

An Unusual Case of Allergic Contact Dermatitis Due to Nepafenac Eye Drop

Hansraj KUMAR^a, STY SUDHA^a, Subodh KUMAR^a, Harminder SINGH^a

^aDepartment of Pharmacology, All India Institute of Medical Sciences, Deoghar-814142, India

ABSTRACT

Eyelid dermatitis is a common occurrence in several skin disorders, including seborrheic dermatitis, atopic dermatitis and psoriasis. However, it is primarily associated with allergic contact dermatitis (ACD). Here, we present a case of 51-year-old woman who developed pruritic erythema of the eyelids after using 0.1% Nepafenac eye drops. Nepafenac is a non-steroidal anti-inflammatory drug (NSAID) commonly prescribed as eye drops for various inflammatory eye conditions. Instances of ACD caused by Nepafenac eye drops are exceedingly rare based on available case reports. Nevertheless, it is important to consider ACD as a potential cause when a patient with eyelid dermatitis has a history of Nepafenac eye drop usage. The Naranjo algorithm, which was used for assessing causality, determined the likelihood of this case being a possible instance of ACD due to Nepafenac (Naranjo score=3).

Keywords: eyelid dermatitis, allergic contact dermatitis, nepafenac eye drop.

INTRODUCTION

Eyelid dermatitis and/or periocular dermatitis (EDPD) are frequently observed in a variety of skin conditions, including psoriasis, cutaneous T-cell lymphoma, infections, and urticarial folliculitis (1). In decreasing order of frequency, seborrheic dermatitis, irritating contact dermatitis, psoriasis, and atopic dermatitis are the conditions most frequently associated with allergic contact dermatitis (ACD), followed by EDPD (2). Allergic eyelid contact dermatitis can be brought on by a variety of things, including perfumes, metals, antibiotics, cosmetics, topical ophthalmic medicines, and contact lens solutions (1, 2). Here, we discuss an ACD case associated with nepafenac eye drops. □

CASE HISTORY

A 51-year-old female who was referred from the Ophthalmology Outpatient Department (OPD) complained in the dermatology OPD that her right eyelids were itchy, red, and excoriated, but that the conjunctiva or cornea were unaffected (Figure 1). When we inquire further, we learn that she recently visited a private eye facility for a sudden loss of vision in her right eye. Her comprehensive ocular examination report and optical coherence tomography (OCT) scans showed superotemporal branch retinal vein occlusion and cystoid macular edema in the right eye. Her left eye was functioning normally. The patient was instructed to receive intravitreal Anti-VEGF (bevacizumab) injection in the right eye. She was given nepafenac

Address for correspondence:

Dr. Hansraj Kumar, Assistant Professor

Department of Pharmacology, All India Institute of Medical Sciences, Deoghar, India

Tel.: +918368035562; email ID: hansraj.pharmacology@aiimsdeoghar.edu.in

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eye drops (Nevanac 0.1%, Alcon Laboratories, Fort Worth, Texas) to take three times a day for a month because she was unable to afford the recommended therapy. The patient brought her issue, which had begun the day after taking the nepafenac eye drop, to the dermatology OPD three days later. There was no prior history of medication allergies, similar illnesses, or family members who had been bitten by insects. There was no history of hair dye use or the use of cosmetics was also not present. She did, however, disclose a history of intermittent usage of the eye drop carboxy-methyl cellulose (Hypo Tear, Novartis) for ocular pain.

The condition was identified as drug-induced allergic contact dermatitis of the eyelids, with nepafenac eye drop as the likely cause. Nepafenac eye drop should no longer be used, and petroleum jelly should be used to the right eyelids and afflicted periocular area instead. Both routine biochemistry lab values and complete blood counts were within normal ranges. Although a skin patch test was intended, the patient declined to participate. Due to ethical reasons, a second challenge was not issued. After experiencing alleviation from the eyelid problems, the patient later visited the OPD. Seven days after stopping the medicine, an examination found that the excoriation had disappeared and the eyelid erythema had resolved (Figure 2). On the two-week follow-up visit, there were no adverse sequelae recorded. □



FIGURE 1. Periocular inflammation day 1 after drug instillation: skin involvement around the right eye (upper panel); no corneal or conjunctival involvement (lower panel)

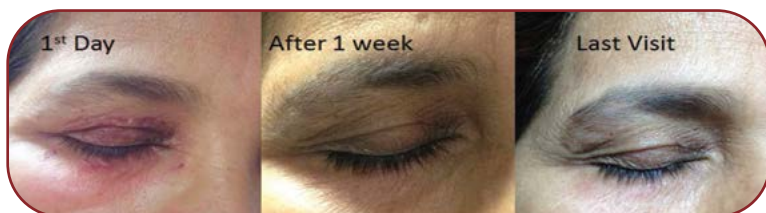


FIGURE 2. Active inflammation and its subsequent resolution

DISCUSSION

Eye drops containing 0.01% Nepafenac (2-amino-3-benzoyl benzeneacetamide), a topical non-steroidal anti-inflammatory drug (NSAID), are frequently used to prevent and/or treat a variety of inflammatory ocular disorders (3). The liquid has a pale yellow or light orange hue. Nepafenac sodium, 1 mg/mL, is the major component. Moreover, it contains sodium chloride, tyloxapol, disodium edetate, mannitol, carbomer 974P, benzalkonium chloride (0.005%) as a preservative, and filtered water. Upon topical ocular dosage, nepafenac permeates the cornea and is transformed into amfenac, a strong nonsteroidal anti-inflammatory medication, by ocular tissue hydro-lases. The prostaglandin synthesis enzyme cyclooxygenase is inhibited by amfenac.

When used properly, topical ophthalmic NSAIDs are generally regarded as safe and effective therapeutic agents, but they are not without risk. They have been associated with a number of types of ocular and systemic toxicity, some of which have been especially severe. When nepafenac is used, the following side effects are frequently experienced: blurred vision, a sticky feeling, swelling of the eyelid and periocular area, dry eye, discomfort in the eye, redness, raised intraocular pressure, itching, sensitivity to light, and watery eyes. Use of NSAIDs may lead to corneal toxicity, which may result in problems such punctate keratopathy, chronic epithelial erosion, and corneal pricking sensation. Nepafenac, among other non-steroidal anti-inflammatory medications, has the potential to prolong bleeding times by interfering with platelet function. Other physiological reactions that the patient may encounter include headaches, elevated blood pressure, nausea, and vomiting. Nepafenac use can result in the same side effects as other NSAIDs, including breathing difficulties, chest pain, fainting, swelling of the face, lips, mouth, tongue, or neck, and infrequently, the abrupt onset of pink, itchy skin swellings known as hives or nettle rash. Acetylsalicylic acid, phenylacetic acid derivatives, and other nonsteroidal anti-inflammatory drugs may cause cross-sensitivity. As a result, care should be used while treating patients who have a history of medication sensitivity (3).

According to a published study, periocular dermatitis has been reported as a side effect of nepafenac eye drops. The study reported that patients

who developed periocular dermatitis while using nepafenac eye drops experienced symptoms such as redness, itching, and scaling around the eyes. The study also found that discontinuation of nepafenac eye drops and the use of topical steroids was effective in treating the periocular dermatitis. This study reports it as a type of irritant contact dermatitis occurring due to some inactive ingredient such as "sodium hydroxide" unlike our case which is allergic contact dermatitis (4). Similarly, a case of allergic urticarial has also been reported (5).

One of the body's most delicate parts is the eyelid. Compared to facial skin, the skin on the eyelid is incredibly thin, making it more permeable to contact allergens. It is subjected to an astonishing variety of substances, in part because our hands and fingers frequently contact the area around the eyes. Although it was negative in our case, allergic contact dermatitis (ACD) of the eyelids is more frequently an ectopic manifestation brought on by cosmetics used on the hair, face, scalp, or fingernails. There have been cases of ACD linked to eye drops, including glaucoma medications, antibiotics, antihistamines, steroids, and mydriatic eye drops, as well as eye drop ingredients or preservatives (6).

Benzalkonium chloride is a quaternary ammonium cationic detergent. It is the most commonly used preservative in eye drops, contact lens solutions and artificial tears. It has occasionally been reported to cause allergic dermatitis (7). Benzalkonium chloride (0.1 mg/mL) is also used as a preservative in Hypo Tear eye drop which our patient used before without any allergic complaint.

To establish a causal relationship between the eyelid contact dermatitis and the use of Nepafenac, a systematic approach was employed in this

patient. The Naranjo's causality scale was utilized to determine the likelihood of the suspected adverse drug reaction (ADR) being directly caused by the medication rather than other contributing factors. There are 10 questions on this Naranjo's scale and we can select "Yes," "No," or "Do not know" as your response. For each response, a different point value (-1, 0, +1, or +2) is given. Total scores can range from -4 to +13; a reaction is regarded as definite if the score is 9 or higher, probable if 5 to 8, possible if 1 to 4, and doubtful if 0 or less (8). The following criteria were taken into account: the ADR developed within a day of starting of Nepafenac, improvement within a week of discontinuation of Nepafenac, there was marked improvement in two weeks and the ADR could not be explained by any other condition. The causality assessment was performed using the Naranjo algorithm where the score was +3 suggestive of a "possible" association. $\square$

CONCLUSIONS

To our knowledge, this is the first documented case of allergic contact dermatitis (ACD) resulting from the use of Nepafenac eye drops. It is important for healthcare practitioners to be aware of this uncommon yet potentially serious adverse event, particularly considering the widespread usage of nepafenac in the treatment of various ocular inflammatory conditions. $\square$

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HK and HS analyzed and prepared the manuscript. All authors approved the final version of the present article.

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