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SINONASAL BURKITT'S CD20 NEGATIVE LYMPHOMA : A CASE REPORT

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Abstract: *Burkitt's lymphoma is a B Cells non-lymphoma Hodgkin's that is aggressive, has a high degree of gradation, and is made up of diffuse, non-cleaved, undifferentiated, tiny cells that usually expresses CD20 positive . A very uncommon kind of juvenile cancer is Burkitt lymphoma (LB). 1, 2 100 new cases are recorded annually in the United States, compared to a frequency of 100 cases per million children in Africa. We report this case because of the rarity of Burkitt's CD20 negative lymphoma. A 9-year-old girl who has a main complaint of eye swollen for almost two months. A bump with redness, swelling, and discomfort in the left eye that radiates to the head occurs after two weeks of before entering the hospital. Another complaint made by the patient was a big, pus-oozing lump in the left cheek and nose. On MSCT Scan examination, a solid mass was found in the left maxillary sinus, left ethmoid sinus, right left frontal sinus, left sphenoid sinus, left nasal cavity, and entered the extra orbital and left intraconal cavities, which forced the bulbus oculi to anterosuperior and caused proptosis bulbi. The mass also extended to the left parasella and caused destruction of the medial, anterior, and lateral walls of the left maxillary sinus. the patient will be treated with chemotherapy with the CHOP regimen with a dose of Cyclophosphamide 600 mg/m2 per body surface area (LPT), Doxorubicin 50 mg/m2 per LPT, Oncovin/Vincristine 1.4 mg/m2 per LPT, and Prednisone 50 mg. So the patient received Cyclophophamide 468 mg, Doxorubicin 40 mg, and Oncovin/Vincristine 1 mg. Then the patient was admitted to undergo the first chemotherapy. In this case it was suffered by a 9 year old girl and the symptoms of a lump in the eye and left cheek were getting bigger and bigger, with histopathological results obtained cells with "Starrys Sky" pattern, which supports the diagnosis of Burkitt's Lymphoma so that the patient receives chemotherapy treatment. The result of immunohistochemical staining for CD20 was negative.The chemotherapy regimen consist of cychlosfamide, doxorubicin, oncovin and prednisone. Patient was diagnosed with stage II E Burkitt lymphoma, ECOG I, ccomplete respons.*

Keywords *: Burkitt, CD20 negative , B cells lymphoma*

INTRODUCTION

Burkitt's lymphoma is a non-lymphoma Hodgkin's that is aggressive, has a high degree of gradation, and is made up of diffuse, non-cleaved, undifferentiated, tiny cells that are generated from B lymphocytes. This condition is a beta cell neoplasm with a rapid pace of development and a There are two types: the endemic type (the African type) and the non-endemic kind (sporadic) (Molyneux et al., 2012) (Patil et al., 2007).

A very uncommon kind of juvenile cancer is Burkitt lymphoma (LB) (Molyneux et al., 2012) (Patil et al., 2007). 100 new cases are recorded annually in the United States, compared to a frequency of 100 cases per million children in Africa. While infrequent in the American population, Burkitt lymphoma is widespread among individuals who live in certain parts of Central Africa. The ratio of males to girls is 2-3:1. Children under the age of 7 are more likely to get Burkitt's lymphoma than people outside of Africa, where the average age of patients is 11. The death rate for Burkitt's lymphoma is quite high, and patients typically pass away very fast (Patil et al., 2007)

The only first discernible clinical signs of LB are swollen lymph nodes that are developing quickly without any discomfort in the neck, inguinal, under the chin, or it may even be in the forearm. The center or abdominal region is where the lump first appears in the sporadic variety. Lymph node biopsy, chest X-ray, bone marrow aspiration, CT scan, cerebrospinal fluid analysis, and other tests are among

the investigations that are conducted (*Panduan Nasional Penanganan Kanker : Limfoma Non-Hodgkin*, 2015); (MM, 2012).

The prognosis is currently a little better due to the wide variety of chemotherapy options (Molyneux et al., 2012) (Patil et al., 2007). Chemotherapy, which includes prednisone, cyclophosphamide, vincristine, cytarabine, doxorubicin, and methotrexate, is the cornerstone of treatment. Burkitt's lymphoma is not frequently treated with radiotherapy (*Panduan Nasional Penanganan Kanker : Limfoma Non-Hodgkin*, 2015);(Sudarmanto M, 2012); (MM, 2012);

Data on LB in Indonesia is still relatively scarce; from 2001 to 2006, Cipto Mangunkusumo Hospital in Jakarta recorded 7 occurrences of LB in children (Nafianti et al., 2016). There is no concrete information available at the Doctor Kariadi Hospital at the moment.

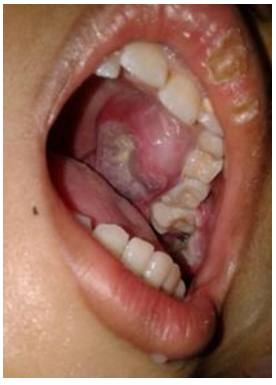
Given the rarity of this case, the goal and aim of producing this case report are to inform colleagues about the clinical signs, diagnosis, treatment, and care of Burkitt's lymphoma patients.

CASE REPORT

Figure 1. Profile of the patient before chemotherapy

A 9-year-old girl who was a consultant at the ophthalmology clinic complained of having SMRS for almost two months. When she woke up with her left eye swollen, it became larger and larger until it bulged, impairing her eyes. The patient was then examined at the public health center, sent to Kendal Hospital, and given medication. A bump with redness, swelling, and discomfort in the left eye that radiates to the head occurs after two weeks of before entering the hospital. Another complaint made by the patient was a big, pus-oozing lump in the left cheek and nose.

On physical examination, the general condition of the patient was good; the patient appeared to be in pain. Generalist status: the patient's left eye is proptosis. Blood pressure, pulse, and other vital signs are within normal limits. An ENT examination did not reveal any abnormalities in the ear. On nasal examination, the septum was deviated to the right, and a mass in the left nasal cavity was flat, brittle, and did not bleed easily. On examination of the throat, it appears that the left hard palate is pressed by a mass. No loose teeth. T1-T1 throat, no dilated crypts. The patient was programmed for mass extirpation in GA surgery in conjunction with the Ophthalmology department. We performed histopathological examination and imunohistochemical staining using CD20, and the result were Burkitt's CD20 negative lymphoma



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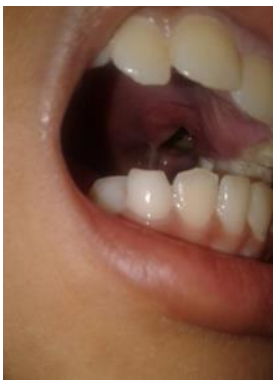
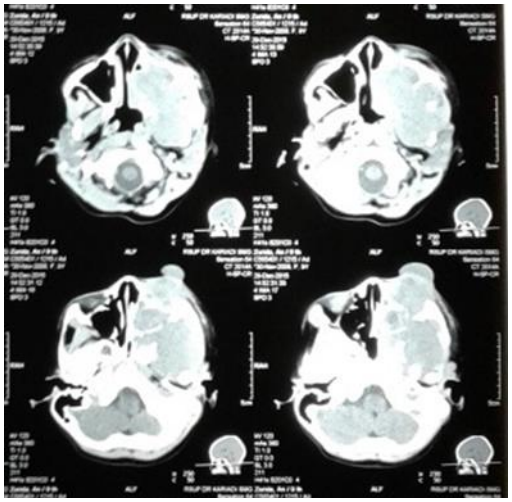


(b)

Figure 2. Oropharynx examination. (a) Before chemotherapy. (b) After first chemotherapy

On MSCT Scan examination, a solid mass was found in the left maxillary sinus, left ethmoid sinus, right left frontal sinus, left sphenoid sinus, left nasal cavity, and entered the extra orbital and left intraconal cavities, which forced the bulbus oculi to anterosuperior and caused proptosis bulbi. The mass also extended to the left parasella and caused destruction of the medial, anterior, and lateral walls of the left maxillary sinus. Abdominal ultrasound and X-ray showed no signs of metastases.

The patient was advised to undergo chemotherapy, but while waiting in line for the room, the bump on her left cheek and left eye enlarged again, making it painful to hold. It comes out as a yellowish pus and smells. Then the patient will be treated with chemotherapy with the CHOP regimen with a dose of Cyclophosphamide 600 mg/m2 per body surface area (LPT), Doxorubicin 50 mg/m2 per LPT, Oncovin/Vincristine 1.4 mg/m2 per LPT, and Prednisone 50 mg. So the patient received Cyclophophamide 468 mg, Doxorubicin 40 mg, and Oncovin/Vincristine 1 mg. Then the patient was admitted to undergo the first chemotherapy.



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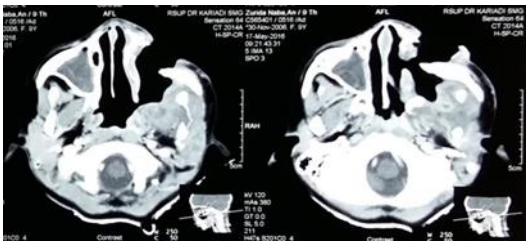
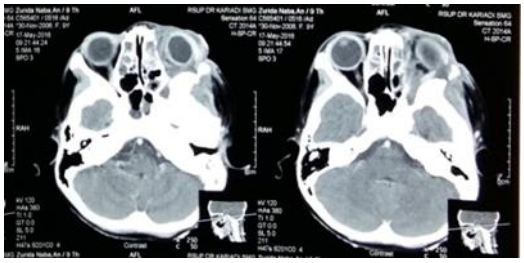




(b)

Figure 3. MSCT Scan view of the SPN with contrast axial section (a) Before chemotherapy. (b) After the third chemotherapy.

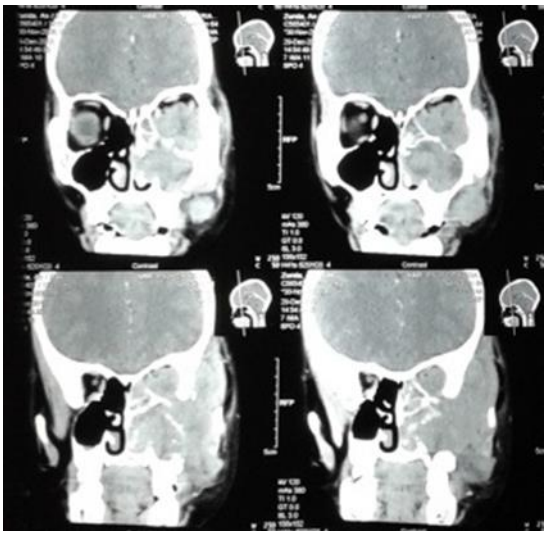
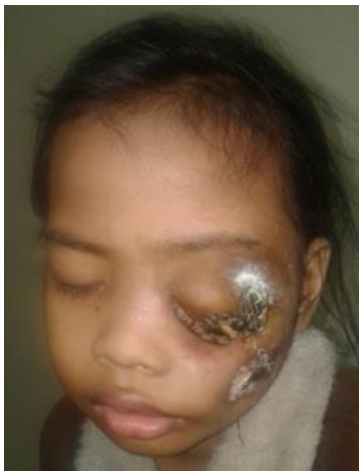


Figure 4. MSCT scan of the SPN with contrast of coronal sections before chemotherapy

The tumour had not reduced and there were no nausea or vomiting at the time of the initial chemotherapy in the pediatric unit on the first floor. The tumor on the left cheek and left eye has diminished when it is under control. The patient's total blood levels were then examined in order to get ready for the second round of chemotherapy. The patient has currently taken CHOP chemotherapy five times and has been diagnosed with stage I E Burkitt lymphoma, ECOG I, and a post-CHOP VI response +.



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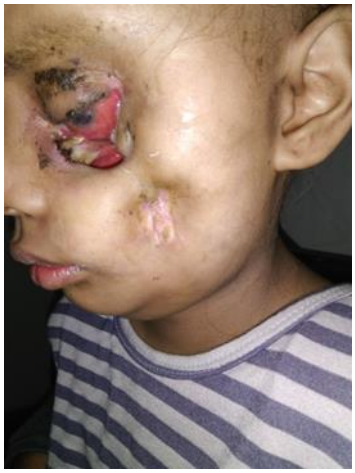

(c)

Figure 5. (a) Profile of the patient after the first chemotherapy. (b) Profile of the patient after undergoing the second chemotherapy (c) Profile of the patient after undergoing the sixth chemotherapy

At the most recent checkup, the patient reported feeling a little queasy but not vomiting, having a fever, or having a stuffy nose. All that the left eye can see is light. There were no new tumors or masses forming, and the wounds on the cheeks and eyes were dry and closed. The patient was instructed to get CHOP chemotherapy twice more

RESULTS AND DISCUSSION

The aggressive non-lymphoma Hodgkin's subgroup includes Burkitt's lymphoma, which has a high gradation power, develops from small cells, is undifferentiated, diffuse, and doesn't divide (noncleaved). The disease's discoverer, Denis Parsons Burkitt, who charted the disease's geographic distribution throughout Africa, is remembered by the term Burkitt lymphoma. There are two types of this disease, the endemic form (African type) and the non-endemic form, both of which are beta cell neoplasms with a rapid growth rate (sporadic) (Molyneux et al., 2012); (Patil et al., 2007).

This childhood cancer Burkitt's lymphoma (LB) is extremely uncommon. 1-3 hundred new cases are recorded annually in the United States, compared to 100 per million children in Africa. Burkitt's lymphoma is sporadic in the American population but endemic in some regions of Central Africa. Burkitt's lymphoma is more common in children under the age of 7, and the incidence is 2-3:1 in males compared to girls. Outside of Africa, the average age of patients is 11 years. A 9-year-old girl is described in this instance. Burkitt's lymphoma has a very high death rate, and patients typically pass away very quickly. Due to the wide variety of treatment alternatives available at this time, the prognosis has marginally improved. A variety of research facilities now offer aggressive therapy

(Molyneux et al., 2012); (Patil et al., 2007).

Burkitt's lymphoma is divided into three categories by the WHO:

1. Endemic (Africa). African children between the ages of 4 and 7 are susceptible to endemic Burkitt lymphoma, with boys being affected twice as frequently as females. The endemic form is connected to malaria endemicity and frequently connected to Epstein-Barr virus infection, which affects 98% of patients.
2. Sporadic (non-African). It occurs all across the world, has no distinctive climatic or geographic influence, and rarely involves EBV infection. It frequently affects kids between the ages of 3 and 12 (median 6 to 8 years), and boys are 3.5 times more likely to have it than girls. Sporadic Burkitt lymphoma occurs sporadically and has an annual incidence of 2 per million children under the age of 18 in low-risk regions like North America, northern and eastern Europe, and eastern Asia. Areas of moderate danger include northern Africa, the Middle East, southern Europe, and South America. In adult situations, this type is often observed in 1%–2% of cases. Up to 40% of Burkitt's lymphoma cases in Western Europe and North America are said to be this type of lymphoma.
3. Burkitt's lymphoma's immunodeficiency-associated variant frequently affects patients with HIV/AIDS. NHL is said to affect between 30% and 40% of HIV/AIDS patients. When the CD4 T cell count is larger than 200 cells per L, Burkitt's lymphoma is an immunodeficiency-associated kind (early in the development of HIV infection). As opposed to the endemic variety, the relationship between HIV and Burkitt's lymphoma is not as obvious. After an organ transplant, there is an increased risk of LB, but it is significantly lower than in people with HIV infection. It can also happen to people who have immune system deficiencies due to congenital abnormalities. In America, there are 22 cases of Burkitt's lymphoma of the immunodeficiency-associated form for every 100,000 people.

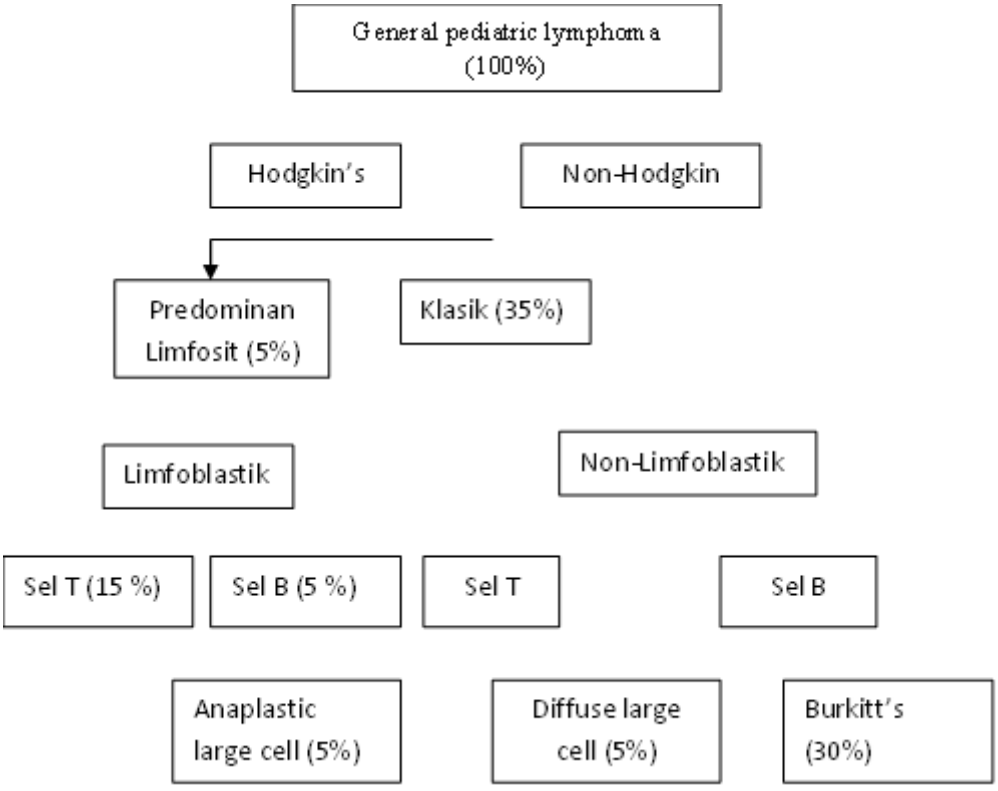

Figure 6. General subtypes of pediatric lymphoma (Bailey, Simon and Skinner, 2010)

Burkitt's lymphoma in adults

Adult cases of Burkitt's lymphoma are uncommon; there are perhaps 1200 cases per year in the US. All ages can contract the condition, but those over 40 account for 59% of cases. Adults with the condition may also have HIV infection or another type of immunodeficiency, much like children. Although it has improved, the outcome for adult patients is extremely dismal. For adult Burkitt's lymphoma, there have been no randomized treatment studies (Molyneux et al., 2012).

Weight loss, night sweats, and an inexplicable fever are just a few of the symptoms that adults exhibit in this highly developed condition, which typically affects the abdomen. Extranodal illness is widespread, particularly in the CNS (40%) and bone marrow (70%) of patients. There is a pressing need for diagnosis and staging since treatment must begin right away. A lumbar puncture and bone marrow extraction should always be part of staging. Tumorlysis syndromes can develop even before therapy, and their frequency typically rises as therapy progresses. As soon as the tumorlysis syndrome is diagnosed, aggressive preventative measures and treatment should be started.

Risk factors

A number of observations point to EBV as having a direct causative role in the endemic Burkitt lymphoma. In this type, EBV consistently manifests by infecting malignant B cells before tumorgenesis, inducing non-dead B cells in culture, and causing extremely high EBV antibody titers in children before the disease advanced. The exact mechanism linking EBV infection with B cells with the development of cancer, however, is still unknown (Miles et al., 2012).

In addition, the risk factors for LB are radiation exposure as a child, organ transplantation, and congenital syndromes of a decreased immune system such as: ataxia-telangiectasia, x-linked lymphoproliferative syndrome, and Wiskott-Aldrich syndrome (Guech-Ongey et al., 2010).

Symptoms and signs

Because Burkitt's lymphoma cells divide so quickly, the disease's symptoms frequently only last a few weeks. One or more lymph nodes may swell in different regions of the body. Affected intestinal involvement will result in nausea, vomiting, diarrhea, and abdominal pain. Sometimes, these symptoms resemble those of appendicitis. Additionally, ascites, constipation, and bloody stools are also possible side effects of lymphoma (Miles et al., 2012).

The only initially discernible clinical signs of Burkitt's lymphoma are painless, quickly expanding lymph nodes in the neck, between the thighs, under the jaw, or beneath the hands. When the lump is sporadic, the central or abdominal region (60–80%) is where it first appears, along with complaints of nausea, vomiting, abdominal pain, distension, and gastrointestinal bleeding. The head and neck, including lymphadenopathy and involvement of the tonsils, sinuses, or oropharynx, are the second most frequently affected organs. The jaw rarely gets involved. According to their symptoms, about 20% of individuals who report probable bone pain have infiltration of the bone marrow. Mediastinum, CNS, skin, testicles, breast, and thyroid gland involvement are uncommon (Guech-Ongey et al., 2010).

The most prevalent areas of involvement for patients with endemic Burkitt's lymphoma are the jaw, the periorbital area, or the abdomen (retroperitoneal tissue, bowel, ovary, or kidney). Many patients describe the rapid development of incontinence and paraplegia. Bone marrow invasion is uncommon. Children frequently include their jaws in injuries (peak age of incidence: 3-7 years). Many children in underdeveloped nations, such as Sub-Saharan Africa, are said to have advanced sickness when they are first diagnosed. In a research involving 84 children from Malawi with Burkitt lymphoma, 26 (31%) solely had facial disease, while 52 (62%) had stomach disease, and 58 (69%) had stage III or IV illness. Malnutrition-related issues are frequently observed in patients.

Burkitt's lymphoma is a common bone marrow tumor. It is possible to develop anemia (a condition marked by a deficiency in red blood cells) if there are a lot of lymphoma cancer cells in the bone marrow. Anemia results in weariness, pain in the bones, and shortness of breath. Lack of platelets, or thrombocytopenia, increases the likelihood that bleeding may occur and reduces the body's ability to control the bleeding.

Other organs that can develop Burkitt's lymphoma include the spleen, liver, kidneys, ovaries, and breasts. Burkitt's lymphoma frequently affects the jaw, where permanent teeth develop, in kids with the endemic kind. In the sporadic (Western) kind, this is uncommon.

In this case, the patient complained of a lump in the left eye that was getting bigger and then followed by a lump in the upper right jaw gum (Tumwine, 2013).

Histopathology

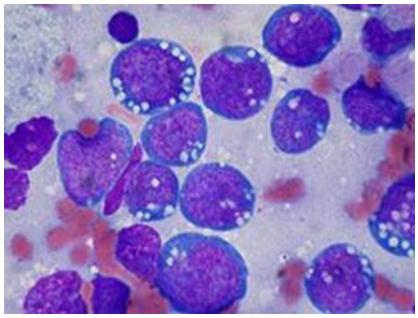

Figure 7. Microscopic appearance of Burkitt Lymphoma. The neoplastic cells were indentified as a deeply basophilic ccytoplasm and cytoplasmic vacuola,

Burkitt's lymphoma can be identified microscopically by the presence of a starry sky in the connective tissue stroma that is packed with lymphocytes and PMN leukocytes, as well as widespread necrosis and blood vessel growth (Tumwine, 2013). Commonly these cells invariably expressed CD20+ and CD79a+ are linked to B cells. The immunophenotypes also linked to LB include SIgM+, CD19+, CD20+, CD22+, CD79a+, CD10+, BCL6+, CD5-, CD23-, TdT-, and BCL2- 1. Cluster differentiation (CD) 20 negative immunophenotype was known as poor prognosis and very agrresive behaviour. It was expressed in some variants of diffuse large B cells lymphoma such as Burkitt like lymphoma, plasmablastic lymphoma, anaplastic alkalinase positive lymphoma, primary effusion lymphoma, large B cells lymphoma in human herpes virus-8 (HHV-8) associated multicentric Castleman diseases (MCD).

Burkitt's Lymphoma Stage

Burkitt's lymphoma can be classified by the following systems: the Ann Arbor system (table 1) or using the Murphy system (table 3). In addition to these classifications, the WHO classification divides non-Hodgkin's lymphoma into B-cell and T-cell types. In the United States, B-cell lymphomas are the most common; about 10% are T-cell lymphomas, and a few are null-cell types (table 2).

Table 1. Lymphoma staging of Ann Arbor system (*Panduan Nasional Penanganan Kanker : Limfoma Non-Hodgkin*, 2015); (MM, 2012).

I	Limited to one group of lymph nodes or one extra-lymphatic organ (IE).
II	Limited to 2 lymph node groups on the same side of the diaphragm or increased by invading one extra lymphatic organ (IIE).
III	Attacks lymph node groups on both sides of the diaphragm.
IV	Diffuse or extensive involvement of one or more extralymphatic organs, with or without lymph nodes
A	Without systemic symptoms
B	With systemic symptoms: night sweats, unexplained fever, weight > 10% in the last 6 months without known cause

Table 2. Major classification of non-Hodgkin lymphoma (Molyneux et al., 2012)

I	Affects 1 group of lymph nodes or 1 organ, but not the chest and abdomen.
II	Involves 2 or more lymph node groups or 2 extranodal organs or 1 extranodal organ and involves the nearest lymph node on one side of the diaphragm or a tumor in the intestine, where nearby or distant nodes are affected
IIR	Lymphoma of the stomach but has been operated on completely.
III	Lymph nodes or extranodal organs involved on both sides of the diaphragm Or any tumor arising in the chest or along the spine Or a large tumor arising in the abdomen
IIIA	Lymphomas are only on the abdomen and cannot be removed surgically.
IIIB	Concerning three or more abdominal organs
IV	Lymphoma in the bone marrow or in the central nervous system

Table 3. Staging of Burkitt's lymphoma with Murphy's system (Molyneux et al., 2012)

Rappaport	Lukes and Collins	Kiel
Nodular		
Lymphocytic, well differentiated	Undefined cell type	Low-grade malignancy
Lymphocytic, poorly differentiated	T-cell type	Lymphocytic
Mixed (lymphocytic and histiocytic)	Small lymphocytic	Chronic lymphocytic leukemia
Histiocytic	Sezary–mycosis fungoides (cerebriform)	Other
Diffuse	Convoluted lymphocytic	Lymphoplasmacytoid
Lymphocytic, well differentiated	Immunoblastic sarcoma (T-cell)	Centrocytic
Without plasmacytoid features	Small lymphocytic	Centroblastic-centrocytic
With plasmacytoid features	B-cell type	Follicular, without sclerosis
Lymphocytic, poorly differentiated	Small lymphocytic	Follicular, with sclerosis
Without plasmacytoid features	Plasmacytoid lymphocytic	Follicular and diffuse, without sclerosis
With plasmacytoid features	Follicular center cell*	Follicular and diffuse, with sclerosis
Lymphoblastic	Small cleaved	Diffuse
Convoluted	Large cleaved	Unclassified
Nonconvoluted	Small noncleaved	High-grade malignancy
Mixed (lymphocytic and histiocytic)	Large noncleaved	Centroblastic
Histiocytic	Immunoblastic sarcoma (B-cell)	Lymphoblastic
Without sclerosis	Histiocytic	Burkitt's type
With sclerosis	Unclassified	Convoluted cell type
Burkitt's tumor	Composite	Other (unclassified)
Undifferentiated		Immunoblastic
Unclassified		Unclassified
Composite		Unclassified
		Composite

International Formulation[675]			
Low grade	**Intermediate grade**	**High grade**	**Miscellaneous**
ML,† small lymphocytic	ML, follicular, predominantly large cell	ML, large cell, immunoblastic	Composite
Consistent with chronic lymphocytic leukemia	With diffuse areas	Plasmacytoid	Mycosis fungoides
Plasmacytoid	With sclerosis	Clear cell	Histiocytic
ML, follicular, predominantly small cleaved cell	ML, diffuse, small cleaved cell	Polymorphous	Extramedullary plasmacytoma
With diffuse areas	With sclerosis	With epithelioid cell component	Unclassifiable
With sclerosis	ML, diffuse, mixed (small and large cell)	ML, lymphoblastic	Other
ML, follicular, mixed (small cleaved and large cell)	With sclerosis	Convoluted	
With diffuse areas	With epithelioid cell component	Nonconvoluted	
With sclerosis	ML, diffuse, large cell	ML, small noncleaved cell	
	Cleaved cell	Burkitt's	
	Noncleaved cell	With follicular areas	
	With sclerosis		

Teraphy

Three large patient categories can be divided for the purposes of Burkitt's lymphoma management. Children with localized disease who have had all of their tumors surgically removed require only two cycles of fairly severe chemotherapy, such as Cyclophosphamide, Vincristine, Prednisone, and Doxorubicin. For example, two cycles of Cyclophosphamide, Vincristin, Prednisone, Doxorubicin, and high-dose methotrexate, followed by two cycles of cytarabine and high-dose methotrexate with concurrent intrathecal therapy, constitute at least four cycles of intensive-dose chemotherapy for children with residual or stage III disease. The same treatment as the second group was given to children who had cerebral neural syndrome (CNS) or cancer of the bone marrow, but up to eight courses of this intense dose of treatment were administered (Tumwine, 2013); (Mohamedbhai et al., 2011); (Smith et al., 2002).

Treatment typically consists of two courses of cyclophosphamide, vincristine, prednisone, doxorubicin, and high-dose methotrexate, followed by two courses of high and low-dose cytarabine, and etoposide, and four courses of maintenance with various combinations of vincristine, prednisone, high-dose methotrexate, cyclophosphamide, doxorubicin (Tumwine, 2013); (Mohamedbhai et al., 2011).

One combination that is often used in adults in the UK is R-CODOX-M, which can be combined with R-IVAC. These abbreviations refer to each drug's name. Rituximab, Cyclophosphamide/Cyclophosphamide, Vincristine (Oncovin), Doxorubicin, and Methotrexate are the active ingredients in R CODOX-M. Rituximab, Ifosfamide, Etoposide (VP-16 or Vepesid®), and Cytarabine (Ara-C) are the R IVAC. The dose of each of Cyclophosphamide, Ifosfamide, Etoposide, and Cytarabine was repeated on several days, and methotrexate required a full day to be administered.

Other medications and fluids are also needed to ensure chemotherapy drugs don't stay in the body for longer than needed. R-CODOX-M alone is used for patients with Burkitt's lymphoma who have had good outcomes (Mohamedbhai et al., 2011).

Basically, early-stage Burkitt's lymphoma doesn't significantly affect the state of the body as a whole. R-CODOX-M chemotherapy cycles typically consist of three repetitions in total. The most common treatment for people with advanced Burkitt's lymphoma is the combination of R-CODOX-M and R-IVAC. Typically, two cycles of R-CODOX-M and two cycles of R-IVAC are administered alternately (Molyneux et al., 2012)

Table 2. Chemotherapy regimen CODOX-M12

The Regimen	Dose	Procedure	Day of therapy
Cyclophosphamide	800mg/m² in 500mL NS for 1 hour	Intravenous	Day 1
Cyclophosphamide	200mg/m² in 500mL NS for1 jam	Intravenous	Day -2 to 5
Doxorubicin	40mg/m2	Intravenous	Day-1
Vincristine	1,5mg/m2 (max 2mg)	Intravenous	Day 1 and 8 (the 15th day of the third cycle)
Cytarabine	70mg	Intrathecal	Day-1 to 3
Methotrxate (MTX)	1200mg/m2 in 1 L NS for 1 jam	Intravena	Day -10
Methotrxate (MTX)	240mg/m2 /jam in 1 L NS for 23 jam	Continuous intravenous	Day-10 (after 1 hour of MTX infusion)
Leucovorin	192mg/m2	Intravenous	Day 11 (12 hours after continuous i.v MTX)
Leucovorin	12mg/m2	Intravenous	Day 11 (6 hours after loading dose)
Filgastrim	7,5µg/kg	Subcutan	From day 13 (once a day until ANC >1.0 x 109/L
Methotrexate	12mg	Intrathecal	Day- 15

Table 3. Chemotherapy regimens IVA C12 (Smithet al., 2002)

The Regimen	Dose	Prosedure	Day of therapy
Ifosfamide	1500mg/m² in 500mL NS for 2 hours	Intravenous	Days 1 to 5
Mesna	1500mg/m² in 500mL NS for 2 hours	Intravenous	Days 1 to 5 (along with Ifosfamide)
Mesna	360mg/m² in 100mL NS for 30 minutes	Intravenous	Days 1 to 5 (4 hours after completion of Ifosfamide infusion, every 3 hours x 2 doses)
Cytarabine	2000mg/m² in 250mL		
NS to 1 hours	Intravenous	Day 1 and 2 (every 12 hours x 4 doses)	
Etoposide	60mg/m² in 500mL		
NS over 1 hr	Intravenous	Days 1 to 5	
Methotrexate	12mg/m²	Intrathecal	Days 5
Filgastrim	7.5ug/m2	Subcutan	From day 7 (once a day until ANC > 1.0 x 109/L

R-hyper-CVAD is a different combination therapy that has been extensively used for Burkitt's lymphoma. It includes dexamethasone, vincristine, doxorubicin (Adriamycin), a small (hyperfractionated) dose of cyclophosphamide, and rituximab. Cytarabine and high-dose methotrexate are alternated with this combination. Each regimen was administered for four cycles specifically. There are numerous different combinations used in children and young adults. This included two cycles of COPADM, which is made up of intrathecal chemotherapy and the following medications: cyclophosphamide, vincristine (Oncovin), prednisolone, doxorubicin (Adriamycin), and methotrexate. Depending on how far along the lymphoma is, additional chemotherapy regimens like CYM (Cytarabine and Methotrexate) or CYVE (Cytarabine and Etoposide [Vepesid]) may be used after COPADM administration. And how has the therapy's first-round response been? 10–11 Cyclophosphamide, Doxorubicin, Oncovin, and Prednisone were the chemotherapy drugs given to this patient

CONCLUSION

In this case it was suffered by a 9 year old girl and the symptoms of a lump in the eye and left cheek were getting bigger and bigger, with histopathological results obtained cells with "Starrys Sky" pattern,

which supports the diagnosis of Burkitt's Lymphoma. The result of imunohistochemical staining revealed CD20- , so that the patient receives chemotherapy treatment. with chemotherapy regimen of cychlosfamide, doxorubicin, oncovin and prednisone.. Patient was diagnosed with stage II E Burkitt lymphoma, ECOG I, completed respons.

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