

CASE REPORT

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Abstract

A 47-year-old male with a history of diabetes mellitus type 2 exhibited with decreased vision in both eyes. The diagnosis of cystoid macular edema (CME) was made and it was decided to administer bilateral intravitreal bevacizumab (Avastin) injections. After intravitreal bevacizumab injection (1.25 mg/0.05 cc) to the right eye the patient had angioedema and conjunctival chemosis in the right eye which resolved in 48 h. One month later the left eye received intravitreal bevacizumab injection under the same conditions. Thirty minutes after the injection angioedema and conjunctival chemosis occurred in the left eye in which these signs and symptoms improved in 48 h. This report is the first one which describes angioedema after intravitreal bevacizumab injection. Care should be taken against the systemic hypersensitivity reactions when planned to receive intravitreal bevacizumab injection.

Keywords: Intravitreal, bevacizumab, systemic hypersensitivity reaction

Introduction

Bevacizumab (Avastin, Genentech, San Francisco, CA) is a recombinant humanized monoclonal immunoglobulin G antibody which inhibits nonspecific human vascular endothelial growth factor (VEGF). Bevacizumab has been approved by the United States Food and Drug Administration (FDA) for the treatment of colorectal cancer (1). In recent years, it has been administered intravitreally in VEGF mediated diseases such as choroidal neovascularization (2), proliferative diabetic retinopathy (3) and central retinal vein occlusion (4) with relatively good success. Intravitreal bevacizumab injections are generally tolerated well. Ophthalmic complications reported included tractional retinal detachment (0.16%), uveitis (0.09%), bacterial endophthalmitis (0.16%), rhegmatogenous retinal detachment and vitreous hemorrhage (0.09% (1)). Systemic complications including elevation of systolic blood pressure, facial skin redness, itchy diffuse rash and menstrual irregularities were reported in 1.13% of patients who received intravitreal bevacizumab injections (5).

In this report, we present a patient who developed angioedema after intravitreal bevacizumab injection administered for cystoid macular edema (CME) due to diabetes mellitus. To our knowledge this is the first case that has exhibited angioedema after intravitreal bevacizumab injection.

Case report

A 47-year-old male with a history of diabetes mellitus type 2 exhibited decreased vision in both eyes. The ophthalmologic examination revealed 2/10 and 6/10 vision in the right and left eyes, respectively. Biomicroscopic examination revealed normal anterior segment for both eyes. Dilated fundoscopic and optical coherence tomography (OCT) examinations were remarkable for preproliferative diabetic retinopathy and CME in both eyes. With the presented clinical findings bilateral intravitreal bevacizumab injections were decided upon. The patient had the first intravitreal bevacizumab injection (1.25 mg/0.05 cc) to the right eye which was preceded by a perioperative regimen including topical proparacaine 0.5% (Alcaine; Alcon) drops, and diluted povidone iodine solution lid scrub. Fifty minutes after the injection the patient had angioedema and conjunctival chemosis (Figure 1).

Intravenous (IV) methylprednisolone (100 mg), and diphenhydramine (25 mg) were administered. The angioedema and chemosis resolved after 48 h. Following a 2 week period, after written informed consent had been obtained, topical proparacaine 0.5% and diluted povidone iodine solution were applied to the same eye. The patient did not have any angioedema or chemosis. Two weeks later the left eye received intravitreal bevacizumab injection under the same conditions. Thirty minutes after the injection angioedema and conjunctival chemosis occurred (Figure 2). The patient was

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Figure 1. Fifty minutes after the intravitreal bevacizumab injection to the right eye, the patient had right angioedema and conjunctival chemosis.

given the same medication as in the first hypersensitivity reaction and the symptoms improved in 48 h.

Discussion

Immediate hypersensitivity reaction following the administration of intravitreal bevacizumab occurred in the reported patient. Immediate drug hypersensitivity reactions are adverse effects of drugs which occur in less than 1 h after the last drug intake that are not exhibited by normal subjects who receive the same dosage (6). They are generally seen in the form of urticaria, angioedema, bronchospasm, and anaphylaxis or anaphylactic shock, and can be caused by various pathogenic mechanisms (6). The presence of the angioedema and chemosis after both intravitreal bevacizumab injections strongly suggests an adverse reaction to bevacizumab. Topical proparacaine and diluted povidone iodine solution are unlikely to have caused this negative reaction, as no adverse effects occurred after the administration. The two episodes of hypersensitivity reaction which persisted for 48 h reflect a continuous stimulus which lasted for at least 48 h. It should always be borne in mind that a systemic hypersensitivity reaction can occur with intravitreal injection of bevacizumab.



Figure 2. Thirty minutes after the intravitreal bevacizumab injection to the left eye, angioedema and conjunctival chemosis occurred in the left eye.

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