Welcome

The newsletter will provide you with information from the current research literature and updates on available resources related to lead poisoning prevention. With your help we will strive to reach the goal of eliminating lead as an environmental hazard by 2010. This quarterly newsletter is a collaborative effort between the Virginia Department of Health’s Lead-Safe Virginia Program and the University of Virginia’s Virginia Children Division of Medical Toxicology.

Inside This Issue

1. Retained Lead Bullets and Lead Poisoning
2. New online lead education courses
3. Resources

Phone Numbers to Know

- Lead-Safe Virginia, Virginia Department of Health
  (877) 668-7987
- Healthcare Lead Emergency Hotline
  (866) SOS-LEAD

Retained Lead Bullets and Lead Poisoning

Case:

A 14-year-old girl suffered a shotgun blast to the face at close range. She survived multiple penetrating injuries to her head, neck, and thorax. Computerized topography of her head and neck revealed over 100 retained lead shotgun pellets (See images page 3). Three pellets were intracranial and in direct contact with her cerebral spinal fluid (CSF), with the remaining pellets retained within the subcutaneous tissue. Thirty days after her injury, a venous blood lead level (BLL) was 47 µg/dL, and confirmed with a second venous BLL one week later. No other potential source of lead toxicity was found. Surgical removal of the intracranial pellets was considered, but due to the pellets location, the potential surgery complication risk was determined to be too high.

See images on page 3.

Discussion

Lead poisoning from retained lead foreign bodies has been commonly reported within the medical literature. The pathophysiology of lead absorption from retained bullets has not been clearly delineated. Many factors contribute to increased lead levels from retained bullets. Bullet fragmentation increases the surface area for lead absorption and has been reported to increase blood lead levels by 25.6%. The location of the lead foreign body also determines the amount of lead that will be absorbed. Bullets in contact with bony fractures and within synovial fluid, pleural fluid, and cerebrospinal fluid have all been associated with elevated absorption rates and lead toxicity.

Recommended surveillance for patients with known retained bullet fragments is based on the above-mentioned high-risk characteristics. Removal of bullet fragments status post gunshot wounds is an area of
Continued on page 3

For sharper images, contact Kristin Wenger at 434-982-4386 or klw2s@virginia.edu to have this newsletter sent via email.