

Contact Allergy to Mace

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THE RIOTS and disruptions of the 1960s turned the attentions of police forces around the country to effective methods of crowd control. Tear gas, developed before World War II, had long been a popular method of dispersing and subduing the unruly because of its capacity to temporarily disable without inflicting permanent or serious injury. A lacrimator, tear gas irritates the mucous membranes of the eyes, causing painful smarting and profuse enough tearing to guarantee impaired vision.

Among the tens of thousands of American soldiers who experienced the "gas chamber drill" of having to don their gas masks quickly while clouds of tear gas were pumped into a sealed tent or room, a few cases of sensitivity reactions have been reported. Kissin and Mazer¹ detail the case of an aviation cadet in whom itching and an erythematous eruption of the hands and trunk developed on his second exposure to tear gas (chloroacetophenone). The third exposure sent him to the hospital, his entire body except his face exhibiting an "erythematous urticarial eruption."

Ingram² also details a case of military exposure to tear gas with irritation and blistering. But beyond the possibility that some individuals could react to it with mild to fairly severe dermatitis, tear gas has other drawbacks. The police officers dispensing it and innocent bystanders as well as the unruly for whom it was particularly intended have fallen victim to its irritating effects, since the gas is applied in a fine spray that literally covers an entire area.

In an attempt to overcome some of tear gas's faults, the chemical mace was developed. Mace is a solution of

tear gas (chloroacetophenone) "in a mixed solvent consisting of 1,1,2-trichloroethane (approximately 5%) and a mixture of hydrocarbons resembling kerosene (approximately 4%)" according to the fact sheet put out by the US Surgeon General's Office. The mace is dispensed in a stream of heavy droplets to a distance ranging from eight to 20 feet rather than as a mist; thus, it is more selective in reaching its target. Mace is dispensed from cans similar to hair spray cans or from containers built into night sticks, police billies, and batons. The officer using a mace dispenser can fire rapid bursts of the chemical. A direct hit on the eyes is not necessary to produce tearing. According to an article prepared by the International Association of Chiefs of Police,³ mace produces dizziness as well as tearing and generally incapacitates for 15 to 20 minutes, allowing enough time for the officer to subdue the prisoner.

The effects of mace are temporary irritation of the eyes and irritation of the skin, the severity of which depends on the amount of mace applied. Tests have shown no sign of toxic systemic reaction so far. However, there has been one instance of possible contact dermatitis to mace reported in the literature.⁴ In January and February 1976, the author treated a case of contact allergy to mace precipitated by minute concentrations during exposure.

Report of a Case

A 47-year-old prison guard complained of a rash and itching on his right side above the belt line and on his right arm. On examination, the site was erythematous, with vesicles and scaling.

The patient's history showed that he routinely wore a holster, gun, and can of mace on the right side. At this time, it was suspected that the holster was the cause of the dermatitis. However, the patient

also reported occasionally spraying mace briefly on his clothing at the belt line when his hand would brush the can.

The patient was instructed to wear the holster on his left side, without the can of mace, and to return in two weeks. If the left side began to itch during this interim, the patient was to avoid wearing the holster and gun. Betamethasone valerate ointment, 0.1% to be applied three times a day, was given to the patient to relieve his symptoms, and he was advised to use a basic soap.

On his return visit, the rash on the right side and right arm had completely healed; however, a similar dermatitis was seen on the left leg. When questioned, the patient reported having sprayed mace on his left leg. He wished "to see for himself" that the mace was the cause of the rash. He then noticed a red, itching area at the site one week following this incident. Treatment with betamethasone valerate ointment, 0.1%, for this second area of rash was begun. Two days later, the patient noticed a smaller area of rash below the primary irritation on the left leg. Both areas cleared after a few days of treatment.

On the third day after an open patch test to mace, erythema developed, which lasted one week. The patient discontinued carrying mace and has had no recurrence of symptoms.

Because mace is a selective weapon for crowd control and for subduing rioters, it is being employed by police officers around the country. Although its most frequent effects are eye and skin irritation, to my knowledge, this is the second case of contact allergy to mace reported in the literature, and physicians should be aware of this undesirable complication attendant on its use.

References

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