CASE REPORT

Indian Internet Journal of Forensic Medicine and Toxicology
Year 2025, Volume-23, Issue-2 (Jul-Dec)

www.acspublisher.com

An unusual case of firearm injury-A Case Report

Devkishan D. Ahir[1], Chandresh I. Tailor[2], Paresh V. Chandegara[3], Hardik D. Upadhyay[4]

[1]Senior Resident Doctor, Department of Forensic Medicine, Government medical College, Surat.
[2]Associate professor, Department of Forensic Medicine, Government medical College, Surat.
[3]Assistant Professor, Department of Forensic Medicine, Government medical College, Surat.
[4]Senior Resident Doctor, Department of Forensic Medicine, Government medical College, Surat.

ARTICLE INFO

Keywords: Atypical, Bullet, Ricochet

doi: 10.48165/iijfmt.2025.23.2.9

ABSTRACT

The use of firearms is increasing in our society, which increases the incidence of gunshot injuries in developing countries like India. Atypical firearm injuries are uncommon where they present as other injuries, different numbers of entry and exit wounds. The appearance of gunshot entrance wounds on the body depends upon many factors including, the type of firearm, the type of ammunition, the location of the wound on the body, and the circumstances of how a wound was sustained. Atypical gunshot entrance wounds may be created when the bullet is destabilized prior to entering the body and consequently does not enter the body nose first but sideways or at an angle. The most common causes of an atypical entrance wound are bullet ricochet and interaction with an intermediate target. In ordinary circumstances in rifled firearm; number of entry wounds should match exit wounds and when they don't match, it indicates presence of bullet inside the body. One such atypical case of firearm injuries was brought to NCH Surat for PM examination. There were three firearm injuries on the body, out of which one is entry and two is exit wound.

Introduction

Typical gunshot injury consists of entry, tract and exit wounds. Several authors have reported fata Typical gunshot injury consists of entry, tract and exit wounds. Several authors have reported fata Typical gunshot injury consists of entry, tract and exit wounds. Several authors have reported fatal cases of rifled firearm injuries showing multiple variations from common findings(1). Reports of firearm-related deaths with unusual wound sites enrich forensic practice, providing additional data for interpretation of findings(2). The deviation from term 'typical' could be usually due to characters of the gun, bullet or intermediate objects(3). There are many case reports of atypical firearm injuries, but unexpected direction of the gunfire within the target is found rarely. It is indeed a rare finding that a bullet's trajectory passes and having one entry and two exit wounds.

Case Report

A case of 23 year old male brought to mortuary at new civil hospital, Surat from dolvan police station, Tapi district (Surat Rural Area) for forensic expert panel post mortem examination on 11/09/2023. Autopsy finding reveals as blue and white colored check design torn shirt showing an irregular round shaped hole of size 2.5 cm x 3 cm over back of left side of shirt (Fig. 1), and another irregular round shaped hole of size 0.5 cm x 0.7 cm and 1 cm x 0.8 cm over front of left side of shirt at a distance of 2 cm and

Corresponding author: Devkishan D. Ahir
Email Address: devkishand12@gmail.com

7 cm from inner stitch line (Fig. 2). Body is cold, averagely built and nourished having length of 164 cm. Rigor mortis was passed off completely from the body and faint reddish purple color post mortem lividity is present over the back of the body except over the pressure areas and it was fixed. Early decomposition changes present that seen as greenish discoloration over front of chest and abdomen, marbling on right upper chest and neck, distension of abdomen.

External injuries seen as corresponding to hole on shirt on its back side, a firearm entry wound of size 2.5 cm x 2 cm present over back of left chest, with blackening of surrounding tissues more over left side in an area of size 3 cm x 3 cm with no burning or tattooing effect (Fig. 3). Margins of the wound are hard and contused with red clotted blood present over it. It is present at level 3.5 cm left to midline and 117.5 cm above heel. On exploring the wound further, two tracks found.

The first track seen as wound cuts skin, subcutaneous tissues ,muscles of back ,muscles of 9th intercoastal space ,9th rib lower surface, 10th rib upper surface then goes forwards ,straight wards and slightly inwards rupturing pleura, lower surface of left lung, left dome of diaphragm, stomach and left lobe of liver and makes an exit wound of size 1.5 cm x 1.5 cm over front left side of chest , 2 cm left to midline and 113 cm above heel (Fig. 4 & 5). No burning, blackening or tattooing effects was seen surrounding the wound.

Another second track seen as the wound cuts skin, subcutaneous tissues, muscles of back ,muscles of 9th intercoastal space,9th ribs lower surface ,10th rib upper surface ,fracture lamina and pedicle of T10 vertebra and ricochet towards slightly upwards ,forwards and outwards and on left side ruptures pleura ,lower lobe of left lung ,pericardium, left ventricle of heart and then makes an exit wound of size 2 cm x 1.5 cm over left front of chest by cutting 5th rib at level 6cm left to midline and 116 cm above heel(Fig 4 & 5). No burning, blackening or tattooing effects were seen surrounding the wound. Margins of the wound are hard, contused with red clotted blood present over them. Left thoracic cavity contains 500 ml fluid and clotted blood and the wound tracks are hemorrhagic and shows dark red color and soot particle deposition. Left lung was collapsed; stomach and spleen are present in left thoracic cavity as diaphragm perforated. Pericardium was ruptured and heart is intact. Peritoneum contains 50 ml fluid and clotted blood. Left lobe of liver is ruptured and fundus of stomach is perforated.

Discussion

The incidence of gunshot injuries is increasing day by day because of multiple factors, including increasing population, unemployment, lack of education, increase in terrorism, ego clash, and decrease in the tolerance level of people[4]. Ricocheted bullets have a reduced capability for tissue penetration. Most of the resulting wound tracks are short, of large diameter and irregular-all artefacts of the instability of a bullet that has ricocheted[5]. A ricocheted hollow-point bullet, in particular, may over penetrate the tissue when the bullet nose is deformed or fails to enter the body in a nose-forward orientation. Similarly, internal ricochet may occur when a bullet strikes hard tissue[6]. Postmortem computed tomographic imaging is useful for localising a bullet and its fragments in the body and characterising the wound track. Ricochet cannot be ruled out in normal-appearing entrance wounds unless that finding is supported by other evidence, including the geometrical constraints of the shooting scene and the absence of ricochet marks and a ricocheted bullet.

Conclusion

Thorough PM examination concluded that there was one entry wound and two exit wounds which were produced by atypical method used by accused in which he used animal hunting rifle, one blank cartridge and a homemade lead ball used as projectile which is placed in front of cartridge. There is one shot firing in which one lead shot and the cartridges were fired simultaneous and made one common entry wound. The lead ball being heavier went amidst through and through and cartridge wad being lighter got ricocheted and made a different exit wound.

In tribal areas such empty cartridges are used to protect farms from wild pigs by making a loud noise.

References

Emerging trends of intentional firearm injuries in Northern India: a study. Khan I, Shakeel M, Usmani JA, Hasan SA. *J Clin Diagn Res.* 2016;10:0.

Doichinov ID, Timonov PT. Three unusual cases of gunshot wounds. Folia Med (Plovdiv). 2009 Apr-Jun;51(2):53-7

Naik SK, Kumar P, Atal DK, Murari A. Multiple variations of firearm injuries - a case report. J Forensic Leg Med. 2011 Oct;18(7):325-8.

Vidanapathirana M. Atypical firearm Injury, Sri Lanka Journal of Forensic Medicine, Science & Law-May 2013-vol.4 No.1 P 3-5.

Yong YE. A systematic review on ricochet gunshot injuries. Leg Med (Tokyo). 2017 May;26:45-51. doi: 10.1016/j.legalmed.2017.03.003. Epub 2017 Mar 10. PMID: 28549547.

Grey TC (1993) The incredible bouncing bullet: projectile exit through the entrance wound. J Forensic Sci 38(5):1222–1226.

Figure 1: Irregular round shaped hole over back of left side of shirt

Figure 2: Irregular round shaped hole over front of left side of shirt

Figure 3: Firearm entry wound over back of left chest

Figure 4: Firearm exit wound over front of left chest

Figure 5 : Firearm exit wound over front of left chest