Primary intraocular lymphoma arising during methotrexate treatment of temporal arteritis

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ABSTRACT • RÉSUMÉ

Case report: Primary intraocular lymphoma arose over a period of 9 months in the left eye of an 81-year-old woman who was blind in both eyes from temporal arteritis. During this period, she was treated with prednisone and methotrexate. Following a sudden total hyphema, the eye was enucleated. Examination revealed that, in addition to iris neovascularisation and central retinal artery occlusion, the neurosensory retina was replaced by atypical lymphocytes.

Comments: Histological and immunohistochemical studies confirmed the presence of a lymphoma with features indicative of an immunosuppression-related disorder. The relationship of the lymphoma to the vascular changes within the eye is discussed.

Observation : Un lymphome intraoculaire primaire s'est développé sur une période de 9 mois dans l'œil gauche d'une femme de 81 ans aveugle des deux yeux à la suite d'une artérite temporale. Pendant ce temps, elle a été traitée avec de la prednisone et du méthotrexate. L'œil a été énucléé à la suite d'un hyphéma total et soudain. Outre la néovascularisation de l'iris et l'occlusion de l'artère rétinienne centrale, l'examen a révélé que la rétine neurosensorielle avait été remplacée par des lymphocytes atypiques.

Commentaires : Les études histologiques et immunohistochimiques ont confirmé la présence d'un lymphome dont les caractéristiques indiquent un désordre lié à l'immunodépression. La relation du lymphome avec les changements vasculaires de l'œil font l'objet de discussion.

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Primary intraocular lymphoma (PIOL) is a subset of non-Hodgkin's lymphoma of the central nervous system (CNS) that arises within the retina and vitreous. Although neurological symptoms are not present initially, 56% to 85% of patients develop CNS manifestations anywhere from 1 month to 10 years later, with a mean interval of 24 months.[1] PIOL is uncommon, with an annual incidence of about 35 new cases in North America, and its clinical presentation is quite variable.[2] It usually has an insidious onset and mimics other ocular conditions, often resulting in a delay in diagnosis of months or years. The typical presentation is a chronic posterior uveitis associated with blurred vision but no pain.[1]

The majority of PIOLs are of diffuse large B-cell type, and although some cases have been linked by molecular analysis to infection with *Toxoplasma gondii*, Epstein-Barr virus (EBV), and human herpesvirus 8, there is usually no identifiable cause.[3,4] Most cases have been reported in immunocompetent individuals but rare cases have been identified in patients who were immunosuppressed because of previous transplantation surgery or HIV infection.[5,6] Here we report a case of PIOL in an elderly woman with biopsy-proven temporal arteritis who was immunosuppressed through treatment with corticosteroids and methotrexate. The diagnosis was made when 1 eye was enucleated because of neovascular glaucoma and a dense hyphema.

Case report

An 81-year-old woman presented to her family doctor in May 2001 with a 3-day history of a painless decrease in vision in her left eye that improved spontaneously. The erythrocyte sedimentation rate (ESR) at that time was 40 mm/h and she had a thrombocytosis with a platelet count of 461 × 10^9/L (normal range 150 × 10^9/L to 400 × 10^9/L). Approximately 6 weeks later, she presented to the emergency department with bilateral loss of vision. She had noticed decreased acuity in her right eye 5 days previously but that morning woke blind in both eyes. Further questioning revealed a 2- to 3-month history of abdominal upset, weight loss (20 pounds), lethargy, scalp tenderness, and jaw claudication. She had a history of treated hypertension for 5 years, gout treated with allopurinol, and renal stones. She had undergone a right nephrectomy in 1967, as well as bilateral cataract removal more than 20 years previously. Ocular examination revealed visual acuities of counting fingers right eye (OD) and hand motion peripherally left eye (OS). There was no pain and intraocular pressures were normal (10 mm Hg OD and 12 mm Hg OS). The anterior segment was normal, although pupillary reaction was decreased in both eyes. Fundus examination revealed a pale optic disc in the right eye and a swollen haemorrhagic disc in the left, as well as early changes of age-related macular degeneration. There was no demonstrable scalp tenderness and the superficial temporal arteries were not palpable. Laboratory tests revealed persistence of the mild thrombocytosis (platelet count 459 × 10^9/L), an ESR of 90 mm/h, and a C-reactive protein concentration of 55.1 mg/L (normal range 0–8.0 mg/L).

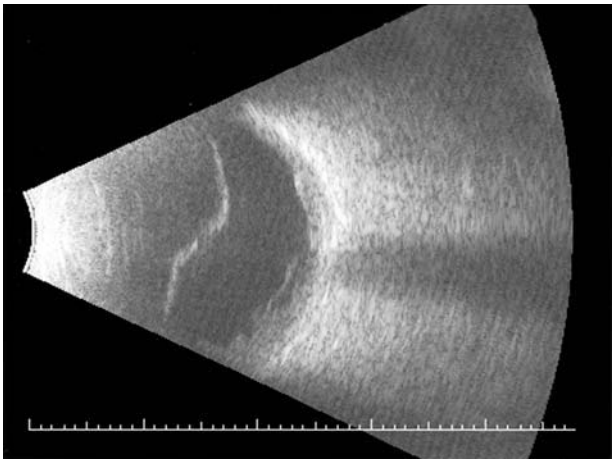

Fig. 1—Ultrasound examination of left eye. Apparent choroidal elevation, vitreous opacities, and a membrane in the middle of the posterior chamber.

With a clinical diagnosis of bilateral anterior ischaemic optic neuropathy (AION) secondary to temporal arteritis, the patient was immediately started on prednisone (80 mg OD). A temporal artery biopsy confirmed the presence of active arteritis and a computed tomogram scan of the head was normal. Following a rheumatological consultation, methotrexate (25 mg weekly) and folic acid (30 mg weekly) were added, and the dose of prednisone was reduced to 50 mg OD. Over the subsequent 2 weeks, the patient's symptoms improved but there was no alteration in visual acuity. Two months later, there was pallor of the left optic disc. During the next 9 months, the patient remained symptom-free, with an ESR ranging from 4 to 44 mm/h and a platelet count between 117 × 10^9/L and 258 × 10^9/L. Blood urea and serum creatinine concentrations were generally in the high normal range, although an occasional elevation of blood urea to 8.8 mmol/L (normal range 2.5–7.0 mmol/L) and serum creatinine to 147 µmol/L (normal range 62–120 µmol/L) suggested some impairment of renal function. In April 2002, while taking prednisone (12.5 mg/day) and methotrexate (25 mg/week), she presented with sudden onset of severe pain on the left side of her head, no light perception in the left eye, and an intraocular pressure of 37 mm Hg. Visual acuity in the right eye remained at counting fingers with an intraocular pressure of 12 mm Hg. There was a total hyphema in the left eye that made fundus examination impossible; the appearance of the right fundus was unchanged. A B-scan ultrasound showed choroidal elevation with