck sizing 30 mm in diameter (figure 1). The node had occurred for 4 years and did not reduced in size despite several treatments, palpable, hard, mobile, and painful when pressed. Intraoral examination revealed caries on 85 with the diagnosis of pulp gangrene, caries on 84 with the diagnosis of irreversible pulpitis, caries on 46,36,73,83 with the diagnosis of reversible pulpitis. Plaque score examination showed poor oral hygiene (figure 2). Based on panoramic radiograph showing complete permanent tooth germ, radiolucent dental crown and dental roots are absorbed on 84 (figure 3).

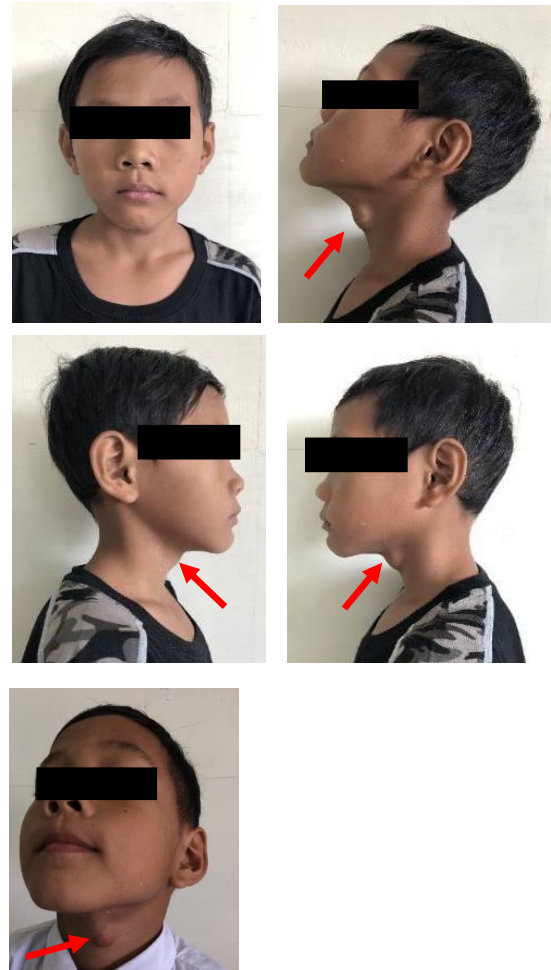


Figure 1. Pre-treatment extraoral examination. visible nodules on the neck felt hard, mobile nodule on the neck and painful when pressed.



Figure 2. Pre-treatment intraoral examination



Figure 3. Panoramic radiography

CASE MANAGEMENT

On the first visit, management intra oral was carried out, beginning with Dental Health Education (DHE), based on panoramic radiographic examination (Figure 3), 84 will be pulpotomy followed by GIC restoration because the patient did not want to insertion Stainless Steel Crown (SSC). Maxillary and mandibular scaling, 46 & 36 will be Preventive Resin Restoration (PRR) treatment, 73 & 83 will be GIC restoration, 85 extraction and observation, then Topical Fluorine Application (TAF) in upper and lower jaw teeth.

Extra oral management of nodules on the neck will make a referral to a pediatrician, on the second visit after 5 days later from the referral results of the pediatrician, the patient had done the mantoux test examination. Its was performed and revealed 0 mm, which means that the patient was not infected by *Mycobacterium tuberculosis*, the bacteria causing tuberculosis (figure 4). Anatomic pathology examination of FNAB (Fine Needle Aspiration Biopsy) obtained preparations of AJH (Fine Needle Aspiration) showed lymphocyte inflammatory cells, PMN leukocytes (Pholymorphonuclear Neutrophilic Leukocyte) debris inflammation cells / pus and no visible signs of malignancy (figure 5). Based on the results of examination of nodes in the neck that have been done, obtained a diagnosis of chronic lymphadenopathy and recommended treatment with an incision 1 month later. Before incision, prophylactic treatment with azritomycin 250 mg is given 1 time a day and ibuprofen 200 mg is given 2 times a day for 10 days.

Patients are advised to rinse with chlorhexidine digluconate 0.12% 2 times a day, maintain oral hygiene and control is recommended 1 week later to assess the plaque

score. After 1 week, the third visit, an extra oral examination showed that the nodules in the neck had narrowed from a diameter of 30 mm to 7 mm (figure 6).

After dental care and evaluation of oral hygiene, intra-oral examination based on the calculation of the plaque score (figure 7), showed that the patient's oral hygiene improved from the first visit and the patient was referred back to the pediatrician for further treatment.



Figure 4. Mantoux test

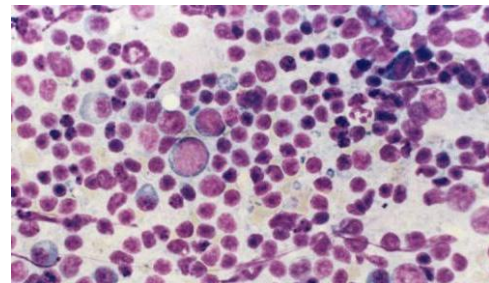


Figure 5. FNAB



Figure 6. Post-treatment extraoral examination of the oral cavity. The nodule was relieved before incision.



Figure 7. Post-treatment intraoral examination

DISCUSSION

Lymphadenopathy or adenopathy is a lymph node disease, which has an abnormal size, amount, or consistency. Lymph nodes are spread in many parts of the body and are part of the immune system, which helps the body fight viruses or bacteria that can be harmful to health.

Lymph nodes are small nodules form. Enlargement of lymph nodes is a common condition in various diseases and can be used as a clinical examination in diagnosing disease. Most of these are responses to local or systemic infections. The most difficult challenge is making a diagnosis to overcome the cause. Lymph nodes are included in the reticuloendothelial composition which is spread throughout the body. The main function of lymph nodes is to filter out microorganisms and abnormal cells that are collected in lymph fluid, besides that it can also form peripheral blood lymphocyte cells. Lymphadenopathy of the type of inflammation (the most common type) is lymphadenitis. Lymphadenitis is inflammation or enlargement of lymph nodes. Small lymph nodes in the form of nodules. Enlargement of lymph nodes is a common condition in various diseases and can be used as a clinical examination in diagnosing disease. Most of these are responses to local or systemic infections. Lymph nodes are included in the reticuloendothelial composition which is spread throughout the body. The main function of lymph nodes is to filter out microorganisms and abnormal cells that are collected in lymph fluid, besides that it can also form peripheral blood lymphocyte cells^{9,4,6,13}.

Streptococcus and staphylococcal bacteria are the most common cause of lymphadenopathy. The early symptoms of lymphadenopathy are node enlargement caused by tissue fluid accumulation and increased white blood cell count due to body response to infection. Node enlargement occurs due to lymphoid hyperplasia and the formation of tubercle, which lead to chronic granulation and necrosis. The node can enlarge and attach to surrounding tissues to form nodule^{7,3}.

Chronic lymphopathy is characterized by minimal inflammation and no pain. Lymph node infections caused by bacteria have pain in the pressure and can be moved. Lymphadenopathy investigations can be done by biopsy, Mantoux tests to see whether or not there is an infection caused by the tuberculosis bacteria, FNAB. FNAB examination can be used in persistent reactive

lymphadenopathy as a support for diagnosis in cases of suspected malignancy^{6,10}.

Treatment of enlarged lymph nodes is based on the cause. In general, chronic lymphadenopathy treatment caused by streptococcus bacteria, staphylococcus can be given antibiotic, anti-inflammatory, antipyretic treatment. Treatment for lymphadenopathy caused by bacteria such as staphylococcus aureus can be given broad-spectrum antibiotics such as azithromycin. Azithromycin is a broad-spectrum macrolide antibiotic with bacteriostatic activity against many Gram-positive and Gram-negative bacteria, such as *Streptococcus pneumoniae* and *Staphylococcus aureus* infections. Azithromycin reversibly binds to bacterial ribosomes and inhibits protein synthesis. This drug has absolute oral bioavailability with a long half-life due to extensive absorption in tissues. The administration of drugs is given several days or even months for mycobacterial infections such as those with lymphadenopathy. Lymphadenopathy is a general description of local infection. Bacterial infections often result in enlargement of acute to chronic lymph nodes accompanied by warm temperatures, erythematous and tenderness^{7,8,12}.

The cause of bacterial infections from lymphadenopathy are common bacterial pathogens namely *Staphylococcus aureus* and *Streptococcus pyogenes*. *Staphylococcus aureus* is a bacterium that lives in the oral cavity. Necrosis and inflammation are typical signs of the disease caused by *staphylococcus aureus*. There are about 10 to 1000 *Staphylococcus aureus* colonies per milliliter of saliva, *Staphylococcus* can be found in supragingival plaque and tooth cracks. The presence of *staphylococcus aureus* bacteria which is uncontrolled in number can cause lymphadenopathy, because enlarged lymph nodes are part of the body's normal immune response. The cell population in lymph nodes consists of macrophages, dendritic cells, B lymphocytes, and T lymphocytes. B-cells are found in lymphoid cortical follicles, and T-cells are in the paracortical region. These cells function to coordinate antigenic responses. After detecting foreign proteins and microorganisms, macrophages and dendritic cells, or antigenpresenting cells are carried through the lymphatic channels to the nearest lymph node, so that in the lymph nodes an increase in lymphocytes in the form of lymph nodes in which lymphocyte proliferation occurs in response to antigens. When antigen recognition occurs, the

surface of B cell immunoglobulin binds to the antigen and forms the germinal center in the lymph nodes. B cell migration to the medullary area occurs, followed by differentiation of B cells into plasma cells, which then secrete modified immunoglobulins. When T cells encounter antigens, bonds occur, T cells multiply and produce specific T cells as antigen triggers. Specific antibodies and T cells are found in the node, enter the lymphatic circulation and eventually travel to the bloodstream, where antibodies and T cells can localize to the site of infection, which can cause lymphadenopathy^{6,7,10}.

The thicker plaque on the teeth will prevent saliva from neutralizing the acidity of the oral cavity due to bacterial metabolism. Therefore there needs to be an effort to prevent plaque accumulation. To prevent plaque accumulation, plaque control is carried out by dental health education^{8,12}. Based on this case, it can be concluded that early detection and accurate lymphadenopathy diagnosis is important for successful therapy. Oral hygiene improvement can help in the healing process of chronic lymphadenopathy which occurred for 4 years.

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