Bilateral total corneal epithelial erosion as a side effect of cytotoxic therapy

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Abstract

Bilateral total corneal epithelial erosion and descemet folds are reported as toxic side effects of 5-fluorouracil in a patient with end stage carcinoma of the stomach.

The antimetabolite 5-fluorouracil (5-FU) is a pyrimidine analogue that has shown significant activity against carcinomas of the breast and gastrointestinal and genitourinary tracts. The drug is generally administered by rapid intravenous injection and has a plasma half time of 10 minutes. The most noted side effects of parenteral 5-FU include nausea, vomiting, stomatitis, dermatitis, alopecia, and peripheral neuropathy.¹⁻³ Cerebellar ataxia may be seen after three to four weeks due to accumulation of fluorocitrate, which is a metabolic product of 5-FU and known as a potent inhibitor of the Krebs cycle in cerebellar tissue.⁴

The main known eye disorders among the toxic side effects of 5-FU are epiphora, hyperaemia, blepharitis, conjunctivitis, and blurred vision. These have usually resolved rapidly after the drug is discontinued.⁴⁻⁶ A direct correlation between the amount of lacrimation and the concentration of the drug in the tears has been found.⁷ The systemic use of the drug can cause tear duct fibrosis.⁸ Cicatricial ectropion has also been described in patients with excessive lacrimation receiving 5-FU.⁹ Oculomotor disturbances, especially weakness of convergence or divergence due to regional 5-FU neurotoxicity affecting the brain stem, have been described.¹⁰ In the following report we present a rare case of bilateral total corneal epithelial erosion and descemet folds in a patient treated with intravenous 5-FU as a palliative for carcinoma of the stomach.

Case report

A 67-year-old man was referred to the Eye Department from the Oncology Clinic of our hospital because of sudden decreased visual acuity. Seven days after admission he was treated with a chemotherapeutic course of 170 mg 5-FU daily for carcinoma of the stomach. This treatment was discontinued on the fourth day because

of the appearance of nausea, vomiting, and stomatitis, together with blurred vision on the second day.

On examination the visual acuity was 6/60 in both eyes, and the intraocular pressure was normal. No signs of epithora or conjunctival irritation were present. Both corneas showed total epithelial erosion and descemet folds. The anterior chambers were deep, with no reaction. The retina and the optic nerve were normal.

The patient was treated with synthomycin ointment 5% and patches, and was examined the following day, with identical findings. Unfortunately he died a day later from cardio-respiratory arrest.

Since the metabolism of the cornea is mainly from the aqueous humour and the tear film,¹¹ a drug affecting the corneal epithelium and stroma after systemic administration is expected to achieve toxic levels in both fluids. The appearance of conjunctivitis following systemic 5-FU therapy has been reported before, and it is related to the toxic side effects on all mucous membranes. In our case the corneal involvement appeared two days after a severe stomatitis.

In conclusion, corneal epithelial erosion and descemet folds may represent a potential toxic side effect of 5-FU, and may appear as a part of its clinical manifestations.

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