CASE REPORT

Peripheral ulcerative keratitis as a complication of acute myeloid leukaemia

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SUMMARY

We report a rare presentation of acute bilateral peripheral ulcerative keratitis (PUK) in a patient with a new diagnosis of untreated acute myeloid leukaemia (AML). To the best of our knowledge, this is the first report of PUK associated with untreated AML and we stress the importance of a rapid and thorough testing to exclude other diagnoses. The patient lost his vision within 10 days to counting fingers. Rapid diagnosis allowed a good visual recovery following prompt treatment with oral steroids and systemic chemotherapy treatment for the AML.

BACKGROUND

Peripheral ulcerative keratitis (PUK) is associated with a number of non-infectious and infectious diseases. Untreated PUK can rapidly lead to irreversible sight loss by the following ophthalmic sequelae: corneal thinning, corneal melts, corneal scarring, vascularisation and irregular astigmatism causing permanent visual decline or loss of the eye-sight. Rapid diagnosis and treatment of the ophthalmic condition and the underlying medical cause is paramount to prevent relapses of the PUK and significant comorbidity.

CASE PRESENTATION

A 74-year-old man presented to eye casualty with a 10-day history of progressively worsening red, painful, discharging eyes. The initial presentation was consistent with bacterial conjunctivitis. Despite treatment with topical antibiotics his symptoms and visual acuity rapidly deteriorated from Snellen acuity of 6/6 in both eyes to counting fingers

Figure 2 Inferior cornea of the right eye in higher magnification showing an area of corneal melting.

bilaterally. There was no significant previous ocular, medical or family history to note.

At his subsequent visit, examination revealed limbitis, bilateral peripheral corneal thinning and acute anterior non-granulomatous uveitis (figures 1 and 2). A fibrinous plaque overlying the lens inhibited a view of his fundi but there were moderate-to-good red reflexes in both eyes. B-scan ultrasonography suggested small pre-retinal haemorrhages, but a clear vitreous.

INVESTIGATIONS

Conjunctival swabs and aqueous fluid culture were sent for Gram stain, microscopy and culture. Blood test included a full count, inflammatory markers and an autoimmune screen. The conjunctival swabs and aqueous fluid culture had not yielded any significant growth. Blood test showed a normocytic

Figure 1 Right eye showing intensely hyperaemic conjunctiva. Peripheral corneal swelling with crescentic areas of infiltrate and thinning. Iris details are obscured due to the presence of fibrinous iritis.

Figure 3 Decreased conjunctival hyperaemia and resolution of infiltrate and thinning 1 week after treatment.

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Figure 4 Higher magnification showing clearer iris details due to resolution of fibrinous iritis.

anaemia, mild thrombocytopaenia and significantly raised inflammatory markers (C reactive protein of 103 mg/L and erythrocyte sedimentation rate of 106 mm/h). The autoimmune screen was negative. Flow cytometry of the aqueous fluid showed scant cellular events, with leukaemic cells (CD34 and CD117 positive) making up approximately 2% of the total population.

DIFFERENTIAL DIAGNOSIS

The initial differential diagnoses were PUK, atypical infectious conjunctivitis and endogenous/infectious endophthalmitis.

TREATMENT

Treatment was initially started for an infective aetiology with topical cefuroxime and levofloxacin drops and broad-spectrum oral antibiotics by the general practitioner, prior to admission. Following continued deterioration on this treatment and after a confirmed diagnosis of acute myeloid leukaemia (AML) from positive cytology for leukaemic blast cells on the cell cytology, treatment for PUK secondary to AML was initiated.

Topical dexamethasone drops and oral prednisolone 60 mg once daily were started within 2 days of admission.

OUTCOME AND FOLLOW-UP

Immediate advice was taken from the haematologist and the patient was referred for investigation (including a full body CT scan) and chemotherapy treatment. Within 3 days of starting oral prednisolone and topical dexamethasone drops, there was

evidence of improvement and by 2 weeks the patient's visual acuity had improved to 6/12 in the right eye and 6/9 the left eye from counting fingers (figures 3 and 4).

DISCUSSION

PUK is associated with a number of non-infectious and infectious diseases. The most common disorders associated with PUK are systemic vasculitides, of which rheumatoid arthritis has been reported to be the most common cause.¹ Leukaemia is a rare but important cause of PUK. While the underlying pathophysiology is unknown, one possibility is that deposition of leukaemic blast cells around the limbus and peripheral cornea evokes an inflammatory response. Most reports of PUK secondary to leukaemia have been in patients with chronic leukaemias.^{2–4} Interestingly, however, several of these patients were reported to have been in a blast crisis, where their disease resembles an acute leukaemia.⁴ It is therefore possible that a similar pathophysiological process underlies PUK in acute as well as chronic leukaemias.

Learning points

- It is important to consider unusual or unreported causes of a clinical condition when a patient's clinical picture is atypical.
- This case highlights the importance of a thorough test including meticulous sampling for an accurate diagnosis.
- Early involvement of the haematologist allowed rapid investigation and treatment for the underlying medical condition while the patient was receiving his ophthalmic care.

Competing interests None.

Patient consent Obtained.

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