A Case of Bilateral Orbital MALT Lymphoma

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Summary

A middle-aged male was referred to ophthalmology with irritated swollen eyes. He had previously been treated as bacterial conjunctivitis. Examination revealed proptosis, diplopia, and other signs consistent with thyroid eye disease. He had normal thyroid function on serological testing. Investigation revealed orbital masses, which were biopsied. A diagnosis of bilateral orbital mucosal-associated lymphoid tissue (MALT) lymphoma was made.

Case Report

A 72 year old retired, previously fit male warehouse operative presented to eye casualty with multiple ocular symptoms. These started with what he described as "puffy" eyes although he now also had a gritty feeling in his eyes. The general practitioner who had referred him had tried multiple courses of antibiotics for bacterial conjunctivitis.

In the eye casualty he was given a provisional diagnosis of left lower lid chalazion and was managed as appropriate for this condition. This involved regular warm compresses - in an attempt to open up and drain the apparently blocked meibomian gland - and a further course of topical antibiotics. With ongoing symptoms, he was seen in the lid lump clinic were the lesion under his left lid was excised and sent for histology and cytology.

The report described an incompletely excised basal cell carcinoma on his left lower lid. He was then referred to an ophthalmology consultant for further review.

The history was re-evaluated, showing a history of "puffy" eyes for over a year as well as intermittent diplopia (double vision) in addition to the other symptoms. On examination he had good visual acuity bilaterally (6/6 on Snellen chart). His eye movements were restricted in the lateral and upwards directions, more severe in the left eye. Visualisation of his fundi and assessment of optic nerve function were normal. Serological thyroid function tests (TFTs) and a CT scan of his orbits were arranged.

CT scan showed evidence of peri-orbital swelling with rectus muscle thickening, consistent with thyroid eye disease. However TFTs were within normal range. His symptoms – including proptosis -were becoming more pronounced. This was now causing conjunctival irritation and he now also had easily palpable, well-defined masses deep to the lower lids of both eyes.

A magnetic resonance imaging (MRI) scan (figures 1 & 2) confirmed rectus muscle thickening and periorbital swelling. Although the bilateral changes were unusual, lymphoma was suggested as a possible diagnosis. Subsequent orbital biopsy showed the presence of extranodal marginal zone lymphoma of mucosa associated lymphoid tissue (MALT lymphoma).

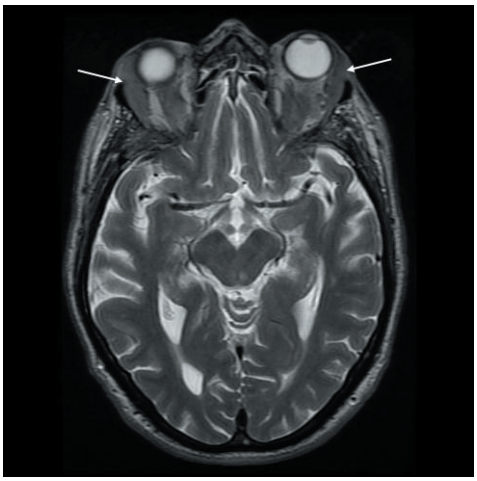

Figure 1. *Coronal T1 weighted MRI image showing enlargement of left and right lateral rectus and superior rectus muscles (arrows)*

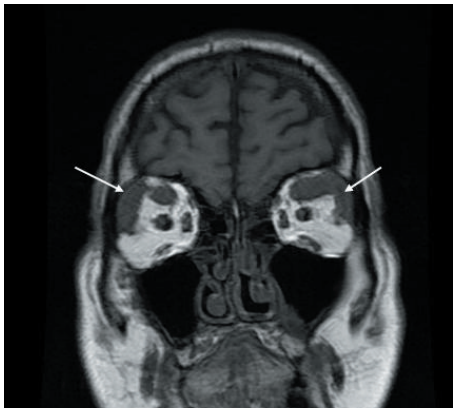

Figure 2. *Axial T2 weighted MRI image showing enlargement of left and right lateral rectus muscles (arrows)*

CT of thorax abdomen and pelvis showed no evidence of more widespread disease.

His case was discussed at the oncology multi-disciplinary team meeting at the Freeman Hospital in Newcastle-upon-Tyne, where it was decided radiotherapy was the best treatment option. He was informed of the risks of developing cataracts secondary to the procedure but was keen to proceed.

Radiotherapy caused the disease to regress, and his symptoms improved. He now has radiation burns to the skin of his eyelids, which have caused bilateral ectropion (turning out of his lower lids, caused by tightening and fibrosis of the skin). This has caused dry eyes, for which he is taking lubricant (artificial tear) eye drops. He may need corrective lid surgery if this does not settle.

Discussion

Mucosa-associated lymphoid tissue (MALT) is the most extensive component of human lymphoid tissue, and covers an area of almost 400m^2 scattered along mucosal linings throughout the body.[1] It protects the body from a great array of antigens by way of the secretory immune system, which bathes mucosal surfaces with protective IgA antibodies.[2]

As a result of autoimmune conditions or chronic inflammation, malignant clones can emerge secondary to prolonged lymphoid proliferation. This can result in a MALT lymphoma (or MALToma).

MALToma is a form of non-Hodgkin's lymphoma (NHL). NHL accounts for 2-3% of all malignancies, and MALTomas represent 8% of all NHL.[3] As it starts in the MALT rather than lymph nodes, it is distinct from other types of NHL and is termed 'extranodal' lymphoma. The most commonly affected site is the stomach (GALT, or gut-associated lymphoid tissue), but can develop in nearly every organ.

Hepatitis C and HIV have been highlighted as possible links to MALT lymphomas.[4,5] This is thought to be due either to the virus itself or the secondary bacterial infection in an immunocompromised patient. Certain bacterial infections are commonly associated with MALTomas in particular sites throughout the body[6], in particular *Chlamydophila psittaci* infection has been associated with MALToma of the eye and adnexae.[7]

MALToma is the most common lymphoma to affect the eye. It occurs more frequently in females than males (ratio 3:2) and its median onset is in the sixties or early seventies.[8] It occurs most frequently in the soft tissue of the orbit, conjunctiva, and eyelids. Orbital lymphoid lesions include a wide spectrum of diseases from benign growths (pseudotumours) to malignant lymphomas.[9] Up to 25% can be bilateral.[10]

Patients present with variable symptoms, including proptosis, ptosis, a visible or palpable mass, diplopia, tearing, or discomfort.[11] Although it can cause blindness (due to the effect of traction on the optic nerve) this is usually a late symptom. As many of these symptoms are more commonly associated with other eye illnesses, in particular thyroid eye disease, delays can occur in diagnosis.

The current first line treatment is local radiotherapy,[12] which usually results in complete

regression of the disease.[13] Cataracts and dry eyes are recognised side effects.[14] A recent study suggests a three week course of doxycycline can shrink the tumours.[15] This approach is targeted at the intracellular bacterium *C. Psittaci*, although interestingly the study showed improvement in both patients with and without proven evidence of infection.

Conclusions

Eye patients can often present and be diagnosed late due to overlapping symptoms with many potential diagnoses.

MALToma is a rare condition, but the most common form of lymphoma affecting the eye and surrounding tissues.

Although generally insidious in its progression, it is a potentially blinding condition. It should always be considered as one of the differential diagnoses in patients presenting with bilateral or unilateral proptosis, particularly in the absence of deranged TFTs.

Further study into the area of antibiotic treatment for ocular MALToma is needed. Little is currently known about the long-term recurrence rates of the disease when compared with radiotherapy, and whether better methods of detection of *C. Psittaci* and other ocular MALToma associated bacteria are available or useful.

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