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Case Report

An Atypical Case of Firearm

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Abstract

A woman was shot at her home at close range by an unknown assailant. The projectile traversed in such a way that it caused entry and exit as well as re-entry and exit**.** Although firing was from close range bullet entered through scapula and exited through axilla and re-entered left arm. Wound of exit was seen on left arm and a laceration was observed on the left forearm. No vital organ was involved.

1. Introduction

Alleged history of firing by unknown person while woman was sleeping at home in early hours of the morning. The woman was admitted to hospital in a conscious state with complaints of pain in back and left upper limb.

2. Clinical Summary

2.1 Local Examination-

a. Wound of entry -left scapular region 1*1 cm, 14 cms from vertebral column and 18 cms from clavicle with surrounding abrasion collar (**Fig. 1**).
b. Wound of exit- left axilla in mid axillary line 1*1 cm
c. Re-entry -flexor(inner) aspect of upper 1/3 of left arm 0.5*0.5 cms
d. Wound of exit -over extensor(outer) aspect of upper 1/3rd of upper left arm, 0.5*0.5 cms in diameter- margins everted (**Fig. 2**).
e. Lacerated wound on left forearm about 0.5*0.5 cms x skin deep (**Fig. 3**).

2.2 Radiological Findings- X-ray Left arm with shoulder and elbow AP/Lateral- 4-5 mm metallic pellet seen embedded in soft tissue of antero lateral of mid arm. Bone normal. USG Chest – Normal, X-ray Chest PA/Right Oblique-Normal

2.3 Management and Outcome of the case- The patient was not operated on as the pellet was very small and not causing any complication. The stay in hospital was uneventful. The woman was managed medically and discharged from the hospital after 4 days.

3. Discussion-

The unlawful use of firearms as weapons of assault continues to increase. In whichever jurisdiction the forensic practitioner practices, he/she will encounter injury and death caused by wide variety of firearms.[1] Firearm injuries are becoming common by the day. In the present case, as per history given by the woman, an intruder barged in to the house when the family was sleeping. The noise broke her sleep. The intruder, who was unknown to her, fired at her. Although firing was from close range bullet entered through scapula and exited through axilla and re-entered left arm. Wound of exit was seen on left arm and a laceration was observed on the left forearm.

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No vital organ was involved. X-ray left arm with shoulder and elbow both AP and lateral view showed metallic pellet embedded in soft tissue of anterolateral aspect of mid-arm. Bone appeared normal. The bullet had traversed from scapula to axilla, to the arm and then forearm. The wound over forearm was superficial. It had not entered the forearm. Although fired from close range the projectile had not caused any major injury.

Figure 1: Firearm wound of entry.

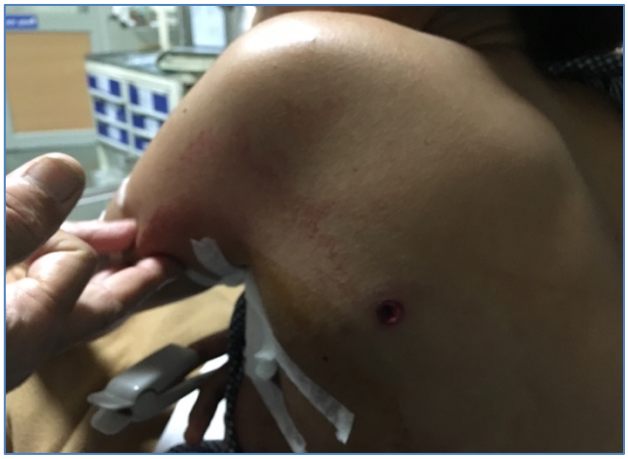


Figure 2: Firearm wound of exit.

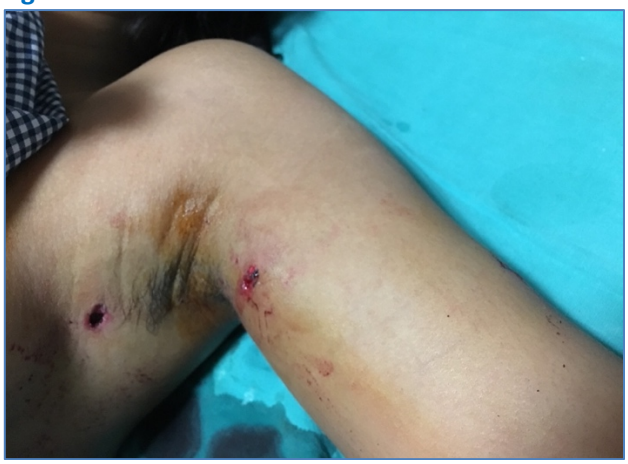
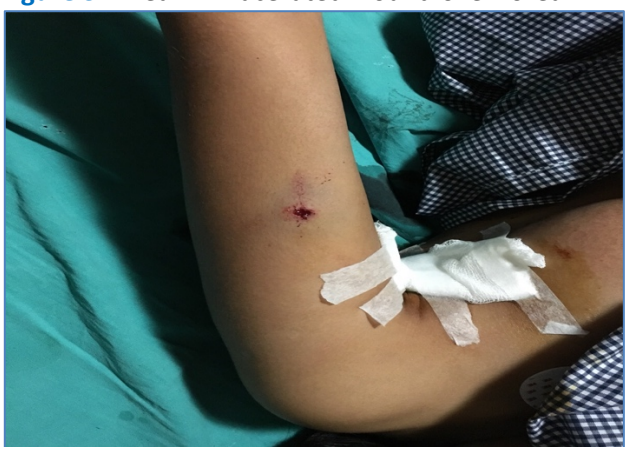


Figure 3: Firearm - Lacerated wound over forearm.



Multiple entrances and exits from single shot occur when victim is running or sitting in an unusual position, bullet hits irregular surface of the body e.g., breast, buttocks or bullet strikes the victim in such an orientation that several parts of the body come in its line successively.[2] It may also happen when the person is leaning in an unusual position so that several re-entries and exits take place. Examination of clothing is important in such cases.[3] The woman in this case must have been in an unusual posture to have such a different trajectory of the projectile.

The internal effects of the bullets depend upon the kinetic energy. Low velocity, low energy missiles such as shotgun pellets and some revolver bullets, cause simple mechanical disruption of the tissues in their path.[1] The severity and extent of a wound, however, are determined not by the amount of kinetic energy possessed by a bullet, but rather by the amount of this energy that is lost in the tissue.

The major determinants of the amount of kinetic energy lost by a bullet in the body are:[4]

1. The shape of the bullet
2. The angle of the yaw at the time of impact
3. Any change in the presented area of the bullet in its passage through the body.
4. The construction of the bullet.
5. The biological characteristics of the tissues through which the bullet passes.[4]

The photograph clearly shows abrasion collar around the wound of scapula. The re-entry wound on inner aspect of axilla does not show abrasion collar.

Re-entry wounds occur when a bullet has passed through one part of the body and then re-entered another part. The re-entry wound is usually characterized by a large irregular entrance hole with ragged edges and wide irregular abrasion ring. Re-entry wounds of the axilla caused by missiles that have passed through the arm often have an atypical appearance. Such wounds may range from oval to slit-shaped with a very thin or absent abrasion ring.[3] They often so nearly resemble a wound of exit, that differentiation from an exit wound if considered alone is difficult/nearly impossible. Entry wounds are oval to circular with a punched-out clean appearance to the margins except on palms, soles and elbow. The exception to this is re-entry wounds of axilla and scrotum.[4]

In through and through gunshot wounds, small fragments of metal from the bullet may be deposited along the wound track or in the bone

fractured by the bullet.[3] Usually, cases of firearm injuries are admitted in surgical ward. Forensic faculty and surgical faculty can jointly handle the case. The job of the forensic faculty is accurate documentation of the injuries, collection of evidence and record photographic evidence. In this case, clothes could not be examined as by the time call was received, clothes had been handed over to police. Thus, communication between treating doctor and forensic medicine faculty is essential for better documentation of injuries. The treating doctor should also be aware of the importance of evidence to be preserved.

In the living, all efforts must be directed to saving life but, if at all possible, the emergency medicine specialist, and surgeon, should accurately note the original appearances of the injuries and preferably take good quality images of any entry or exit wounds before surgical cleaning or operative procedures are performed.[1] The presence of forensic practitioner at the time can be helpful in ensuring that appropriate documentation is made, for presentation at a later stage in court.[1]

4. Conclusion

A forensic expert may be needed to aid the surgeon/s when a case of firearm injury is admitted to the hospital. Forensic expert should take help of radiology and other technology available to assess the injury and issue an injury report. It is also the duty of forensic expert to preserve the necessary trace evidence required for ballistic/chemical analysis. Photographs should always be taken as supportive evidence. Access to taking a photograph may be limited in cases where the patient is critical. In such cases photographs should be taken as and when is possible.

Autopsy in cases of firearms is common nowadays. A forensic medicine expert however, may have to deal with firearm cases admitted in the hospital. In fact, when cases of injuries are admitted in surgical or orthopaedic ward a call should also be sent to Forensic Medicine department. Clinical forensic medicine is a neglected sub-specialty of Forensic Medicine.

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