INTERMEDIATE TYPE OF BURKITT'S LYMPHOMA: A RARE CASE REPORT.

Vanaja Reddy,* P. V. Wanjari,**. AratiChaudhary***, Radhika Gupta****.

ABSRACT

Burkitt lymphoma is a high grade aggressive malignant tumor of hematopoietic system composed of small, non cleaved, undifferentiated malignant cells of a B lymphoid origin.The three distinct clinical forms of BL include the endemic (African), sporadic (in other geographical areas) and immunodeficiency associated types. Through an extensive literary survey, it is seen that only a few cases of BL have been reported, accounting for only 0.76% of solid malignant tumors among Indian children.Here, we present a rare case report of sporadic form of Burkitt's Lymphoma occurring in a young Indian boy presenting with the features of endemic Burkitt's lymphoma.

KEY WORDS: Endemic, Sporadic, Lymphoma, Hematopoietic

INTRODUCTION

Burkitt lymphoma(BL) is a highly aggressive lymphoma first described by Dennis Parsons Burkitt in 1958.It is a childhood tumor but can also be seen in adults.[1,2] Among Indian population it is a very rare malignancy accounting for only 0.76% of solid malignant tumor.[3] There are three distinct forms of BL –:a) the endemic or African form, found in equatorial Africa and Papua New Guinea, b) the non endemic or sporadic form, found in areas such as North America, Northern and Eastern Europe and the Far East and Immunodeficiency associated form. An intermediate form may also be distinguished, and this occurs in areas such as Southern Europe, the Middle East and parts of SouthAmerica.[5]

Endemic form has a peak incidence in children between 3 and 8 years of age. Common site of disease presentation is the face, with multiple facial bone involvement. Sporadic form affects the older children, with mean age of 11 years. It is more likely to have leukemic or bone marrow involvement, and less likely to have jaw involvement. Common site of involvement beingabdomen.[1,5,6]

The distinction between different types is generally based on geographic location, association with Ebstein barr virus (EBV), clinical presentation, incidence, age at presentation and sex ratio. BL in India could be a variation between sporadic and endemic types in its clinical presentation.[1-6] Here, we present a rare case report of sporadic form of Burkitt's Lymphoma occurring in a young Indian boy presenting with the features of endemic Burkitt's lymphoma.

CASE REPORT

A 4 year old boy reported to our unit with a chief complaint of swelling on right side of face since 25 days which was rapid in onset. The swelling was associated with mild, dull, intermittent type of pain, and swelling was associated with shifting of right eyeball upwards since 20-25 days. Patient gives

* Reader,
**Professor and Head.
***Professor,
****P.G. Student, Dept of Oral Medicine and Radiology Modern Dental College and Research Center, airport road, Gandhi nagar, Indore

history of another similar type of swelling above the present swelling since 2-3 days.

Physical examination revealed a moderately built and nourished child. Solitary bilateral Submandibular lymph nodes were palpable, non tender, measuring about 1cm × 1.5cm in size, firm and freely mobile. Extraoral examination showed a unilateral, diffuse swelling 2 in number present on right of face.

First swelling measuring approximately 5cm × 4cm in size extending anteriorly from right ala of nose to 5 cm posteriorly and superioinferiorly from 1 cm below the infraorbital margin to 2 cm above the inferior border of mandible.

Second swelling measuring approximately of about 2cm × 2.5cm in size, extending anteroposteriorly from outer canthus of eye to 2 cm ahead of tragus and superioinferiorly from level of supraorbital margin to 1 cm below outer canthus of eye. The surface of both swelling appeared smooth and stretched. There was no evidence of any secondary changes over the swelling. On palpation, the swelling was tender, firm, nonfluctuant, non reducing and fixed to underlying structures. (Fig 1)

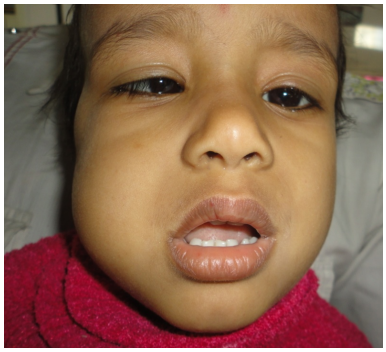

Fig 1: Extraoral photograph showing two diffuse swellings on right side of face

.Patients oral hygiene was satisfactory.Patient was adviced for further investigations.

An orthopantomogram showed mixed dentition with no signs of any alveolus expansion in the jaws.

Haematological investigations revealed features of Anaemia (Hb%-10.3%). FNAC was performed which showed abundant small and large lymphoblast cells with few mitotic figures which was suggestive of lymphoma.USG reports revealed irregularly marginated solid echohic mass in right cheek region measuring about 4 × 3.4 × 2.2 cm, extending behind zygomatic arch.

Considering the location of the lesion and to evaluate its boundaries patient was subjected to MRI which showed large multilobulated uniformly hyperintense soft tissue lesion in the right buccal fat region anterior to masseter muscle measuring approximately 4.2 X3.5 X 4 cms extending superiorly through the buccal space into the masticator space and superiorly into the retro-maxillary space. Also seen extending superiorly upto the pterygomaxillary fissure and pterygopalatine fossa. It also showederosion of the posterolateral wall of the right maxillary sinus with extending of the lesion into the sinus.A small component was also seen extending superior to the zygomatic arch.(Fig 2)

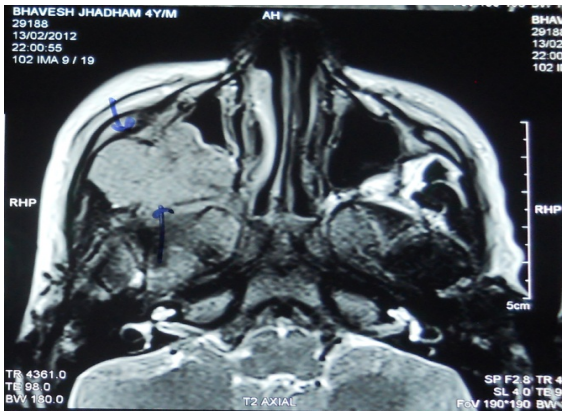

Fig 2:MRI showing large multilobulated uniformly hyperintense soft tissue lesion lesion seen in the right buccal fat region.

Patient was then subjected to incisional biopsy which showed many large round to oval cells with almost centrally placed round nucleus with clear to scarce cytoplasm suggestive of macrophages intermixed with round cells giving a starry sky appearance confirmatory of Burkitt's lymphoma.(Fig 3,)

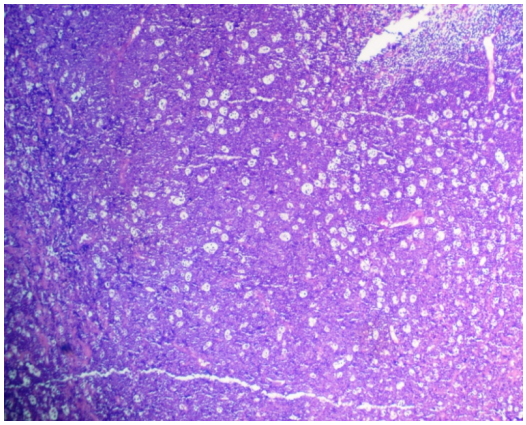

Fig 3: Photomicrograph (low power view) of the lesion showing numerous macrophages within the tumor tissue giving a characteristic "starry sky" appearance.

Patient was referred to oncology department where prompt chemotherapy was instituted for days. He responded well with complete remission and patients extraoral features were restored to normalcy with in a span of 30 days.(Fig 4) Patient isasymptomatic since four months and is recalled for evaluation once every two months.

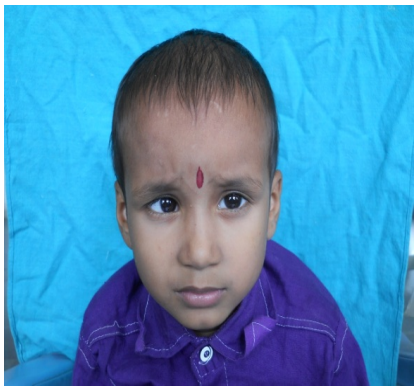

Fig 4: Postoperative extraoral photograph after four months

DISCUSSION

Lymphomas are a group of malignant tumors involving cells of the lymphoreticular or immune system such as B-lymphocytes, T-lymphocytes or monocytes. Burkitt's lymphoma is a high grade aggressive malignant tumor of hematopoietic system composed of small, non-cleaved, undifferentiated malignant cells of a B lymphoid origin.[2,3,7,8]

BL has a vague etiology. BL initiation had many nonspecific infections associated with it, out of which EBV infection and malaria seems to play a role in the pathogenesis of BL. Its association with EBV in India varies from 25 to 80%.[5] By far, the most popular hypothesis is that immunodepression is the cause.[2,9] Genetic studies of the affected patients showed a hallmark expression for this disease in the form of overexpression of C-myc gene, most commonly resulting from translocation of t(8:14), although variant translocations have been described .[3,10,11] Any of the above three mentioned conditions would have affected our case as the prevalence of EBV and malaria is most common in India.

The 3 distinct clinical forms of BL include the endemic, sporadic and immunodeficiency associated types. Although there is considerable overlap, unique clinical and genetic features have been described among variants.[10,11,12]

Endemic BL – In Africa it accounts for upto 50% to 70% of all pediatric malignancies ranging with peak incidence between 3-8 years of age and the male to female ratio is 2:1.The commonest site of disease is face with multiple facial bone involvement. Maxilla is affected more often than the mandible in the ratio of 2:1, as seen in our case of BL affecting maxilla.[3,8,9.] HIV associated Burkitt's lymphoma – Most patients are adults with marked

immunosuppression.[3,7,8]In an Indian series of solid malignant tumors in children, Pramanik et al, in 1997, studied 263 cases over a period of 10 years and found only 2 cases (0.76%) of BL making it rare entity.[3,5]The above mentioned prevalence in age, clinical presentation of the sporadic type in head and neck region and its intermediate presentation between sporadic and endemic types makes our case rarest of rare entities.

Earliest sign of BL is loosening of teeth associated with occasional pain and paresthesia. As the tumor grows the teeth are displaced out of their sockets. When permanent teeth are affected, they erupt prematurely. BL is also unique in which it infiltrates the dental tissues- the dental pulp, developing tooth follicle and the Pdl. Kramer speculated that the odontogenic epithelium which exerts an inductive influences on the mesodermal tissues, may have role in involving the jaws in BL. What is peculiar is that after successful chemotherapy, the previously infiltrated dental tissues were able to return to normal.[2,3]

Histologic sections show an undifferentiated type of B cell lymphoma. The sheets of tumor cells are interspersed with large pale macrophages, providing the "starry-sky" appearance, which is typical of but not unique to BL [3,8] as seen in our case.

Immunohistochemical stains Ki-67, CD-19, CD-20, CD-22, CD-79 protein may be useful in diagnosis.[3]

Routine blood investigations which are consistently abnormal in BL patients. Serum lactate dehydrogenase (LDH) is elevated to a level corresponding to the extent of the tumor dissemination. Increased activity of alanine aminotransferase, serum alkaline phosphatase and immunoglobulins has been reported. Anemia and leukocytosis are common. In addition, the ESR and the blood urea nitrogen (BUN) may be elevated.[3] Our case presented with elevated levels of LDH, ESR and decreased haemoglobin percentage.

The treatment of choice in these patients is chemotherapy. With the current chemotherapy regimens, the overall cure rate is approximately 90% in children and 50-60% in adults.[8,13] Our case responded very well to the chemotherapy and the patients extraoral features were restored to normalcy with in a span of 1month.

Radiotherapy is reserved for overt CNS disease that is resistant to chemotherapy and is reported to be useful in certain emergencies such as airway obstruction. Bone marrow transplantation may be necessary after completion of chemotherapy cycles. The surgical management of BL is limited to biopsies. When relapses occur, it is usually within 1 year of diagnosis, so those who survive 2 years without recurrence can be considered cured.[3,7,8,]

Prognosis depends on the extent of the disease, patient's age and timing of diagnosis. It is excellent in children, where it approaches 100% disease free survival in early stages and 75% to 85% of patient survives free of disease in later life.[8] Prognosis was favourable in our because of patients age and timely diagnosis. Precautionary followup upto minimum of 2 years is essential to rule out relapse.[8,13]

Conclusion- Based on the results obtained in our case, it could be concluded that endemic form of Burkitt's lymphoma is more common, when compared with non endemic type, with exact etiology until today remaining unknown. In our case clinical findings corresponding with the observations in the literature differed significantly by showing clinical features of

intermediate type between sporadic and endemic form.

Early recognition through systemic work up and aggressive treatment are essential to improve the outcome of this disease.

REFERENCES

1. R. Rajendran, B Sivapathasundharam. Shafer's Textbook of Oral Pathology .5th edn. New Delhi : Elsevier publication
2. Tsui SH, Wong MH, Lam WY. Burkitt's lymphoma presenting as a mandibular swelling: Report of a case and review of publications. Br J Oral Maxillofac Surg 2003; 38: 8-11
3. Patil K, Mahima V, Jayanth B, Ambika L. Burkitt's lymphoma in an Indian girl: A case report. J Indian Soc Prevent Dent 2007,Dec; 194-99
4. Turakhia S, Majmudar AS, Juthani P. Case Report: Pediatric duodenal Burkitt's lymphoma. Indian J Radiol Imaging. 2007, Nov;17(4): 257-59
5. Cardy AH, Sharp L, Little J. Burkitt's lymphoma: A review of the epidemiology. Kuwait Medical Journal 2001, 33 (4): 293-306
6. PEREIRA CM. Burkitt's lymphoma in a young Brazilian boy. *Malaysian J Pathol 2010; 32(1) : 59 – 64*
7. Ferry JA. Burkitt's lymphoma: Clinicopathological feature and differential diagnosis. Oncologist 2006;11:375-83
8. Jan A, Vora K, Sandor GK. Sporadic Burkitt's Lymphoma of the Jaws: The essentials of Prompt Life saving Refferal and Management. J Can Dent Assoc 2005;71(3):165-8
9. Hassan R et al. Clinical and demographic characteristics of Epstein Barr virusassociated childhood Burkitt's lymphoma in Southeastern Brazil: Epidemiological insights from an intermediate risk region. *Haematologica 2008 May;93(5):780-783*
10. Blum KA, Lozanski G, Bryd JC. Adult Burkitt leukemia and lymphoma. Blood 2004;104:3009-3020
11. Hanazawa T, Kimura Y, Sakamaki H, Yamaguchi A, Nagumo M, Okano T. Burkitt's lymphoma involving the mandible: Report of a case and review of Japanese cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1998;85:216-20
12. Bellan C et al. Review. Burkitt's Lymphoma: new insights into molecular pathogenesis. J Clin Pathol 2003;56:188-193
13. Spreafico F, Massimino M, Luksch R, et al. Intensive, very short term chemotherapy for advanced Burkitt's Lymphoma in children. J Clin Oncol.2002;20:2783-2788

Corresponding Author:
Dr. Vanaja Reddy, Reader, Dept of Oral Medicine and Radiology, Modern Dental College and Research Center, Gandhi Nagar, Indore.
Email ID: drvanreddy02@gmail.com
Phone number: 09755646768