Use of point of care ultrasound for removal of foreign body: "Early screening of the neighborhood is the key"

Sir,

Removal of a foreign body involves a tedious process of wound exploration and extraction. Sometimes this simple step becomes formidable by nonlocalization of the foreign body especially when it cannot be felt manually. The surgeon can take the help of intraoperative fluoroscopy to identify and locate the foreign body and as a guide for targeted dissection. However, this may be risky as fluoroscopy cannot visualize intervening/adjacent neurovascular structures. Use of point of care ultrasonography (USG) with or without fluoroscopy can help us in making the extraction process much easier and safe.One of our patients had a bullet lodged in the right infra clavicular region which was not palpable from outside. Hence, the surgeons decided to explore the wound tract under general anesthesia. When things got little messy, they tried to locate the bullet with fluoroscopy [Figure 1a]. However, since it was an area with major vessels nearby, we decided to assist them with a portable ultrasound. The ultrasound showed an excellent image of the bullet [Figure 1b] just abutting a major artery (probably the subclavian artery). So, an incision was made directly above the bullet guided by the sonoimage and bullet was extracted carefully [Figure 1c]. A blind pull on the bullet without the idea that there was a major vessel abutting would have been catastrophic. First described in 1978,[1] USG is an established modality for high resolution sensitive imaging and localization of embedded foreign bodies. It is very helpful in real-time measurement of depth, identification of radiolucent foreign bodies like wood or thorn[2] and thereby guiding precisely targeted dissection. Sonography also helps in real-time localization and removal of remote intravascular foreign body "embolus."[3] Our case report once again emphasizes the importance of onsite USG to exclude any major vascular structure or nerve bundle in the vicinity of the foreign body. However, one should also be aware that USG findings are operator dependent and relies heavily on the expertise of the operator and image quality of the machine.

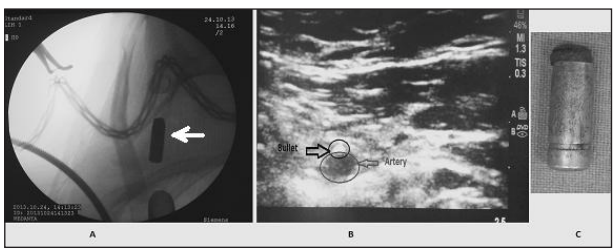

Figure 1: (a) Fluoroscopic image of the bullet below the clavicle. (b) Sonographic image of the bullet showing an artery impinging on its wall. (c) The bullet after extraction

It can give false positive or negative results[4] due to artefacts, presence of air in the wound, etc. So it is very important that USG is used before a signific ant amount of air enters the wound by virtue of tissue dissection. Missed foreign body in itself is a leading cause of litigation among emergency clinicians.[5] Good understanding of sonoanatomy, its reproducibility in varied clinical situations and machine knobology are skills worth acquiring. Use of Doppler is an added advantage to delineate the vascular structures.

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Conflicts of interest
There are no conflicts of interest.

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