Ocular adnexal lymphoma in the Northeast Indian population

Dipankar Das, MS; Panna Deka, MD;
Kasturi Bhattacharjee, MS, FRCS;
Jayanta Kumar Das, DNB; Ganesh Kuri, MS;
Akshay Chandra Deka, MSMLT;
Harsha Bhattacharjee, MS

We present the clinical profile of biopsy and immunohistochemistry-proven ocular adnexal lymphomas in the Northeast Indian population. Nineteen patients between October 2004 and June 2006 with ocular adnexal lymphoma were analyzed retrospectively. Histopathological classification was done according to international working formulation. Twelve patients were male and seven were female. All were diagnosed as non-Hodgkin's lymphoma and the majority were B cell type (89%). Most of the cases (42%)were treated with radiotherapy followed by chemotherapy.

Key words: Histopathology, immunohistochemistry, non-Hodgkin's lymphoma, ocular adnexa

Indian J Ophthalmol 2008;56:153-5

Lymphoid tumors are amongst the common neoplasms of ocular adnexa encountered by ophthalmologists. Lymphomas are malignant neoplasms characterized by propagation of cells natural to the lymphoid tissue.[1] Ocular adnexal lymphoid tumors may involve the eyelids, conjunctiva, orbital connective tissue or lacrimal gland. Lymphoma is broadly classified into main two types - A) Hodgkin's lymphoma and B) Non-Hodgkin's lymphoma (NHL). The onset is generally in the sixth and seventh decades of life and it is uncommon in children.[1,2] The detailed descriptions of ocular adnexal lymphoma in Northeast India have not been previously reported. Few studies on lymphoma in India[3,4] are reported in the literature. We present this retrospective hospital-based study on ocular adnexal lymphomas from the Northeastern part of India.

Materials and Methods

Case records from the Ocular Pathology Laboratory of 19 patients who presented between October 2004 and June 2006 were retrospectively analyzed. The modes of presentation were studied. All the cases were biopsy and immunohistochemically proven. Following a diagnosis of lymphoma, all patients were evaluated by a medical oncologist for systemic involvement. A detailed history followed by Snellen's visual acuity, slit-lamp biomicroscopy, applanation tonometry, fundus evaluation by indirect ophthalmoscopy and detailed proptosis evaluation was done for all patients. B scans, ultrasound and computed tomography (CT) scan was done in all cases.

Sri Sankardeva Nethralaya, Beltola, Guwahati - 781 028, Assam, India

Correspondence to Dr Dipankar Das, Sri Sankaradeva Nethralaya, Beltola, Guwahati - 781 028, Assam, India. E-mail: dr_dasdipankar@yahoo.com

Manuscript received: 04.08.06; Revision accepted: 29.05.07

Results

Nineteen patients were analyzed retrospectively, 12 patients (63%) were male and seven (37%) were female. The age ranged from 22 years to 85 years with mean age of 59.36 years [Table 1]. Nine patients (47%) presented with proptosis and five patients (26%) presented with an upper lid mass; three (15%) as conjunctival mass and two (11%) as lacrimal gland swelling [Table 2]. There was no past history of orbital inflammatory disease in our series. All patients underwent incision biopsy from respective site in most of the cases and confirmed histopathologically and with immunohistochemistry (IHC). Histopathological classification was done according to international working formulation. Most of the tumors morphologically consisted of heterogeneous population of B-lymphocytes, cells with relatively large amounts of pale or basophilic cytoplasm that have monocytoid appearance and scattered immunoblast and centroblast-like cells. A proportion of cases showed plasma cell differentiation. Moreover, the tumor cells had a round to oval nucleus that appeared vesicular. Some of the nuclei were cleaved. All patients were having NHL. B-cell lymphomas (CD20, IHC) were seen in 17 cases (89%) [Fig. 1], T-cell lymphoma (CD3, IHC) in one case (5%)

Table 1: Profile of Non-Hodgkin's lymphoma

Case No.	Age/sex of the patients	Presentation	CD20, IHC	CD3, IHC
1	70 Y/M	Proptosis	Positive	-
2	68 Y /F	Lacrimal gland swelling	Positive	-
3	54 Y /M	Proptosis	Positive	-
4	77 Y /F	Conjunctival mass	Positive	-
5	80 Y /M	Proptosis	-	Positive
6	64 Y /F	Upper lid mass	Positive	-
7	22 Y /M	Proptosis	Positive	-
8	38 Y /F	Upper lid mass	Positive	-
9	42 Y /M	Proptosis, bilateral	Positive	-
10	56 Y /F	Upper lid mass	Positive	-
11	74 Y /M	Conjunctival mass	Positive	-
12	37 Y /M	Proptosis	Positive	-
13	28 Y /F	Conjunctival mass	Positive	-
14	59 Y /M	Lacrimal gland swelling	-	-
15	78 Y /M	Proptosis, bilateral	Positive	-
16	64 Y /M	Upper lid mass	Positive	-
17	70 Y /F	Proptosis	Positive	-
18	85 Y /M	Upper lid mass	Positive	-
19	62 Y /M	Proptosis	Positive	-

Note: M - Male, F - Female, IHC - Immunohistochemistry, Y - Age in years

Table 2: Various presentations of Non-Hodgkin's lymphomas with percentage

Presentation	No. of cases	Percentage
Proptosis	9	47.36
Upper lid mass	5	26.31
Conjunctival mass	3	15.78
Lacrimal gland swelling	2	10.52

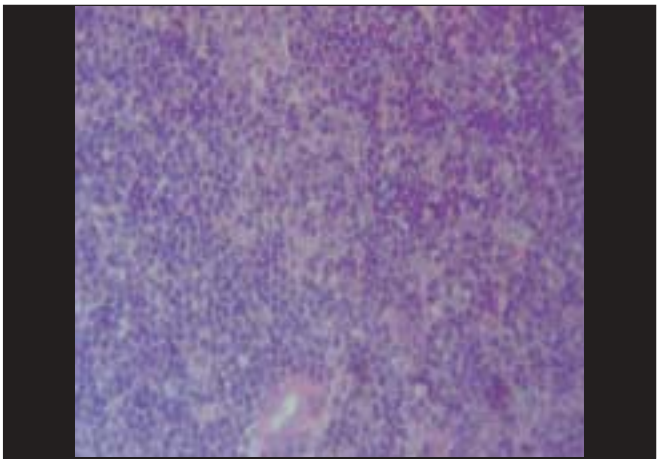

Figure 1: Lymphoid proliferation of monoclonal B-cell lymphoma (H/E, ×40)

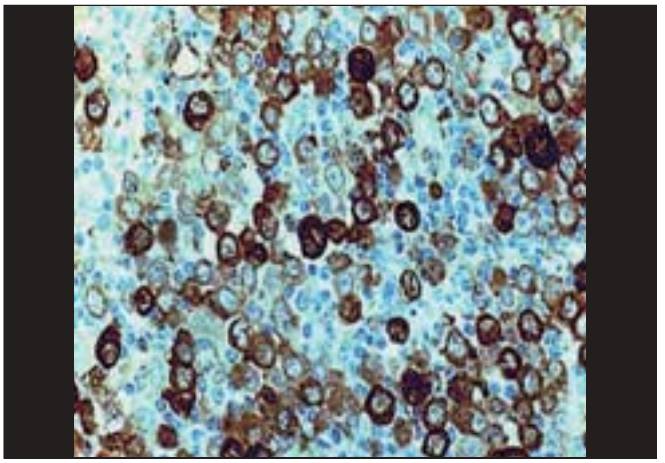

Figure 3: Corresponding IHC for T-cell marker (Immunostain with CD45RO, ×40)

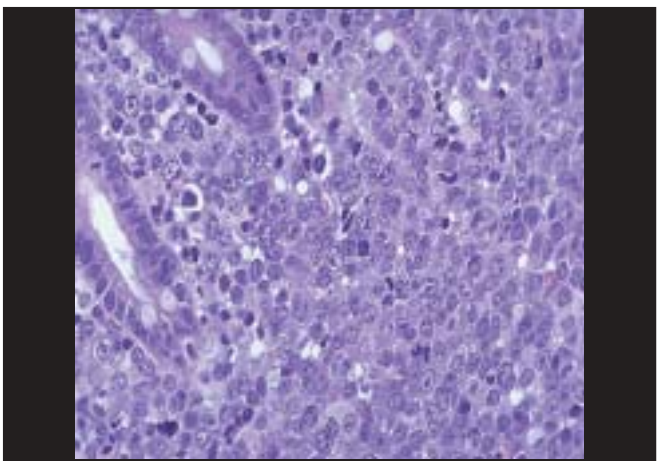

Figure 2: T-cell lymphoma which was confirmed by IHC (H/E, ×40)

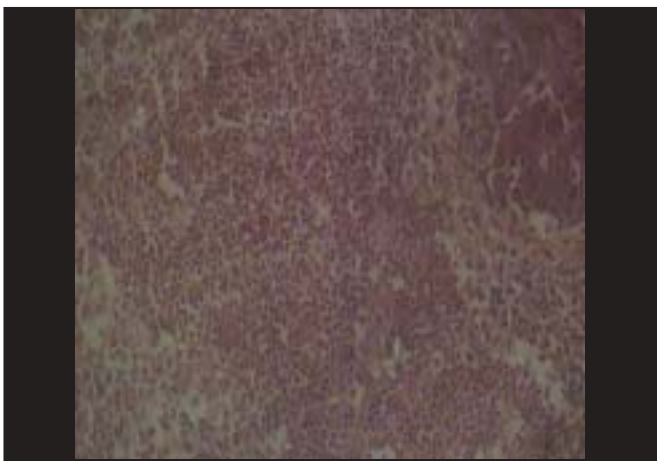

Figure 4: Lymphoepithelial lymphoma (H/E, ×40)

[Fig. 2 and Fig. 3] and lymphoepithelial lymphoma in one case (5%) [Fig. 4]. Immunophenotypic analysis has shown that most of the ocular adnexal lymphoid tumors are monoclonal proliferation of B-lymphocytes consistent with NHL. Histologically, orbital lymphomas were low to intermediate in grade with predominance of the low-grade variety. The range of follow-up was from three months to two years. Eight patients (42%) had local radiotherapy in doses ranging from 25Gy to 46Gy, two (11%) had CHOP (cyclophosphomide, doxorubicin, vincristine and prednisolone) chemotherapy alone and one had combination with local radiation (28-30Gy) and chemotherapy COP (cyclophosphomide, vincristine and prednisolone). None of the patients had systemic involvement and local recurrence.

Discussion

Ocular adnexal lymphoid lesions show characteristic clinical features in most of the patients. They are most commonly seen in the sixth to seventh decade of life with a slight female preponderance. But the present study showed male predominance (63%) which is comparable with other studies from India.[3,4] The most common site of involvement of lymphoid tumor is the superior orbit behind the orbital septum and 30 to 40% arise from the lacrimal gland.[5] In our study 10% of the cases presented with lacrimal gland involvement. The lesion in this location results in proptosis with downward displacement of globe. Eleven patients (58%) presented with a mass in the superior orbit, either having lid mass or proptosis. L26 clone of B-cell marker CD20 and the UCHL-1 clone of T-cell markers CD45RO or CD 3 were used for immunohistochemistry analysis.

Most of the tumors were B-cell origin (89%) followed by T-cell origin (5%) and lymphoepitheloid lymphoma (5%) [Fig. 4]. Jakobiec has stressed that more than 60% of ocular adnexal lymphoid infiltrates are composed of B-cell lymphomas.[6] T-cell lymphomas are rare in the ocular adnexa and can be suspected on clinical and histopathological grounds.[6] A tumor composed of small lymphocytes that are CD5+ and also express CD23 is probably small lymphocytic lymphoma (SLL), not a MALT lymphoma. CD5+ Mantle cell lymphoma is distinguished from SLL by positive staining for cyclin D1 and negative for CD23.[7] None of the patients had Hodgkin's lymphoma, which by itself a rarity in the orbit.[2] Primary cases required surgical intervention consisting of excision and debulking.

Most of the patients required radiation with careful ocular shielding and some required chemotherapy based on working classification of NHL. None of the patients had a recurrence of the tumor or any systemic involvement. One of the most important prognostic factors was the extent of the disease discovered after thorough clinical staging.[8] Long follow-up is required to comment on final outcome. All patients with ocular adnexal lymphoid tumor had a thorough systemic evaluation by an oncologist which included a complete blood count, bone marrow biopsy and ultrasonogram and CT scan of the body and abdomen.[7,9,10] Patients were re-evaluated at three months interval.

Conclusion

Malignant ocular adnexal lymphomas are common neoplasm in the Northeast Indian population. In a 20-month period we saw 19 cases of NHL in our series. NHL (B-cell type) is the prime type encountered in the assortment of ocular adnexal lesions and the orbit is the foremost extranodal site of association. While the number of patients presented here is small, the clinical inference is that histological recognition of B-cell NHL in this part is a significant observation.[4] Males are on the whole affected more than females. Superior orbit is the commonest site of the lesion. Correct histological diagnosis with immunohistochemistry ensures appropriate treatment.

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