light microscopy and by immunohistochemical staining.

The majority of granular cell tumours are benign. Atypical histological features noted in malignant granular cell tumours include necrosis, increased mitotic activity (Ki-67 proliferative index), high nuclear/cytoplasmic ratio, and nuclear pleomorphism. Our case did not show these atypical features.

Granular cell tumour should be included in the differential diagnosis of an asymptomatic caruncle mass that may cause secondary mechanical ectropion, as in our case. In the majority of cases, these lesions represent a benign isolated tumour. Surgical excision is the treatment of choice with minimal or no potential of recurrence.

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Solar retinopathy in a patient with bipolar affective disorder

The commonest cause of solar retinopathy is direct viewing of a solar eclipse.¹ Other associations include sun gazing during religious rituals, drug or alcohol intoxication, and mental illness.²⁻³ However, it may not be considered in the absence of a history of sun gazing. We report an unusual case of solar retinopathy in a patient with bipolar affective disorder and demonstrate the value of optical coherence tomography in aiding the diagnosis in cases of unexplained visual loss in patients with mental illness.

Case report

A 45 year old woman presented complaining of a gradual deterioration in vision over 3 years. Past medical history included hypothyroidism and bipolar affective disorder treated with antidepressant and antipsychotic medication.

Presenting visual acuities were 6/12 in the right eye and 6/9 in the left. In the centre of the fovea in both eyes there was a small, irregular 100 µm size red spot without oedema (fig 1). Fluorescein angiogram was normal. Optical coherence tomography (OCT) was performed bilaterally using a Zeiss

Stratus model 3000, with the scanning line centred manually on the area of foveal disturbance. Both eyes showed similar findings with multiple slices at different angles revealing a single spot of hyporeflectivity in the outer retina, suggesting discontinuity in the photoreceptor outer segment layer (fig 2).

The OCT appearance suggested a diagnosis of solar retinopathy and on direct questioning the patient admitted to staring at the sun for prolonged periods of time during depressive phases of her illness and during solar eclipses.

Comment

Classically, solar retinopathy presents soon after the initial insult with symptoms including reduced visual acuity, central scotoma, chromatopsia, photophobia, and metamorphopsia. Acutely, there may be loss of the foveal reflex together with a small yellow-white spot near the foveola which gradually fades. A longstanding lesion may only show an irregularly pigmented macula with foveal hypopigmentation.³

Differential diagnoses include early macular hole, lamellar hole, macula dystrophy, or cystoid macular oedema.³ Fluorescein angiography may help to differentiate these. However there is often little or no abnormality in solar retinopathy, although in severe cases there may be a window defect caused by retinal pigment epithelium (RPE) atrophy.²

OCT findings in acute solar retinopathy were first described by Codenotti *et al.*⁴ OCT studies in chronic solar retinopathy describe hyporeflective spaces at the level of the outer photoreceptor segments and RPE. These may involve the entire photoreceptor layer in more severe cases, together with overlying neurosensory thinning.⁵⁻⁶

Our patient would not initially volunteer a history of sun gazing but admitted to this

when told the OCT findings. Similar OCT findings can be seen in stage 1 macular hole, but these findings in combination with a history of sun gazing are strongly suggestive of a diagnosis of solar retinopathy. Sun gazing has been described in a patient with bipolar disease during a manic episode with psychotic symptoms, although there was no evidence of alteration of visual function or macular damage.⁷ Previous reports have mainly been associated with schizophrenia.⁸⁻⁹ Patients presented acutely, as acute or chronic episodes with repeated sun gazing, or were found to have a typical macular lesion incidentally. In chronic cases they gave a history of sun gazing during acute episodes of illness.

To our knowledge this is the first documented case of solar retinopathy in a patient with bipolar affective disorder. This case demonstrates the benefits of OCT in the diagnosis of macular diseases where the history may be unreliable. It also highlights the need to consider the diagnosis of solar retinopathy in a range of psychiatric conditions where there is functional visual loss.

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Topical brinzolamide and metabolic acidosis

Treatment of ophthalmic disease largely involves the administration of topical medication in doses that would appear small relative to those used systemically. With a few exceptions (such as β receptor antagonists) the systemic side effects of topical ocular medication, though recognised, are

Figure 1 Colour photograph depicting stage 1 macular hole-like appearance.

Figure 2 A 3 mm Stratus OCT single line scan through fixation. Arrow indicating hyporeflectivity in photoreceptor outer segment layer suggesting discontinuity.