

Photo courtesy of Dr. Jessica Dwyer, Dallas TX, Southwestern Institute of Forensic Sciences



1. This image is from a 28 year-old man found dead at an apartment complex, with multiple defects of the trunk and extremities. The injuries pictured are most consistent with:

- Rifle (high velocity) wound, exit defect
- Buckshot entrance defect
- Clustered entrance defects, small caliber ammunition
- Handgun exit defect, snake shot
- Handgun exit defect, frangible ammunition





A - Rifle (high velocity) wound, exit defect (16.29% of responses)

High velocity rifle wounds usually show a small single entrance wound, with much larger and irregular exit wounds. The projectile often fragments inside the body, causing extensive internal injuries, and leading to a “lead snowstorm” on x-ray.

B - Buckshot entrance defect (20.81% of responses)

Buckshot ammunition consists of multiple large spherical lead shot that exit together at the end of the shotgun barrel as the charge is released, and progressively spreads out as distance increases. At close range, entrance defects are singular, as all the projectiles enter the target tightly clustered together. At further range, each projectile creates its own circular, abraded entrance defect in a haphazard pattern. The injuries in our case are arranged radially around a central defect, are very irregular rather than circular and abraded, which makes it unlikely to be a buckshot entrance wound.

C - Clustered entrance defects, small caliber ammunition (4.07% of responses)

The injuries on our picture have a stellate and irregular appearance, more consistent with exit wounds. Entrance wounds would be expected to have a central defect surrounded by a marginal abrasion. Soot and stippling could also be seen depending on range of fire. Furthermore, the pattern of the wounds in our picture is symmetrical and organized, and therefore less likely to be a result of independent gunshot wounds.

D - Handgun exit defect, snake shot (12.22% of responses)

Snake shot cartridges are similar to shotgun cartridges, containing multiple shot but smaller than birdshot and designed to be handgun ammunition. They are generally used for shooting snakes, rodents and birds at very close range. The injuries in the picture are too large to be consistent with snake shot. Furthermore, snake shot would be unlikely to have enough power to completely perforate through a limb that large.

E - Handgun exit defect, frangible ammunition (CORRECT ANSWER, 46.61% of responses)

“Frangible” ammunition is designed to break apart once it hits a target. Radically invasive projectiles (RIP) are designed to predictably break apart into several metallic shards (or trocars) after soft tissue penetration. Each trocar then travels independently from the base. Currently produced handgun caliber RIP ammunition is composed of an even number of trocars (6 or 8). RIP projectiles will cause a single entrance defect. Once the bullet enters the target, tissue resistance causes the round to open, and the trocars break off. Each trocar then follows a pathway, which is at 45° relative to its adjacent counterparts, maintaining radial symmetry from the central core (as seen in our case). It is important to account for all trocars as well as the base of the bullet, which generally travels further than the trocars due to heavier weight.

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