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DIFFUSE LARGE CELL NON HODGKIN LYMPHOMA AT RETROBULBAR OCCULUS SINISTRA MASS

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Abstract

Non-Hodgkin's Lymphoma (NHL) is a large group of malignant neoplasms originating in the lymph nodes and extra nodes of lymphoid tissues. This kind of malignancy is quite common in the world with 3% of all cancer cases. In Indonesia, NHL is the 6th most common cancer and is the third most rapidly progressive cancer after melanoma and lung cancer. The novelty in this study is diffuse large cell non hodgkin lymphoma at retrobular occulus sinistra mass. A 15-years-old boy came with complaints of a protruding left eye since 2 months ago, begin with reddish eyes which gradually enlarged and decrease of visual function. Biopsy confirmed the diagnose as a stage 2 non-Hodgkin's lymphoma with Diffuse large cells. This patient underwent a chemotherapy procedure according to the non-Hodgkin's lymphoma's protocol for 1 year that turn out in decrease of tumor progression and good result of the chemotherapy. A case of retrobulbar mass occulus sinistra et causa non-Hodgkin's lymphoma in a 15 year old boy. Diagnose is based on history, physical examination, laboratory tests and biopsy. Treatment of this patient using chemotherapy regimens according to the non-Hodgkin's lymphoma protocol.

Keywords: 15 years old boy; Case report; Chemotherapy; Non-Hodgkin Lymphoma; Retrobulbar occulus left mass;

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1. INTRODUCTION

Malignant lymphoma is a group of primary malignancies in the lymph nodes and lymphoid tissue. These tumors are heterogeneous, can be found in extra nodal, out of the lymphatic and immunity systems, including digestive tract, lungs, eyes, skin, and other organs. Based on the histological type, lymphoma can be divided into two major groups, Non-Hodgkin's Lymphoma and Hodgkin's.[1]

Non-Hodgkin lymphoma (NHL) is a large group of primary malignancies in the lymph nodes and extra nodal lymphoid tissues originating from B lymphocytes, T lymphocytes, and natural killer cells. In NHL, lymphocyte cells will proliferate uncontrollably and initiate formation of tumors. All cells in the NHL patients have the same immunoglobulin on their surface, because all NHL cells have the same origin from one lymphocyte cell.[2,3]

Malignant lymphoma occupies 3.37% of all malignancies worldwide. The incidence of malignant lymphoma in the world has increased by an average of 3-4% in the last 4 decades. The increase in the incidence of Non-Hodgkin Lymphoma in men is 6% and 4.1% in women. Hodgkin lymphoma 1.1% in men and 0.7% in women. In Indonesia, NHL ranks 6th in entire cancer case.[4]

The etiology of most LNH is still unknown. However, there are several risk factors that cause LNH, including oncogenes, Ebstein Barr virus infection, Human T-leukemia Virus-I (HTLV-I), autoimmune diseases and immune deficiencies. The clinical Manifestations of Non-Hodgkin Lymphoma are enlargement of lymph nodes without pain, fever, night sweats, feeling tired all the time, indigestion and abdominal pain, loss of appetite, bone pain, swelling of the face and neck and areas of affected lymph nodes, and lymphadenopathy.[5]

Therapy for NHL consists of specific therapy to eradicate lymphoma cells and supportive therapy to improve the general condition of the patient or to overcome the side effects of chemotherapy or radiotherapy. Specific therapy for NHL can be given by radiotherapy, single chemotherapy with chlorambucil or cyclophosphamide for low-grade NHL and chemotherapy in combination with CHOP (cyclophosphamide, doxorubicine, vincristine, prednisone).[2]

The prognosis for LNH varies widely based on the varied clinical and pathological features. There are many factors that affect prognosis such as age, stage, type of malignant lymphoma, lymph node involvement and so on. To assess the prognosis of aggressive NHL, the International Prognostic Index for Aggressive Lymphomas (IPI) is currently used.[6]

This paper reports a unique case of left oculus retrobulbar mass resulting from malignant non-Hodgkin's lymphoma in a 15-years-old boy. The purpose of this case report is to monitor and evaluate the results of interventions/therapy, as well as to observe the response to chemotherapy.

2. METHODS

This study used descriptive research design with case study approach and conducted in Wahidin Sudirohusodo General Hospital, Makassar, Indonesia. The consent of patient's parents was asked first. Material needed for the discussion based on previously existing literatures.

3. CASE REPORT

A 15-year-old boy was admitted to the eye department of Wahidin Sudirohusodo General Hospital with complaints of a protruding left eyeball that had been present for about 2 months. Initially, the patient complained of reddish eyes, which gradually enlarged and led to a decrease in vision. There was a history of a similar complaint in 2019, but treatment was not continued as the complaint had disappeared. The patient does not have a fever, convulsions, cough, shortness of breath, or vomiting. The child has a good appetite and drinks normally, with yellow and regular bowel movements, as well as smooth and yellow urination. There is history of enlargement of periauricula's lymph node and weight loss about 5 kilograms in the last 2 months. (Figure 1)

On the physical examination, proptosis was observed, measuring 7 x 4 x 3.5 cm, with no presence of blood or pus. Additionally, there were two enlarged lymph nodes in the left periauricular region, each measuring 2 x 1 cm.

A series of radiological and laboratory investigations were conducted. A head CT scan showed a left orbital intraconal mass with calcification, which extended beyond the orbital cavity and caused anterior-medial displacement of the eyeball, suggesting an orbital lymphoma. An incisional biopsy was performed, revealing Non-Hodgkin Malignant Lymphoma, Diffuse Large Cell. Routine hematological tests, bone marrow aspiration, and cerebrospinal fluid cytology were normal.

Based on the above findings, a diagnosis of Non-Hodgkin's Lymphoma was made. The chemotherapy regimen included intravenous Vincristine, intravenous cyclophosphamide, and intrathecal administration of Methotrexate, Ara-C, and Dexamethasone. After 12 months of therapy, a remission of the eye mass was observed. (Figure 2)

Figure 1 : Front view showing protruding left eyeball

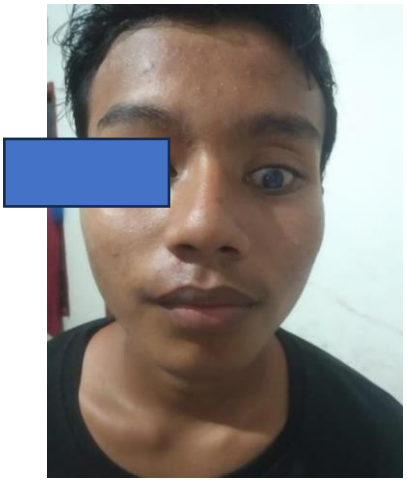

Figure 2 : Remission of the mass in the eye

4. DISCUSSION

Malignant lymphoma is a malignant tumor primary from the lymph nodes and lymphatic tissue in other organs. This disease is divided into 2 major groups, namely Hodgkin's disease and non-Hodgkin's lymphoma (LNH). The malignant cells in Hodgkin's disease originate from reticulum cells. Lymphocytes, which are an integral part of cell proliferation in this disease, are suspected to be a manifestation of cellular immune reactions against these malignant cells. Non-Hodgkin lymphoma is basically a lymphocyte malignancy.[2,3,7]

Recently, the incidence of lymphoma has increased rapidly. About 90% of Hodgkin's lymphoma arises from the lymph nodes, only 10% arises from lymphatic tissue outside the lymph nodes. While 60% of non-Hodgkin's lymphoma arises from the lymph nodes, 40% from lymphatic tissue outside the gland.[4]

In this case, a 15-year-old boy presented with a complaint of a protruding left eye that had been present for approximately 2 months. Initially, he experienced redness in the eyes, which gradually worsened along with a decrease in vision. Additionally, periauricular lymphadenopathy has been observed for the past 2 months. The patient also reported a weight loss of about 5 kg during the last 2 months. Following an incisional biopsy, the diagnosis revealed stage 2 non-Hodgkin's lymphoma with Diffuse large cells.

Orbital lymphoma is a type of lymphoproliferative tumor originating from the adnexa oculi which has a broad spectrum, ranging from benign hyperplasia to malignant lymphoma. Ocular Adnexal Lymphoma (OAL) is a form of systemic lymphoma that is localized and affects the orbits, lacrimal glands, eyelids and conjunctiva. Typically, this disease occurs in the elderly population. Thus, OAL in the paediatric population is classified as one of the rare disease. OAL is said to be a primary tumor if it involves only the ocular adnexa, and is said to be secondary when accompanied by lymphoma identified at another location.[3,8] The cohort study from the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER) database in United States revealed that the incidence of primary paediatric OAL was 0.12 per 1.000.000 children aged 0–18 years where the male and black children had higher tendency for OAL development. That study also showed that the subtype of Diffuse Large B-cell Lymphoma (DLBCL) become the second most frequent subtype found on the patients after Extranodal Marginal Zone Lymphoma (EMZL).[9]

Literature showed that most of the lesions in this area are Non-Hodgkin Lymphoma (NHL), 80% are from B Lymphocytes, 14% are from T lymphocytes, and only 6% are from NK-Cells. Most primary OAL tumors are low-grade malignant extranodal marginal zone B-Cell Lymphoma of mucosa-associated lymphoid tissue (ENZL or MALT), but several other types that can occur are follicular lymphoma (FL), diffuse large B-Cell Lymphoma (DLBCL), mantle

cell lymphoma (MCL), and lymphoplastic lymphoma (LPL). Secondary OAL originates from systemic disease and presents with an intermediate or high-grade lymphoma.[10]

In general, lymphoma of the eye is diffuse large B-cell lymphoma, some reports also have T-cell lymphoma. Immunosuppression state due to any cause has been believed as the main contributor for the development of orbital lymphoma. This is supported by some previous studies showing the large number of lymphoma in the eye accompanied by AIDS, thus the pathogenesis is thought to be related to microbial influences. This theory is thought to be supported by the discovery of Epstein–Barr virus DNA and Toxoplasma gondii in patients with lymphoma of the eye.[3] Pesticides and solvent exposure has been stated as a linked environmental factors contributing to this disease. Moreover, connective tissue disorders, such as Sjogren's Syndrome, Systemic Lupus Erythematosus or Rheumatoid Arthritis also associated with orbital lymphoma.[11]

Orbital and adnexal lymphomas have a slow onset and progress over many years until they show clinical signs. Symptoms that occur include the presence of proptosis with or without obstacles from the movement of the eyeball, diplopia, ptosis, to a decrease in visual acuity. The impairment of vision is mainly caused by the optic nerve infiltration and compression as the mass effect.[11] Lesions that occur can be unilateral or bilateral, involving the presepta of the eyelids. Lesions that occur more often in the superolateral orbital quadrant, the mass is soft and rubbery. B-cell non-Hodgkin's lymphoma lesions are usually found in the conjunctival fornix or bulbar area, and less frequently in the caruncle or limbus.[3,12]

However, due to nonspecific clinical sign and symptoms of ocular lymphoma, some of cases are difficult to get immediate diagnosis. Radiological imaging, including orbital CT scan or MRI can be used to help the physician in building the diagnosis of ocular lymphoma, especially in describing the extension of the lesion and aiding the treatment planning. Moreover, the location of retrobulbar mass-like lesions can help in the differential diagnosis and planning the surgery biopsy. The typical location of ocular lymphoma is superior quadrant, especially in the superior-lateral.[13] In this study, the CT scan of the patient showed a left orbital intraconal mass with calcification, which extended beyond the orbital cavity and caused anterior-medial displacement of the eyeball, suggesting an orbital lymphoma.

Accurate histopathologic evaluation is the most crucial diagnostic work up in the diagnosis and management of orbital lymphomas, where biopsy tissue is analyzed by the pathologist. In this case, after an incisional biopsy was performed, the diagnosis of stage 2 non-Hodgkin's lymphoma with Diffuse large cells was confirmed. The correlation with the literature that says lymphoma of the eye is a diffuse large B-cell lymphoma. In addition, in this case, the predominant symptom of the eye is proptosis,

which corresponds to the symptoms that commonly occur in lymphoma of the eye, including proptosis with or without obstruction of eyeball movement, diplopia, ptosis, and decreased visual acuity.

There are several modalities that can be used in managing lymphoma in the eye. Systemic chemotherapy is widely used in the management of intraocular lymphoma. High-dose intravenous methotrexate followed by orbital radiation has been reported to produce a complete response, although relapses have occurred in some cases.[2]

Staging of the disease must be carried out before treatment and each location of outbreak must be carefully recorded both in number and size and drawn schematically. This is important in assessing the results of treatment. Ocular adnexal lymphoma staging can be made based on either Ann-Arbor or American Joint Committee on Cancer (AJCC) staging system.[14] It was agreed to use the staging system according to Ann-Arborr.[15,16] According to Ann-Arborr Criteria, stage 2 of non-Hodgkin Lymphoma involve 2 or more lymph node regions or lymphatic structures on the same side of the diaphragm alone or extralymphatic regions on the same side of the diaphragm alone (IIE).[14]

In the therapy of lymphoma with intermediate and high degree of malignancy recently there seems to be an important development. Currently, regarding therapy there is no difference between T-cell and B-cell types. Regarding stage I, there are differences of opinion. Some argue that with radiotherapy alone in 60-70% of cases a cure can be obtained. If in stage I the lymphoma is larger than 5 cm then radiotherapy alone is not enough. Others tend to all intermediate and high-grade lymphoma treated with chemotherapy, but radiotherapy alone for stage I with a small glandular mass can be maintained. In stages II, III, and IV, chemotherapy is the action of choice. Standard therapy is still CHOP chemotherapy (cyclophosphamide, adriamycin, vincristine, prednisone). With this approximately 60% of cases achieve complete remission, with a 30% longer survival, or in this case recovery.[2,17–19]

After the diagnosis of non-Hodgkin's malignant lymphoma was confirmed, the patient underwent regular outpatient visits for scheduled chemotherapy treatments. The chemotherapy regimens were administered in accordance with the established protocol at Wahidin Sudirohusodo Hospital. For the induction chemotherapy, the patient received intravenous Vincristine and Cyclophosphamide, as well as an intrathecal combination of Methotrexate, Ara-C, and Dexamethasone.

The prognosis of ocular lymphoma depends on the histological, stage, and onset of the treatment employed. Prognosis in patients with limited-stage DLBCL (LS-DLBCL) is excellent.[9] In this case, the results of the patient's follow-up showed a significant improvement. The size of the mass in the patient's eye showed remission. Moreover, the periauricular lymphadenopathy also underwent remission during the patient's routine

chemotherapy monitoring. Clinical manifestations such as proptosis and hyperemia were greatly reduced, and there were no signs of bleeding or pus in the patient's eye. This indicates the success of the chemotherapy treatment.

5. CONCLUSION

A case of non-Hodgkin's lymphoma in a 15-year-old boy, has been reported. The diagnosis was based on the patient's medical history, physical examination, laboratory tests, and incisional biopsy. The patient's management involved the use of a chemotherapy regimen following the protocol for malignant non-Hodgkin's lymphoma. After one year of chemotherapy, there was a noticeable decrease in the progression of the disease, with a very favorable response to the administered chemotherapy. The prognosis regarding life is uncertain, regarding healing is uncertain, and regarding functional outcome is poor.

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