

Case Report

Fatal Homicidal Shotgun Injury at Unusual Site

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Abstract

A shotgun is a firearm that is usually designed to be fired from the shoulder, during the 19th century; shotguns were mainly employed by cavalry units. Both sides of the American Civil War employed shotguns. U.S. cavalry used the shotgun extensively during the Indian Wars in the latter half of the 19th century. In 2011, a total of 478,400 fatal and nonfatal violent crimes were committed with a firearm. Homicides made up about 2% of all firearm-related crimes. There were 11,101 firearm homicides in 2011, down by 39% from a high of 18,253 in 1993. In our case husband shot his wife with a shotgun at an unusual site and she was treated for two days after the incident. In this case cause of death was opined as "Death was due to peritonitis consequent upon Fire Arm Injury sustained". Interpreting a shot gun injury requires an in-depth knowledge of ballistics. In cases where the firearm is a front loading country made firearm a thorough knowledge of unconventional ballistics is also of great importance.

Key Words: Shotgun, Homicide, Firearm, Autopsy

Introduction:

A shotgun (also known as a scattergun and pepper gun, or historically as a fowling piece) is a firearm that is usually designed to be fired from the shoulder, which uses the energy of a fixed shell to fire a number of small spherical pellets called shot, or a solid projectile called a slug. [1]

Shotguns are also long-barreled weapons, but they have a smooth, non-rifled barrel and usually fire a charge consisting of multiple, round shot instead of a single projectile.

Common action types include pump action, semiautomatic, single-shot, and double-barreled varieties. [2]

Three general classes of shots are used in shotguns: [3]

- a. **Bird Shot:** is generally used for hunting fowl and small animals. The shots are small ranging in diameter from 1 to 3.5mm.
- b. **Duck Shot:** it derives its name from its original use against large game such as deer. The shots are larger than bird shot being 6 to 8mm in diameter.

- c. **Rifled Slug:** is lead or steel and lead projectile for a shotgun with wing like helical ribs on its outer surface that, due to the passage of air during flight, give it rotational movements and so produce a spinning projectile from a smoothbore weapon.

Shots (pellets) are of two types: [4]

- Soft or drop shot is made of soft lead.
- Hard or chilled shot is made from lead and hardened by antimony. The shots may be plated with copper.

In 2008-2009, there were 11,227 firearm offences in England and Wales with 58 homicides and 330 serious injuries. [5] In 2011, a total of 478,400 fatal and nonfatal violent crimes were committed with a firearm. Homicides made up about 2% of all firearm-related crimes.

There were 11,101 firearm homicides in 2011, down by 39% from a high of 18,253 in 1993. The majority of the decline in firearm-related homicides occurred between 1993 and 1998. Since 1999, the number of firearm homicides increased from 10,828 to 12,791 in 2006 before declining to 11,101 in 2011. [6]

Case Report:

Autopsy was conducted at the Department of Forensic Medicine and Toxicology, Bangalore Medical College & Research Institute, Bangalore, Karnataka, India.

Prior to autopsy body was subjected to X-ray examination at Department of Radiodiagnosis, Bangalore Medical College & Research Institute, Bangalore.

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Body of a 23 year old female was brought to our mortuary. As per the history by the concerned police, her husband is said to have shot her with a shotgun on 8th Jan 2013.

Later, she was treated at Victoria Hospital for two days and died on 10th Jan 2013.

On external examination, the length of the body was 170cm, moderately built and moderately nourished. Rigor mortis present all over the body. Post mortem staining was present over back of the body. Medical intervention injection mark was present over front of right elbow and back of left wrist. Foley's catheter found in-situ.

External Injuries:

- An oval entry wound, 4.5cm x 4cm. present over outer aspect of right thigh, 16cm from anterior superior iliac spine and 75cm above sole.

The surrounding area of 14cm x 12cm are burnt and blackening, annular bruising present around the wound. Margins of the wound are ragged and irregular. (Fig. 1)

The direction of the wound is upwards, inwards and to the midline crossing the inguinal canal from below and entering the right part of the abdomen up to the vertebra. (Fig. 4)

Track of the wound contains black particles, pellets and foreign materials at places. Most of the pellets are found in the abdomen near the Para-Vertebral muscles. (Fig. 5)

- Multiple punctured wounds present over front of lower part of abdomen on the right side, 5cm from anterior superior iliac spine with multiple blebs and extravasated area of 15cm x 12cm. Multiple granular pellets were felt. (Fig. 2)

Internal Injuries:

On opening the abdominal cavity 2000ml of blood tinged fluid was present in the peritoneal cavity (Fig. 3), mesentery showed blackish discoloration.

Coils of intestine showed black particles at places and punctured at multiple sites. (Fig. 6) Right peri-nephric area shows blood extravasation.

Pellets recovered from the body, foreign materials in the wound track, swabs around the entry wound and blood were collected and sent to Forensic Science Laboratory, as per standard protocol.

Cause of death was opined as **“Death was due to peritonitis consequent upon Fire Arm Injury sustained”**.

Fig. 1: Entry Wound Over Outer Aspect of Right Thigh



Fig. 2: Multiple Punctured Wounds over Lower Aspect of Front of Right Side of Abdomen



Fig. 3: Blood tinged fluid in Peritoneal Cavity



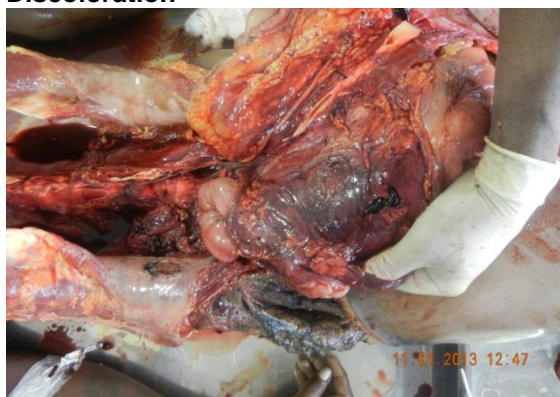
Fig. 4: Entry Wound Tract



Fig. 5: Blackening of Wound Tract with Foreign Materials



Fig. 6: Mesentery Showing Black Discoloration



Discussion:

The firearm used in this case was a front loading country made shotgun. Interpretation of shot gun injuries in case of unconventional ballistics relating to manner of death requires expertise. Wounds created by shotguns are much larger than those created by handguns, and vary from massive disruption to a widespread pattern of pellet holes when fired at a distance.

Loose contact and close range shotgun wounds usually demonstrate features of the skin

searing and or blackening and the cherry red discoloration of carbon monoxide uptake in the subcutaneous tissue within the wound track. [7]

Once a shot shell has been fired, the mass of pellets gradually begins to expand and separate as distance from the muzzle increases, and this allows assessment of range of fire in most shotgun wounds. [2]

The correct interpretation of gunshot wounds by forensic pathologists not only provides valuable information that can assist law enforcement in their investigation but also is essential for the final determination of manner of death. [8]

Conclusion:

The lacunae in the interpretation of gunshot injuries, especially in cases of shot gun are a major challenge to the forensic expert conducting autopsy.

Interpreting a shot gun injury requires an in-depth knowledge of ballistics. In cases where the firearm is a front loading country made firearm a thorough knowledge of unconventional ballistics is also of great importance.

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