Dear Editor,

The advancement of peripheral nerve visualization with the use of ultrasonography has been enormous during the last decade.[1] Currently, ultrasonography is used for the localization of peripheral nerves and for the treatment of several peripheral nerve pathologies.[1,2] It has been established as a significant tool for nerve blocks during surgical procedures, pain management, and guidance during resection of peripheral nerve lesions.[1,2] Ultrasound has the significant advantage of zero radiation exposure, and it is an affordable solution for nerve localization as well as for pain management by reducing the associated costs for additional imaging studies and by restricting visits at the doctor’s office.[2]

To obtain image acquisitions of the desirable nerve or nerves, physicians are guided through specific anatomical landmarks.[3] This process allows the users to focus on the area of interest and finally recognize the nerve. The ultrasonographic recognition of the nerve structures demands experience on the sonographic anatomy.[3,4] Furthermore, anatomical variations of the used landmarks concerning the size, origin, course and dominance of the closely related vessels, as well as the anatomical alternations of the nearby located tendons, such as the palmaris longus makes things harder for the ultrasound operators. This process is demanding because it needs time and significant efforts from the users to correlate specific image patterns to anatomical structures and their variations.[3,4] These deviations from the normally observed anatomy in the forearm, for example, are noted in 3%–15% of the human population.[3] In addition, the ultrasound operators should be able of distinguishing the pathological from the normal neuronal structures. An ideal way to succeed on this discrimination is to compare the pathological side to the contralateral normal side.[3,4]

The ultrasonographic guidance for a nerve block demands significant experience not only for the recognition of the important anatomical structures but also for the guidance of the required instrumentation (i.e., needle) toward the nerve as it is advanced through several layers of human tissue (skin, subcutaneous tissue, and muscles).[2-4] The operator should be capable of working with the ultrasound probe in several angles that can give him the perception of depth.[3,5]

The training opportunities on ultrasound are limited in daily clinical practice to several short term in duration courses that comprise the knowledge of the ultrasound basics in 2–3 days.[2] The learning curve is still questionable. The accreditation is not existed as there are no specific requirements for the trainers as well as for the trainees.[2]

In conclusion, ultrasonography is very useful for nerve imaging and nerve recognition as well as for guidance in several procedures. It is a demanding imaging modality that requires knowledge of anatomy and sonographic experience. The role of the several medical specialties that are taking advantage of ultrasound capabilities such as radiologists, orthopedics, neurosurgeons, and anesthesiologists should be more vigorous in defining the education and training on this undoubtedly valuable imaging modality.

**Financial support and sponsorship**
Nil.

**Conflicts of interest**
There are no conflicts of interest.
Dear Editor,

A 34-year-old male soldier, worried about instructing his subordinates, shot himself by inserting the muzzle of a Howa Type 89 assault rifle with an adapter attachment for continuous fire into his mouth with a blank cartridge. When emergency medical technicians checked him, he was in a restless state and was transferred to our hospital. His medical and family history was unremarkable. Upon arrival, his Glasgow Coma Scale score was 15. He had a blood pressure of 144/98 mmHg, a heart rate of 74 beats/min, and a SpO2 of 100% with mask of 6 L/min of oxygen. The physiological findings revealed the presence of soot and multiple sites of minor bleeding at the soft and hard oral palate. Oral computed tomography (CT) demonstrated residual material from the blank shot [Figure 1]. Conservative treatment with an antibiotic agent was selected for residual material such as grenade fragments. There were no complications such as abscess formation, and he was discharged on the seventh hospital day.

To the best of our knowledge, this is the first CT image of residual material left behind by blank shot. Blank shot is typically used in gun-firing ceremonies and cinematography, and fatal accidents can occur in these situations. [1] For example, a residual bullet accidentally left in the gun can be pushed out by the energy from the blank shot, causing fatal wounds. Alternatively, the energy created by the blank shot of itself can damage human tissue. [2] When blank shot fired from a gun contacts the head, it can break the skull and damage the brain. [3,4] When blank shot fired from a gun contacts the chest, it can break the sternum and damage the lungs and heart. [4] When blank shot is fired from a gun with its muzzle in the oral cavity, it can damage the tissues of the oral cavity, resulting in death due to deep aspiration of chyme with concurrent aspiration of blood. [5] The present patient shot himself with a gun to which an adapter attachment had been fixed, thus weakening the energy created by the explosion of gunpowder. The residual materials observed in this case may be fragments of the capsule of the gun powder or the adapter attachment.

Acknowledgments

Financial support and sponsorship: This manuscript received financial support from the Ministry of Education, Culture, Sports, Science and Technology (MEXT) - Supported Program for the Strategic Research Foundation

Access this article online

Quick Response Code: Website: 
DOI: 10.4103/JETS.JETS_145_16

How to cite this article: Siasios ID, Dimopoulos VG, Fountas KN, Kapsalaki E. Ultrasound application in peripheral nerve localization: Obstacles and learning curve. J Emerg Trauma Shock 2017;10:83-4.

Received: 10.12.16. Accepted: 02.01.17.

©2017 Journal of Emergencies, Trauma, and Shock | Published by Wolters Kluwer - Medknow