

Case of the Month
February 2008

NJPIES received a call from a hospital requesting help in treating a 34 year old female physician who accidentally injected her left thumb with an epinephrine auto-injector during a code. The thumb was painful. She was anxious and complained of palpitations. Her heart rate was 110/minute and her BP was 140/100. The thumb was described as swollen, of normal color and temperature.

A 30 year old mother was attempting to administer an auto-injector to her child but held the apparatus by the wrong end and injected it into her finger from skin through the finger to the nail bed. The area was described as blanched and blue at the same time. NJPIES recommended placing the controlateral hand into warm water and not to apply either ice or hot water to the effected digit. Three quarters of an hour later the color of her hand returned to normal. A plastic surgeon recommended injecting phentolamine directly into the site, but, by the time it was available the finger had returned totally to normal. The child was treated, without epinephrine, in the pediatric ED for an allergic reaction.

In 2007, our poison center received 40 calls related to inadvertent discharge of auto-injectors into unintended individuals (this was a 14% increase over such calls in 2006). In all but 1 the injection was into a digit, most often a thumb. Seven of the victims manifest no effects, 29 had minor effects, such as pain and or local blanching, and 4 suffered systemic effects (tachycardia, headache, circumoral cyanosis).

It is highly unlikely that an accidental injection of such autoinjectors will produce anything except temporary local discomfort. A recent review of the world's literature on the subject was unable to reveal any serious effects from such accidental discharge into a digit.¹ Thus, it is important to not be overly aggressive in treating such exposures.

It is almost intuitive to place the cold, blanched digit into warm water. However, this theoretically should be avoided. The effect of the local epinephrine is expected to be far more powerful than that of the warm water. In fact, it might be deduced that warming the digit might increase the oxygen demands of the tissue and, if there is already serious vaso-constriction from the epinephrine, this might be counter productive. Topical placement of vasodilatory creams such as nitroglycerin might produce some improvement in color and perfusion and as a last resort the use of the alpha blocker phentolamine² may help. Both pain control and possibly achievement of vasodilatation may be achieved through injection of lidocaine.³

The primary treatment then, is supportive and anticipatory. Analgesics, and possibly anxiolytics, may be of some use. Prevention is paramount. These devices are intended to fire easily, thus careful handling must be taught to all individuals who may come into contact with them.

¹ Fitzcharles-Bowe C, Denkler K, Lalonde D. Finger Injection with High dose (1:1000) Epinephrine: Does it Cause Finger necrosis and Should it be Treated. *Hand* (2007) 2:5-11.

² Singh T, Randhawa S, Khanna R. The EpiPen and the ischemic finger. *Eur J Emerg Med* (2007) 14(4):222-3.

³ Silverberg M, Manoach S. Accidental self-administration of epinephrine with an auto-injector. *Clin Tox* (2007) 45:83-84.