Ophthalmoplegia with Diffuse Large B Cell Lymphoma: Vital Differential Diagnosis

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Ophthalmoplegia is an unusual finding in diffuse large B cell lymphoma. This report describes the case of a 72-year old male patient who presented with ophthalmoplegia but no gross neurological manifestations and an isolated mass in the left upper thigh. His ophthalmoplegia improved from his first cycle of systemic and intrathecal chemotherapy, his thigh mass effusion spontaneously resolved, and his laboratory tests also showed improvement. The patient remained well, though weak, for several months with no other neurological signs. He subsequently died from clinically diagnosed pulmonary embolism.

**KEY WORDS: Diffuse large B cell lymphoma; non-Hodgkin’s lymphoma; ophthalmoplegia; differential diagnosis**

**Introduction**

Diffuse large B cell lymphoma, a form of non-Hodgkin’s lymphoma, presents in various ways. The occurrence, however, of ophthalmoplegia, which is paralysis or weakness of one or more of the muscles that control eye movement, in the absence of other neurological findings and in a patient with diffuse large B cell lymphoma is very unusual.

**Case report**

A 72-year-old man presented to his General Practitioner with a lump in the anterior two-thirds of his left thigh. He was also experiencing bilateral diplopia and had bilateral partial ptosis and had visited an optometrist for the former condition. The patient was referred for a surgical excisional biopsy which revealed diffuse large B cell lymphoma. Results of laboratory tests were: haemoglobin 9.6 g/dl, white cell count $0.5 \times 10^9$ cells/l, neutrophil count $0.1 \times 10^9$ cells/l, lymphocyte count $0.4 \times 10^9$/l, monocyte count $0.1 \times 10^9$/l and lactate dehydrogenase 21 117 U/l.

The patient had experienced night sweats over the previous 4 weeks, but had not lost any weight; neither had he experienced any fever or rigors nor developed bruising or bleeding. On examination, the patient was afebrile and haemodynamically stable. There was no peripheral lymphadenopathy palpable. Whilst the patient was admitted, an ophthalmological review was requested and this found alternating vertical strabismus and diplopia; fundoscopy was normal with no proptosis or lid retraction.
Neurology opinion suggested cranial nerve palsies, but no gross abnormality.

Bone marrow aspirate and trephine were consistent with diffuse large B cell lymphoma. Computed tomography of the head, chest, abdomen and pelvis was essentially normal, apart from moderate splenomegaly (anteroposterior diameter 20 cm). A T1-weighted magnetic resonance image of the clivus revealed signal changes that suggested marrow infiltration by lymphomatous deposits. Prior to initial intrathecal chemotherapy, the cerebrospinal fluid (CSF) showed lymphocyte-like cells and atypical nuclei, although later CSF studies were normal.

The patient was given cycles of systemic and intrathecal chemotherapy, according to British Society of Haematology guidelines; after the first cycle his ophthalmoplegia was improved and his thigh mass effusion spontaneously resolved. Laboratory tests also showed improvement and lactate dehydrogenase was 326 U/l. Apart from weakness, the patient remained well for several months, with no other neurological signs, although he died 3 months after treatment due to clinically diagnosed pulmonary embolism.

Discussion

Ophthalmoplegia, particularly as an initial presentation of diffuse large B cell lymphoma, is unusual although it has been associated with a variety of conditions. Paraneoplastic syndromes involving the central nervous system may have similar presentations and include cerebellar syndrome, cerebrovascular disease, subacute necrotizing myelopathy and encephalomyelitis.\(^3\)\(^,\)\(^4\) Paraneoplastic encephalomyelitis forms part of the differential diagnosis for isolated unilateral or bilateral ophthalmoplegia of recent onset.\(^3\)\(^,\)\(^4\) The diagnosis of a neurological paraneoplastic syndrome can indicate that a lymphoma is more likely to respond to chemotherapy.\(^5\) Cranial nerve palsies have been described in Waldenström’s macroglobulinaemia, associated with infiltration by lymphoid cells or a monoclonal component.\(^6\)

Non-Hodgkin’s lymphoma is a well-known neoplastic disorder that can present in a variety of forms. Extranodal disease of the soft tissues and facial bones occurs in < 10% of patients.\(^7\) Common signs and symptoms are drenching night sweats, unexplained fever and weight loss > 10%, but diagnosis may not be considered if the course of the disease is atypical. T-cell lymphoma in the orbit of the eye can present as painful ophthalmoplegia and take a rapid clinical course.\(^8\) Inflammatory causes of ophthalmoplegia are mainly due to infections, such as otitis media with petrositis, basal meningitis, syphilis and cavernous sinus thrombosis. Other causes include vasculitis, Tolosa–Hunt syndrome, sarcoidosis and Guillain–Barré syndrome. Discrete extraocular muscle metastasis is rare and unreported for malignant lymphoma.\(^9\)

In conclusion, non-Hodgkin’s lymphoma can present with a vast variety of signs and symptoms. The case reported here is very unusual because ophthalmoplegia was one of the initial manifestations of the lymphoma and was important in its differential diagnosis.

Acknowledgement

We should like to thank Dr Alice M Taylor for assistance in collating the data.

Conflicts of interest

No conflicts of interest were declared in relation to this article.
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References

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