CASE REPORT

Not just a red eye

Valerie Juniât, Nigel Andrew

Ophthalmology Department,
Kent & Canterbury Hospital,
Canterbury, UK

Correspondence to
Dr Valerie Juniât,
vjuniât@doctors.org.uk

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SUMMARY

A 70-year-old woman presented to the Eye Casualty department with a 10-day history of worsening pain and redness in her right eye, associated with progressively reduced vision. History revealed that the patient had recently completed a course of chemotherapy for metastatic breast cancer. Anterior examination of the right eye revealed a vascularised iris mass causing pupillary distortion, intraocular inflammation and raised intraocular pressure. She was diagnosed with a right iris metastasis secondary to breast cancer. Ocular management consisted of topical steroids and intraocular pressure-lowering agents, which improved her ocular symptoms. She subsequently received primary radiotherapy, which has successfully reduced the size of the tumour.

BACKGROUND

Breast cancer remains the most common cancer in the UK and accounts for 31% of all new cases of cancer in women.¹ Breast cancer is also the commonest primary tumour to metastasise to the eye^{2–4}; and is therefore an important consideration when a female patient presents with a red eye. At the same time, however, around one-third of patients who are diagnosed with ocular metastases on presentation to Eye Services do not have any history of cancer,^{4 5} and so the absence of a history of cancer does not rule out the possibility of ocular metastases. The most common site for ocular metastases is the choroid, but it can rarely spread to other ocular structures.^{4 5} This is an interesting case of an iris metastasis from primary breast malignancy. It is also a reminder of the importance of systemic enquiry in aiding differential diagnoses of a red eye.

CASE PRESENTATION

A 70-year-old woman presented to the Eye Casualty department in July 2013 with a 10-day history of a right red eye associated with pain, photophobia and gradual deterioration in vision. Her medical history included breast cancer, for which she underwent a right mastectomy in September 2007, but unfortunately she developed a recurrence in September 2012 with lung and sternal metastases. She completed her final round of chemotherapy on April 2013. She also had hypertension and a previous cerebral vascular accident, but she did not have any significant past ocular, medical or family history.

On examination, the patient was noted to have reduced visual acuity (right eye 6/36 corrected to 6/24 on pinhole) compared with her left eye (6/5). Anterior examination of the right eye revealed an irregular, vascularised mass in the anterior chamber,

Figure 1 Right iris mass before treatment.

associated with conjunctival injection, corneal oedema, anterior chamber reaction, irregular pupil and raised intraocular pressure (IOP 32; [figure 1](#)). Fundal examination was unremarkable. She was diagnosed with an iris metastatic deposit from breast cancer and was started on medical treatment.

INVESTIGATIONS

MRI of the head and orbits: no metastases.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis of a red and painful eye

- ▶ Anterior uveitis
- ▶ Acute angle closure glaucoma

Differential diagnosis of non-pigmented iris mass

- ▶ Iris naevus
- ▶ Iris amelanotic melanoma
- ▶ Iris leiomyoma
- ▶ Primary iridociliary cysts
- ▶ Secondary implantation iris cysts

TREATMENT

The patient was started on oral acetazolamide S/R 250 mg twice daily, topical apraclonidine 1% three times a day and topical dexamethasone 0.1% three times a day. She was referred to her oncologist again for further management.

OUTCOME AND FOLLOW-UP

During further reviews at two weekly intervals, her visual acuity returned to baseline (both eyes 6/6), there was minimal anterior chamber reaction and her intraocular pressure normalised. However, the iris mass had been noted to increase in size to 5.8 mm×4 mm. Her oncologist suggested treatment with radiotherapy or chemotherapy. The

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Figure 2 Right iris mass after radiotherapy treatment.

patient sought a second opinion from an ocular oncologist at Moorfields Eye Hospital in London, who confirmed the diagnosis and also advised her to undergo radiotherapy. She has completed her course of radiotherapy, which has successfully reduced the size of the tumour to 1.3 mm×1.5 mm, although it has not completely resolved (figure 2). Her main symptoms now are mild discomfort and minimal blurry vision. She is maintained on topical dexamethasone 0.1% three times a day, topical travaprost/timolol maleate combination drop once at night and topical atropine 1% once daily to control her intraocular pressure and minimise intraocular inflammation.

DISCUSSION

Red eye is a common presenting complaint to the Eye Casualty department. We describe an unusual cause of a red eye that has significant implications for the patient's treatment and her outcome.

Published literature cites the commonest primary tumour to metastasise to the eye as breast cancer.^{2–6} The most common site for metastases is the choroid, since it is the most vascular structure of the eye.^{4–6} However, reviews show that metastases can also affect the iris and ciliary body.^{2–6} Clinical presentation and signs depend on the site that is affected, ranging from no symptoms, metamorphopsia, floaters, photopsia, visual loss, change in visual field, secondary uveitis, glaucoma and retinal detachment.^{4–8} An anterior chamber mass is more likely to be malignant if it is nodular, solitary, >3 mm in size, unilateral, and associated with growth, vascularisation, ectropion uveae, iris infiltration, and pupil distortion.² Many of these features were noted in our case.

Although anterior chamber metastasis is mainly a clinical diagnosis, further investigations can be carried out to confirm the diagnosis, especially if there are atypical features. These include anterior chamber fine-needle aspiration biopsy and cytological examination.^{2–5} It is important to establish the source and degree of spread if this is not already known. The latter

point should be carried out in conjunction with a referral to Oncology Services.

Treatment options include observation, radiotherapy, chemotherapy or, more rarely, surgical management such as enucleation or orbital exenteration as a last resort to control pain.^{2–5–9–11}

The choice of treatment depends on the general condition of the patient and her expected survival, the status of the tumour, the effect of the tumour on the patient's vision and whether systemic therapy will be given.

Learning points

- ▶ Red eye is a common cause of referral to the Eye Casualty department.
- ▶ Examination must include both eyes to rule out bilateral metastases, even if the contralateral eye is asymptomatic, as early metastasis may not cause any symptoms.
- ▶ It is important to remember less common presentations of metastases, especially in patients with a known history of cancer.
- ▶ Anterior chamber metastases are rare, but they are associated with a rapid progression of the underlying tumour and therefore a poor prognosis.
- ▶ Clinical management of anterior chamber metastases depends on the state of the patient as well as the tumour, and this needs to be fully discussed with the patient.

Contributors This case was identified and managed by VJ and NA. The report was written by the VJ with input from the co-author.

Competing interests None.

Patient consent Obtained.

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