

An infrequent response to slit-lamp examination

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“Sneezing may be defined as a spasmodic expiration preceded by one or more spasmodic inspirations” (Brubaker, 1919). Many conditions are capable of inducing a sneeze (Yater and Oliver, 1961), but of particular interest to the ophthalmologist is the production of sneezing in response to light. The term “photic sneeze reflex” has been used by Everett (1964) to distinguish this form of stimulus from others which produce the response.

Light-induced sneezing appears to be a relatively common occurrence. Everett (1964) found a definite history of it in 68 out of 414 individuals (16.4 per cent.). He reported it to be commoner in the male than in the female, commoner in the Caucasian than in the Negro, and commoner in those with a family history of light-induced sneezing. He found no significant correlation with any allergic condition.

The usual source of stimulation in susceptible individuals is sunlight, but artificial light may also initiate the reflex. Sédan (1954) described the reflex in patients exposed to such varying stimuli as sunlight, the ophthalmoscope beam, photographic flash, and ultraviolet light. Boudouresques (1950) stated that a white wall or a bright colour may also induce the reflex, while ocular disease, particularly keratitis, may also sometimes be present (Watson, 1875; Boudouresques, 1950). Everett and Sédan were impressed by the observation that the sneezing usually occurred only at the onset of exposure to light after which there follows a refractory period when further sneezing cannot be elicited. Everett considered the physiological basis for the reflex, and in particular suggested that “parasympathetic generalization” may be a possible explanation. By this is meant the excitation of one structure innervated by the parasympathetic nervous system following the stimulation of another similarly innervated structure. Applying this hypothesis to the photic sneeze reflex, the parasympathetic activity of pupillary constriction (N III) brought about by exposure to light would produce congestion and secretion of the nasal mucosa (N VII) in susceptible individuals, factors which are known to initiate sneezing.

The main purpose of this paper is not to speculate further about the mechanism of the reflex, but to draw attention to yet another method of eliciting it, namely by slit-lamp examination of the eye. Although such an examination would seem to be an easy way of producing the reflex in susceptible individuals, it does not appear to have been previously described in the literature, perhaps because of a failure to recognize the explosive outburst as a manifestation of this light-stimulation-induced reflex.

Case report

A man aged 47 was transferred on July 17, 1968, to Moorfields Eye Hospital, High Holborn, from hospital in Persia, with the history that 8 days previously he had suffered injury when potassium hydroxide splashed into both eyes. Immediately after the accident, he was treated by irrigation of

the eyes and frequent instillations of mydriatics and local antibiotic drops and ointment. When first seen here the unaided visual acuity was 6/60 + 1 in the right eye and 6/24 in the left. There was extensive sloughing of the corneal epithelium and of the bulbar conjunctiva of both eyes. Local treatment with mydriatics and antibiotics was continued. In addition a short course of systemic antibiotics followed by a more prolonged course of systemic steroids was prescribed. Progress was slow, but eventually the epithelium healed and additional treatment with local steroid drops was commenced, with good effect. The stroma of both corneae, however, remained oedematous and with the appearance of superficial and deep corneal vascularization local radiotherapy became necessary. This arrested the vascular ingrowth.

There was little of importance in the patient's general medical history, as apart from rheumatic fever 20 years previously he had suffered from only minor ailments. There was no history of nasal disease or hay fever. He was known to be allergic only to barbiturates, which produced a drug eruption when formerly administered.

While an in-patient, it was noticed that he frequently sneezed when a bright light was directed towards his eyes, particularly during ophthalmoscopic and slit-lamp examination. At the time of his discharge from hospital, it was decided to keep a record of his sneezing in response to subsequent examinations with the slit lamp. Initially he was seen daily and the frequency of sneezing is indicated in the accompanying Table.

Table *Frequency of sneezing per visit*

<i>Visit no.</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
No. of sneezes	2	3	2	0	3	0	2	0	1	0	0	0	0	0	1	0

Later, the patient was directly questioned about his susceptibility to sneezing. He recalled that since childhood he had frequently sneezed after exposure to a variety of bright lights, including sunlight. He was not aware of any other unusual stimuli which induced sneezing, nor was it possible to demonstrate any on examination. He offered the information that his mother was similarly "light sensitive" although it was not possible to verify this. His father and only sibling, a brother, were "non-sneezers".

Comment

Before each examination, the patient waited in a room illuminated by ordinary daylight and artificial lighting. None of the examinations was unduly prolonged and unlike those quoted by Everett and Sédan this patient never sneezed at the beginning of the examination. The sneezing usually occurred later on, when the irritable, photophobic eyes were lacrimating profusely. Moreover, the patient did not demonstrate the refractory period previously mentioned. Indeed when the sneezing was repeated, the outbursts usually followed each other in quick succession. It is interesting to note that the repeated attacks of sneezing occurred soon after the patient was discharged from hospital and that as the eyes became less irritable, the sneezing became less frequent. This would suggest that the production of sneezing was directly associated with the more profuse lacrimation in the early stages of recovery, perhaps by virtue of a reflex-stimulating action of the tears on the lacrimal passages and nasal mucosa. The delay in the onset of sneezing following exposure to light can be regarded as the time taken for the tears to pass along the lacrimal passages to the nasal mucosa before initiating the reflex.

Since preparing this paper another patient who manifests the "photic sneeze reflex" on slit-lamp examination has been brought to my attention. She attended at Moorfields Eye Hospital having noticed some reduction in visual acuity in both eyes. She was found

to have early senile lens opacities without evidence of any other ocular disease. Examination with the slit lamp produced sneezing. She was noticed to have blue irides, a predisposing factor in the production of photophobia. This was the only feature which could be incriminated to account for her response.

Summary

A description is given of the "photic sneeze reflex" and of its presence in two patients. Although the reflex is well known, its production by slit-lamp examination does not appear to have been specifically noted previously. It is suggested that lacrimation may be an important factor in mediating the reflex in certain individuals.

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