

# Burkitt's lymphoma of the head and neck region in a Nigerian tertiary Hospital

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## Summary

**Background:** Burkitt's lymphoma is endemic in Nigeria; it forms about 39% of all childhood cancers. In recent times more of these cases are being seen presenting first to the Ear Nose and Throat clinic.

**Objective:** This study is designed to look at the pattern of presentation of head and Neck Burkitt's lymphoma at a Nigerian Tertiary hospital and to evaluate current treatment modality.

**Design:** It is a retrospective study of all confirmed Burkitt's lymphoma of the head and neck region seen at the Obafemi Awolowo University Teaching Hospital Ile Ife (OAUTHC) between 1986 and 2002.

**Patients and methods:** The medical records of all the patients with the histopathologically confirmed Burkitt's lymphoma over a 17-year period (1986-2002) were evaluated. The proportion of the tumor affecting the Head and neck region were noted. The data extracted were entered into a questionnaire and analysis of data was done using the SPSS 10.0 software.

**Results:** A total of 196 cases of Burkitt's lymphoma were seen over the period out of which 140 (71.4%) were in the head and neck region. There was a male preponderance with the incidence of 72% and 28% in females. The peak age incidence was found to be within the first decade of life.

The most common sites that were affected are; the jaw (65.9%), nasal and paranasal sinuses (12.2). Majority of the patients presented with advanced disease. Combination Chemotherapy comprising Cyclophosphamide, Oncovin, Methotrexate and Prednisolone (COMP) was the mainstay of management.

The treatment outcome was only favorable in 36.6%. Default rate was (11.7%) while the mortality rate was (12.6%). Relapse/recurrence was found in (5.1%) of cases. Frank drug resistance was found in (2.6%). Blindness was found to be a major morbidity associated with this disease. Septicemia and severe anemia were found to be the major causes of mortality. Some complications of treatment were noted.

**Discussion:** The importance of the findings in this work was discussed in line with the existing literature.

**Conclusion:** Head and neck remain the mostly affected parts in Burkitt's lymphoma in this environment. Presentation with advanced disease is the bane. This partly explains high morbidity and mortality in affected children.

**Key-words:** Burkitt's lymphoma, Head and neck, Nigerian tertiary hospital

## Résumé

**Introduction:** Lymphome la maladie de burkitt est endémique au Nigeria. Elle constitue environ 39% de tout les cancers d'enfance. Récemment, beaucoup de ces cas se sont présentés d'abord à la clinique d'ORL.

**Objectif:** L'objet de cette étude est de décider la tendance de présentation de tête et cou lymphome maladie de burkitt dans un hôpital tertiaire au Nigeria et d'évaluer les méthodes actuelles du traitement.

**Plan:** Il s'agit d'une étude rétrospective de tous les lymphome maladie de burkitt dans la région de tête et cou confirmés et vus au centre hospitalier universitaire d'Obafemi Awolowo, Ile-Ife (CHUOA) entre 1986 et 2002.

**Patients et méthodes:** Les dossiers médicaux de tous les patients atteints du lymphome maladie du Burkitt histopathologiquement confirmé au cours d'une période de 17 (1986 - 2002) ont été évalués. On avait noté la proportion du tumeur qui touche la région de tête et cou. Les extraies des données ont été inscrit dans un questionnaire et on avait effectué une analyse des données à travers le SPSS 10,0 logiciel.

**Resultats:** Un nombre total de 196 cas de lymphome maladie de Burkitt ont été vus au cours de cette periode parmi lesquels 140 soit 71,4% étaient dans la région de tête et du cou. Il y avait une majorité du sexe masculin avec une incidence de 72% et 28% du sexe féminin. L'incidence d'âge maximum était noté d'être entre la première décennie de vie. Les sièges implique les plus courants sont: la mâchoire (65,9%), sinus nasal et paranasal

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12,2%. Majorité des patients s'étaient présentés atteint de la maladie grave. Une combinaison chimiothérapie composée de cyclophosphamide, oncovin, Méthotrexate et Prédnisolone (COMP) était la base de la prise en charge. Le résultat du traitement était favorable seulement en 36,6%. Taux de défaut était 11,7% tandis que taux de mortalité était 12,6%. Cas de la reshute/récurrence était noté en 5,1% des cas. Résistance au médicament du Frank était notée en 2,6%. La cécité était notée d'être une morbidité principale liée avec cette maladie. Septicémie et anémie grave ont été notée d'être les causes principales de la mortalité. On avait noté quelque complications du traitement.

**Discussion:** L'importance du résultat de ce travail était traité conformément à la littérature actuelle.

**Conclusion:** La tête et le cou demeure les cotés le plus concernés de lymphome maladie de burkitt dans ce milieu. Présentation avec une maladie avancée est une plaie. Ceci en partie explique le taux élevé de la morbidité et chez des enfants atteints.

**Introduction**

The Lymphomas are a group of malignant diseases of the lymphoreticular origin<sup>1</sup>. The lymphomas arise from the lymph nodes and extra nodal tissue. More than 25% of all extra nodal lymphomas occur in the head and neck region and are the second largest head and neck malignancies<sup>2</sup>.

Lymphomas are broadly classified into Hodgkin's and Non Hodgkin's lymphomas, and Burkitt's lymphoma belongs to the histological classification of the aggressive Non Hodgkin's Lymphomas from the B cell cellular line<sup>2</sup>. Histological features of starry sky appearance or cytological findings of large lymphoblasts with cytoplasmic vacuolation are diagnostic<sup>3</sup>. The different histological classifications of malignant lymphomas are known to have different natural histories and varying prognosis<sup>4</sup>. Furthermore, different histological types of Lymphoma carry a variable expression in different parts of the world. For instance, the NK/T cell lymphoma is common in Taiwan and South East Asia, while Burkitt's is endemic in central and West Africa<sup>5</sup>. This paper presents the pattern of presentation of Burkitt's lymphoma affecting the head and neck region at the OAUTHC Ile-Ife.

**Patients and methods.**

This is a retrospective study of Burkitt's lymphoma affecting the head and neck region at the OAUTHC Ile-Ife from 1986-2002.

The hospital records of the patients with histologically or cytologically confirmed Burkitt's lymphoma were reviewed. The relevant data were recorded. The stage of the disease was noted using the staging system modified after Magrath and Sariban<sup>6</sup>. The treatment regime as well as the complications of management was also evaluated.

These were entered into a questionnaires and the analysis of the data was done using the SPSS 10.0 statistical software<sup>7</sup>. The results were presented using the simple frequency and percentages.

**Results**

There were 196 patients with confirmed Burkitt's lymphoma during the study period. One hundred and

**Table 1 Age distribution of the patients with Burkitt's lymphoma**

Age in years	Frequency	%
1-10	91	65.0
11-20	36	25.7
21-30	8	5.7
31-40	1	0.7
41-50	1	0.7
Unspecified	3	2.1
Total	140	100

**Table 2 The presenting symptoms of patients with Burkitt's lymphoma**

Symptoms	Frequency of occurrence	% of total
Jaw swelling	32	22.9
Facial swelling	26	18.6
Proptosis	17	12.1
Loss of teeth	9	6.4
Nasal blockage	6	4.3
Blindness	4	2.9
Skin rashes	4	2.6
Sore throat	3	2.1
Otorrhea	3	2.1
Difficulty in breathing	3	2.1
Jaundice	2	1.4
Unconsciousness	1	0.7
Neck mass	2	1.4
Occipital mass	1	0.7
Fever	6	4.3
Weight loss	15	10.5
Abdominal mass	15	10.5



**Fig. 1 A 90 yr old female with Burkitt's lymphoma of the Rt and Lt maxillae with the involvement of the nasal cavity.**

**Table 3 Duration of onset of presenting complaints.**

Duration in weeks	Frequency	%
2	26	18.6
4	56	40.0
6	16	11.4
8	9	6.4
10	–	–
12	10	7.1
14	1	0.7
16	4	2.9
20	2	1.4
2 years	1	0.7
Unspecified	15	10.7
Total	140	100

forty (71.4%) patients were found to have Burkitt's lymphoma affecting the head and neck region. The first decade of life accounted for 64.8% of cases while the fourth decade of life accounted for only 0.5%. (Table 1). There were 100 males and 40 females. Given a male: female ratio of 2.5:1.

Table 2 summarizes the most common presenting symptoms in head and neck Burkitt's. Jaw swelling, facial masses, proptosis and dental anarchy are the 4 most common symptoms, while jaundice, occipital mass and loss of consciousness are the least presenting complaints. Majority of the cases (>50%) presents within 4 weeks of onset of disease. See Table 3. Table 4 summarizes the anatomical location of the tumor and the staging. Stage A disease was found in 17.9% Stage B disease 20.7%, Stage C accounted for 21.4% while Stage D disease was found in 40.0%.

**Treatment**

Chemotherapy was the mainstay of management of Burkitt's in our environment. The patients were treated with the modified Zeigler<sup>8</sup> regime as follows: Intravenous Cyclophosphamide 1g/m<sup>2</sup> Day1; Intravenous Vincristine 1.5mg/m<sup>2</sup> (maximum dose 2mg) Day 1; Subcutaneous Cytosar 100mg/m<sup>2</sup> 12 hourly day 1-3 can be given in place of Methotrexate.

Intravenous Methotrexate 37.5mg/m<sup>2</sup> Day 1 or 12.5mg/m<sup>2</sup> given orally on days 1-3; Oral Prednisolone 40mg/m<sup>2</sup> in divided dose on days 1-3. Intrathecal Cytosar 50mg/m<sup>2</sup> Days 1 and 5 or Methotrexate 12.5mg/m<sup>2</sup> Days 1 and 5. Each cycle was repeated every 14 days until a patient has had 6 cycles or at least 2 cycles beyond remission. The full blood count, Electrolyte and Urea and the Uric acid level are usually checked and the cycles are repeated only when the values are within normal limits.

The role of Surgery in the management of head and neck Burkitt's lymphoma in our environment was only confined to diagnostic purposes, while Radiotherapy was never employed for any of these patients. Table 6 summarizes the treatment regime that was employed in managing these patients.

**Discussion**

Burkitt's lymphoma is one of the histopathological variants of a Non Hodgkin lymphoma (NHL) that is endemic in Africa<sup>2,9,10</sup>.

The double peak ages noticed in the Caucasians with NHL<sup>3</sup> is not observed in this study. This could be attributed to racial peculiarity. It is however note worthy that the incidence of head and neck Burkitt's in this work is higher than 40-50% of childhood Burkitt's reported in other parts of Afrca<sup>11</sup>. Differences in the studied population samples may explain this. Majority of the patients were from the Yoruba speaking area of the South Western region of Nigeria. Other ethnic tribes constitute only 12.3% of the patients. A geographical variation in the incidence of Burkitt's lymphoma in Nigeria has been reported with a lower incidence in the Northern savanna belt and a higher incidence in the southern rainforest area<sup>12</sup>, although, the catchment areas of the hospital fall within the south western region where, expectedly, the people predominantly come from.

The most common symptoms of presentation of Burkitt's lymphoma in this review are jaw swelling, facial masses, proptosis and loss of teeth. (Table 4) This is in contrast with the presentations in Caucasians where the most common symptoms are oropharyngeal, or nasopharyngeal mass, and tonsillar enlargement<sup>2</sup>. Nasal

**Table 4 Showing the anatomical location and the clinical staging of head and neck Burkitt's.**

Diagnosis	Stage A	Stage B	Stage C	Stage D	Total
Naso maxillary complex	2	3	2	8	15
Jaw	21	17	23	20	81
Oro-facial	-	2	2	4	8
Ocular	2	6	3	17	28
CNS	-	-	-	5	5
Thyroid	-	1	-	2	3
<b>Total</b>	<b>25</b>	<b>29</b>	<b>30</b>	<b>56</b>	<b>140</b>

and primary oral disease are said to be rare<sup>2</sup> as opposed to what we saw as major presentation in endemic Burkitt's of our environment.

Chemotherapy was the mainstay of management in our center<sup>7</sup>, and the combination of choice is Cyclophosphamide, Oncovin, Methotrexate and Prednisolone (COMP) and Cyclophosphamide, Oncovin, Cytosar, and Prednisolone (COAP) in patients with resistant disease. The role of surgery in our center is limited to diagnostic (that is, to obtain specimen for tissue cytology /histopathology), staging, and for follow up for recurrence. Local radiation therapy<sup>13</sup> and such surgical procedure as Stem cell transplantation<sup>14</sup> (SCT) have been reported as a modalities of treatment. The combination chemotherapy consists of 2 cycles beyond remission for a usual 6 cycles, and in patients with CNS involvement intrathecal injections of Methotrexate was added<sup>8</sup>.

The treatment outcome in 36.6% was good with good remission and no relapse for upward of 5 years. Default rate from the treatment programme was high due to factors associated with low socio-economic reasons. Recurrence was found in 5.1% and drug resistance was also found in 2.6% of cases, possibly because of poor compliance to drugs for financial reasons. Combined therapy (CMT)<sup>15</sup> comprising of involved field radiotherapy (IFRT) and poly chemotherapy and Stem cell transplantation (SCT) have also been used by others<sup>14</sup> in good resource centers. Effects of structural adjustment programme (SAP)<sup>15</sup> would not allow for this in Nigeria

Blindness was found to be a major morbidity in patients with ocular Burkitt's. The mortality rate in this study is 12.6%. The causes of mortality in this work were found to be due to septicemia and severe anemia. The use of Stem Cell Transplantation in combination with chemotherapy could have probably reduced these complications if the patients had had access to them. The complications of treatment noted in these patients were late relapse of greater than seven years in (0.7%) of cases, pancytopenia with severe infections like measles, and tuberculosis, and a leukemia transformation in one patient each. These are not unusual complications in anti-cancer chemotherapy<sup>16</sup>.

## Conclusion

Morbidity and mortality remain high in common childhood malignancy that plagues our environment because of our limited resources in the early diagnosis and effective management of the cases.

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