

SHORT COMMUNICATION

Intraocular lymphoma metastasis from larynx

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PURPOSE. To present a rare case of primary larynx diffuse large B cell lymphoma non-Hodgkin's lymphoma (NHL), disseminated to the cerebellum and the intraocular tissue.

METHODS. A 69-year-old man noticed blurred vision in both eyes. The vitreous contained infiltrating cells bilaterally, and floating opacities were increased. We performed vitrectomy to recover the vision and diagnose for both eyes.

RESULTS. The authors discovered diffuse large B cell NHL with cytopathologic examination from vitreous specimen in this case, which was identical with diffuse large B cell NHL of the larynx and cerebellum, and therefore could diagnose the intraocular lesion as the metastasis of NHL. Although the vision improved, the patient had remarkable visual disturbance in both eyes at 6 months after surgery because of the chorioretinal lesion. The authors treated by the combined curative chemotherapy and radiotherapy to ocular tissue, since providing sufficient evidence that the chorioretinal lesion was to predict the metastasis of diffuse large B cell NHL. After those treatments, chorioretinal lesions have disappeared in both eyes and the vision has recovered.

CONCLUSIONS. Increased attention to the possibility of dissemination of laryngeal NHL to the intraocular tissue is needed. (*Eur J Ophthalmol* 2007; 17: 133-5)

KEY WORDS. Diffuse large B cell, Cerebellum, Intraocular lymphoma, Larynx, Vitrectomy

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INTRODUCTION

Intraocular non-Hodgkin's lymphoma (NHL) is an uncommon malignant tumor derived from two main types of lymphoma, primary central nervous system NHL (CNS-NHL) and, with less frequency, systemic lymphoma (1, 2). NHL of the larynx, a systemic lymphoma, comprises less than 1% of primary malignant laryngeal tumors and tends to remain localized for a long period of time, but then slowly disseminates to other extranodal and nodal sites (3). We experienced an exceedingly rare case of primary NHL of the larynx with dissemination to the cerebellum and ocular tissue. To our knowledge, this is the first report describing primary NHL of the larynx with metastasis to intraocular tissue.

Case report

A 69-year-old man was diagnosed with primary NHL of the larynx (diffuse large B cell lymphoma, clinical stage II A) (Fig. 1, A and B) in March 1998, and received chemotherapy. However, in January 2003, cerebellar involvement was detected. He received radiotherapy to his brain (30 Gy), chemotherapy with an Ommaya reservoir implanted in his brain, and a second course of systemic chemotherapy. These treatments resulted in complete remission. However, he noticed blurred vision in his left eye in December 2003. His visual acuity was 20/15 and 20/40 (right and left, respectively). The vitreous contained infiltrating cells bilaterally, and floating opacities were increased in the left eye (Fig. 2A), while the adnexa, the anterior

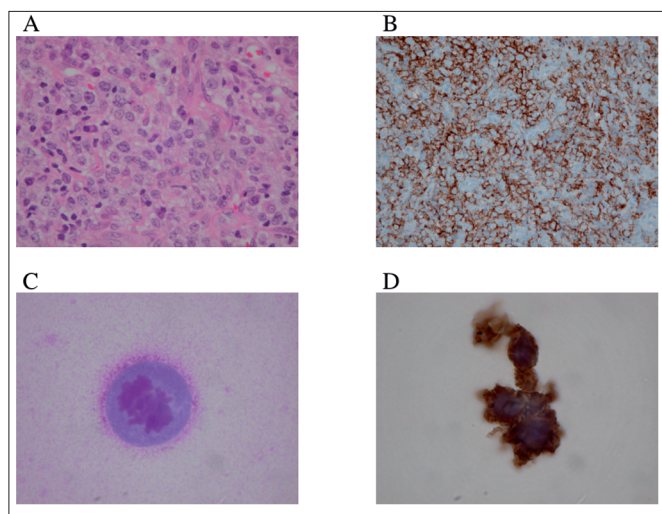


Fig. 1 - (A) Photomicrograph of a larynx specimen showing large lymphoid cells with atypical nuclei (hematoxylin and eosin, 400 \times). **(B)** Photomicrograph of a larynx specimen showing large lymphoid cells stained with anti-CD20 antibody (hematoxylin and eosin, 400 \times). **(C)** Vitreous cytology stained with Wright-Giemsa method: Atypical lymphoid cells were detected in the aspirates. **(D)** Vitreous cytology stained with anti-CD20 antibody: B cell lymphoma was positively stained with anti-CD20 antibody.

segment, and retina exhibited no significant findings and no notable findings were obtained on fluorescein angiography. No laboratory findings suggested malignant lymphoma, and CT and MRI studies were negative. Within 2 months, the vision in the two eyes had dropped to 20/400 and 20/100 due to increase in vitreal opacity. We performed vitrectomy using triamcinolone on both eyes. No retinal abnormalities were observed intraoperatively. The vitreous obtained during surgery contained large atypical lymphocytes (Fig. 1, C and D). No atypical cells were found in the sample of the aqueous. The ratio of interleukin (IL)-10 to IL-6 was low (IL-6 63.0, IL-10 40 pg/mL) in the right aqueous, but exceedingly high, at 39.3 (IL-6 33.1, IL-10 1300 pg/mL), in the right vitreous and 21.7 (IL-6 41.4, IL-10 900 pg/mL) in the left vitreous. After surgery, he rejected additional chemotherapy and radiotherapy. No significant finding was observed in either eye until 3 months postoperatively (Fig. 2B), and his vision improved to 20/20 and 20/15. However, chorioretinal abnormality including multifocal yellow pale plaque-like subretinal infiltrates lesions developed (Fig. 2C), with decrease in visual acuity to 20/2000 and 20/100 in August 2004. He finally underwent curative chemotherapy and radiotherapy (30 Gy), resulting in

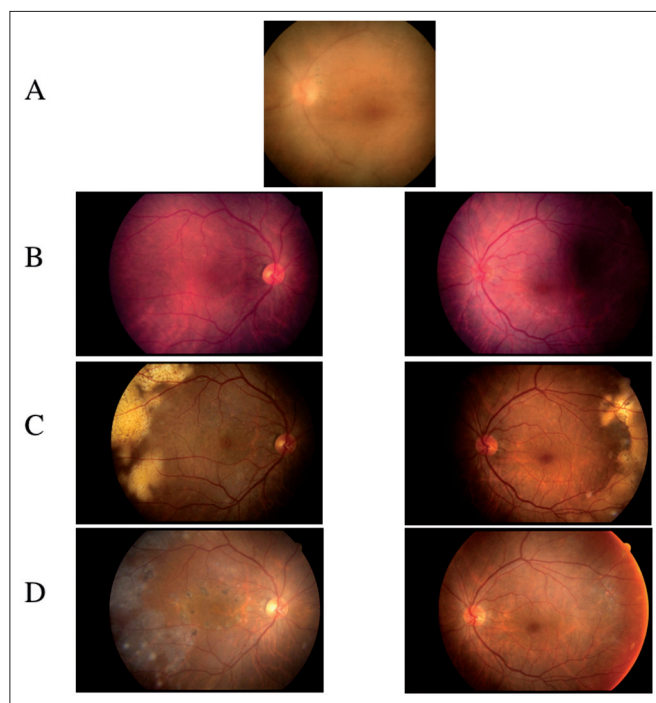


Fig. 2 - (A) Color photograph of the left eye showing unclear fundus due to the diffuse vitreous opacity. **(B)** Color photograph of both eyes at 3 months after surgery. No significant finding was observed in the eyes. **(C)** Color photograph of both eyes at 6 months after surgery. Chorioretinal abnormalities with multifocal yellow pale plaque-like subretinal infiltrates have developed in both eyes. **(D)** Color photograph of both eyes at 18 months after surgery. The chorioretinal lesions observed at 6 months after surgery have disappeared or been transformed to the scar lesions in both eyes.

disappearance of the chorioretinal lesion (Fig. 2D). He has been asymptomatic systemically and ophthalmologically over the last year, and his vision has improved to 20/25 and 20/20.

DISCUSSION

At the initial visit, it was difficult to diagnose this patient's vitreal opacities as metastasized NHL for the following reasons: 1) the diffuse large B cell NHL was already in complete remission systemically, 2) there was no abnormality in the choroid and retina, and 3) metastasis of laryngeal NHL to the CNS is extremely rare. Other diseases causing similar lesions and vitreal opacities are sarcoidosis, acute retinal necrosis, cytomegalovirus retinitis, endogenous endophthalmitis, and so forth. Since we could not deny the possibility that those diseases cause vitreal opacities, we

planned the diagnostic and therapeutic vitrectomy in this case. We discovered atypical lymphocytes in the vitreal specimen, indicating metastasis of the laryngeal NHL. The precision of cytologic diagnosis of vitreal biopsies is approximately 80% at the first trial (1). Whitcup et al insisted that multiple trials of cytology could yield greater precision at final diagnosis, exemplified that 3 of 12 cases were detected pseudo-negatively by the cytology while the other 9 cases showed positive first (1). In addition, we measured related cytokines in the vitreal supernatant to confirm our diagnosis (4). Since the IL-10/IL-6 ratio in the vitreous exceeds 1.0 in most cases of malignant lymphoma (4), the IL-10/IL-6 ratio in this case, which was extremely high at 39.3 in the right and 21.7 in the left vitreous, supported our diagnosis.

Primary involvement of the larynx by NHL is extremely rare. In a few reported cases of large B-cell lymphoma, complete remission was obtained with radical radiotherapy. Several other reported cases had clinical features similar to those of MALT-type lymphomas aris-

ing in other extranodal sites including the orbit (5). NHL of the larynx tends to remain localized for a long period of time, and then slowly disseminates to other extranodal and nodal sites (3). We can find no previous reports of dissemination of primary laryngeal NHL to the CNS including the eyes. Involvement of ocular tissue by NHL is life-threatening, as indicated by the low 5-year survival rate (2). Increased attention to the possibility of dissemination of laryngeal NHL to the intraocular tissue is thus needed.

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