This educational activity consists of a case report and ten (10) study questions. The participant should, in order, read the Learning Objectives contained at the beginning of this activity, read the material, answer all questions in the post test, and complete the Activity Evaluation/CE Request form. To receive credit for this activity, please follow the instructions provided below in the section titled To Obtain CE Credit. This educational activity should take a maximum of 1.0 hour to complete.

CONTENT SOURCE
This continuing education (CE) activity captures content from a roundtable discussion.

ACTIVITY DESCRIPTION
Eye care providers face multiple challenges in diagnosing ocular allergies and achieving patient satisfaction with treatment. Studies show that ocular allergies are often underdiagnosed and often not treated optimally. Recently, a group of experts convened to discuss their insights and approaches for managing patients with ocular allergy. This CE activity brings you highlights from these case discussions in a 4-part series.

TARGET AUDIENCE
This educational activity is intended for optometrists.

LEARNING OBJECTIVES
Upon completion of Part 3 of this 4-Part CE Case Series, participants will be better able to:
- Conduct a thorough differential diagnosis to identify allergic conjunctivitis and any comorbid conditions
- Choose appropriate medications based on disease severity to effectively control the early-phase and late-phase responses of ocular allergy
- Choose appropriate medications to provide effective maintenance control of ocular allergy
- Counsel patients on preemptive strategies and the role of pharmacologic and nonpharmacologic interventions for allergy control
- Collaborate with colleagues in other specialty areas to optimize the management of the patient with ocular allergy

ACCREDITATION DESIGNATION STATEMENT
This course is COPE approved for 1.0 hour of CE credit for optometrists.

COPE Course ID: 40418-AS

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BAUSCH + LOMB
SEVERE ALLERGIC CONJUNCTIVITIS IN A PEDIATRIC PATIENT

Case from the files of Jack Schaeffer, OD

Seasonal allergic conjunctivitis (SAC) and perennial allergic conjunctivitis (PAC) are the most common forms of ocular allergy. They are usually not sight-threatening, but can be severe.

This roundtable discussion focuses on a pediatric patient with severe allergic conjunctivitis. It highlights the differential diagnosis for this condition and its management. As illustrated in this case, optimal care of severe allergic conjunctivitis involves a multidisciplinary approach with the collaboration of an allergist and multimodal intervention using pharmacotherapy, immunotherapy, and allergen avoidance.

CASE

An 11-year-old girl presents in early spring with a 4-year history of bilateral ocular redness and swelling, along with a recent complaint of watering and itchy eyes for 1 week. While her problems have been chronic, her parent reports they are presently much worse. The problem with itching is described as extreme, especially at night.

Her history includes atopic dermatitis, which was present only during infancy. At age 5 years, she developed seasonal nasal and ocular symptoms that are now persisting throughout the year. The patient’s pediatrician had diagnosed allergic rhinitis and prescribed an oral antihistamine-decongestant to be used as needed. The family has 2 house pets, a dog and a cat, and the patient recently started weekly equestrian lessons.

Ocular examination shows the following: periorbital swelling OU with presence of allergic shiner (Figure 1); conjunctival chemosis 3+ OD (Figure 2), 2+ OS; injection 3+ OU; mild superficial punctate keratitis OU (Figure 3); and white, ropey mucoid discharge coupled with extreme watering. Lid eversion shows a 3+ papillary response (Figure 4). The patient is negative for lymphadenopathy and has no remarkable posterior segment findings. Intraocular pressure (IOP) is 14 mm Hg OU and pachymetry is 556 microns OD and 555 microns OS.

Dr Hom: Dr Schaeffer, what was your diagnosis?

Dr Schaeffer: Considering her history and the severity of the itching, my presumption was severe allergic conjunctivitis. I needed to differentiate between SAC and PAC, however, because seasonal exacerbations can occur with PAC.1 There also was a need to rule out viral infection because the degree of injection, chemosis, and discharge in this patient suggested a viral conjunctivitis. Presence of lymphadenopathy strongly supports the diagnosis of viral conjunctivitis, but its absence in this patient would not rule out viral conjunctivitis because many patients with viral conjunctivitis do not have a palpable lymph node.2

Dr Karpecki: On the basis of the child’s age and her severe itching, vernal keratoconjunctivitis (VKC) also should be considered even though VKC develops predominantly in males.3 Although her upper eyelid does not show cobblestone papillae, I would look very closely at the limbus for Horner-Trantas dots (Figure 5), the gelatinous, whitish accumulations of eosinophils that are a typical sign of VKC.4 I see many children who are referred because of nonresponsive allergic conjunctivitis. When I examine the limbus in these patients, I sometimes see 1 to 2 clock hours of elevation from eosinophilic accumulation. That finding changes my diagnosis to VKC, even in the absence of cobblestone papillae under the upper tarsal plate. Therefore, I like to emphasize the importance of looking closely at the limbus in young patients with a severe allergic conjunctivitis to make sure there is not even a single clock hour of elevation.

Also, the risk for PAC from exposure to house pets is worrisome in this child, and I would be concerned about asthma because in children, there is a very high association between severe allergic rhinitis and the development of asthma.5

Given the severity of her presentation and the potential role of exposure to perennial allergens, I would involve an allergist in her care, while beginning with aggressive treatment to control her current flare.
Dr Schaeffer: I agree that VKC should be considered in the differential diagnosis. Coincidentally, at about the same time this case patient presented, I saw a 12-year-old girl with VKC who had limbal swelling from 10 o'clock to 2 o'clock. I have also found that limbitis can be a feature of viral conjunctivitis, although as noted anecdotally, the limbal elevation with viral infection tends to be 360° whereas with VKC it seems to develop superiorly first.

Dr Hom: How did you manage this patient?

Dr Schaeffer: I prescribed an antihistamine-mast cell stabilizer to be used twice a day along with cold compresses 2 to 3 times a day for symptomatic relief and to help decrease the chemosis. Because of the extreme redness and her severe symptoms, I started her immediately on frequent instillation of a topical corticosteroid. I chose loteprednol etabonate, 0.5%, suspension because it is an ester-based steroid that has increased safety for longer-term use relative to some other potent corticosteroids.6 I prescribed the dosing every 2 hours, to start, which is off-label; I find this more aggressive dosing regimen provides increased effectiveness. Subsequent to the occurrence of this case, loteprednol, 0.5%, gel became available with an indication for treatment of postoperative inflammation and pain administered 4 times daily. Would anyone be comfortable decreasing the frequency of dosing in this patient when using the gel instead of the suspension?

Dr Karpecki: The gel vehicle is designed to increase surface retention.7 Because of that feature and because of the patient’s age, I think that it would be reasonable to dose loteprednol gel just 4 times daily in this case. However, the patient should be closely watched to make sure she is responding; the frequency of dosing can be increased if necessary.

This patient also had extreme itching, and even though it was more problematic at night than during the day, I would add a combination antihistamine-mast cell stabilizer. I found that, compared with corticosteroids, the dual-acting anti-allergy agents are more effective for relieving symptoms that develop because of the action of histamine, chymase, tryptase, and other preformed chemical mediators released upon mast cell degranulation in the early-phase allergic reaction.

The late-phase allergic reaction is an inflammatory response and is associated with signs of chemosis and injection. This patient already shows signs of the late-phase allergic response, and treatment with a topical steroid is necessary. In fact, while the newer combination antihistamine-mast cell stabilizer agents—olopatadine, 0.2%, alcaftadine, and bepotastine—are very effective for relieving symptoms of allergic conjunctivitis, the indications for these products specifically mention only itching, and not redness or other signs.

Dr Hom: Dr Bielory, what are your thoughts about treatment in this case, taking into account the severity of the patient’s symptoms and the activity of available medications against early- and late-phase mediators?

Dr Bielory: If this patient presented to me first before seeing an eye care specialist, I would start her on a topical corticosteroid because she is manifesting late-phase signs of an allergic reaction. Then, I would also consider referring her for eye care for diagnosis to determine if she has VKC or severe allergic conjunctivitis and because she will need IOP monitoring and assessment of lens opacifications for potential cataracts if she is to be on a long-term course of topical or oral systemic steroids.

Dr Bielory: Absolutely, because a steroid does not prevent itch as effectively as an antihistamine.8 I think there also is a misunderstanding among some eye care specialists that steroids provide immediate symptomatic relief of allergic reactions. They do not. So, in the same way we manage an exacerbation of asthma, I would treat this patient with 2 medications, 1 for obtaining immediate relief and the other for maintenance therapy. The necessary duration of treatment with the steroid will depend on how the eye responds, but it probably will take 3 or 4 days to get full control of the inflammation. If control is noted within 3 to 4 days, I then decrease the topical steroids—and this subsequently decreases the need for IOP measurements.

Dr Hom: What is the temporal development of the early and late phases of the allergic reaction in relation to allergen exposure?

Dr Bielory: The early-phase response with development of itching and swelling occurs within 10 minutes of exposure to an allergen and may peak within 20 minutes.9,10 Signs of the late-phase response, which include redness and tearing, develop after approximately 6 hours.9,10

Dr Hom: Dr Schaeffer, how did the patient respond to treatment?

Dr Schaeffer: Her signs and symptoms were improved at her follow-up visit 2 days later. I had her continue with the dual-acting anti-allergy agent once daily and began downward titration of the steroid dosing, reducing it to 4 times a day for 1 week, twice a day for 1 week, and then once a day. Within a few weeks, however, the patient developed a recurrence that we could establish was unrelated to horse dander because she had stopped her riding lessons, on our advice.

Loteprednol was restarted to treat the exacerbation, but once again, after the steroid was discontinued, she returned within 2 weeks because of a severe flare.

Dr Bielory: Because VKC was ruled out, this patient’s recurrence upon weaning from the corticosteroid indicates she is experiencing a progressive allergic inflammatory response, most likely to an environmental allergen. Therefore, she is likely an excellent candidate for immunotherapy. The patient should undergo skin testing to identify the specific causal allergens, thus providing information for environmental controls and the use of allergen immunotherapy. It is obvious that she requires constant topical steroid use for control of the allergic inflammatory response; the key would be to modulate the intensity of the response to the suspected allergen(s). And this is the goal of immunotherapy treatment.11
Dr Schaeffer: In fact, skin testing showed this patient had allergies to dog dander and especially to cat dander. Therefore, she was put on immunotherapy.

Dr Hom: What preemptive strategies would you recommend for this patient?

Dr Schaeffer: She was maintained on the topical antihistamine-mast cell stabilizer. We recommended daily hair washing, removing the carpet from her bedroom, and keeping her away from the cat (this indoor house pet was moved outdoors). She eventually got much better, but it took approximately 3 or 4 years, and during that time she had periodic problems with flare-ups of the condition. The interval between flare-ups, however, increased because of the preventive treatment plan.

Dr Bielory: It generally takes 6 to 12 months to see a positive effect from immunotherapy.\(^1\) With appropriate immunotherapy, patients will require exposure to a higher concentration of allergen before developing symptoms and should have less need for anti-allergy medication.

Dr Hom: To summarize, the presentation of severe allergic conjunctivitis may have overlapping features with those of VKC, atopic keratoconjunctivitis, and ocular infections. Therefore, careful history and clinical evaluation are needed for an accurate diagnosis.

Management of the signs and symptoms of severe PAC includes a topical corticosteroid to treat acute flares, routine use of a dual-acting antihistamine-mast cell stabilizer to maintain allergy control, and strategies to reduce exposure to the offending allergen(s). Pediatric patients with severe allergic conjunctivitis may warrant referral to an allergist for skin testing and consideration for immunotherapy, especially because these patients may be predisposed to, or have, asthma. Immunotherapy can effectively reduce allergy signs and symptoms to limit patient suffering.

References

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