H15 Unusual Frangible Ammunition Used in a Homicide: A Case Report

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Learning Overview: After attending this presentation, attendees will better understand frangible projectiles and how ballistic testing from law enforcement can identify frangible projectiles, confirm the number of gunshot wounds, and complement autopsy findings.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by highlighting the need for the forensic pathologist to be familiar with frangible projectiles that are no longer in production as well as how law enforcement ballistic testing can support autopsy findings.

Frangible projectiles for firearms are designed to fragment upon impact. They are mainly used for training purposes and can provide improved safety in some situations by reducing the risk of ricochet and overpenetration of secondary targets. Frangible bullets are made of composites of hybrid materials and can produce atypical injury patterns at autopsy. In addition, the projectile fragmentation can make it difficult to determine the number of gunshot wounds at autopsy, with multiple projectile fragments with their associated multiple wound tracks from a single gunshot wound. The forensic pathologist must be familiar with the evolving firearm and ammunition industry, including knowledge of frangible projectiles that are growing in popularity with manufacturers.

This presentation describes a case of a 62-year-old African American female who was found dead in her home with gunshot wounds of the head. At the scene, law enforcement found three 9mm shell casings. Radiographs showed nine radiopaque projectiles in the head and neck. Two gunshot wound defects were identified on the head. Mild to moderate decomposition with diffuse postmortem softening of the brain and one of the entrance gunshot wounds being atypical (internal and external beveling, no discernible marginal abrasion) made gunshot wound evaluation difficult. Ultimately, two entrance gunshot wounds of the head were identified at autopsy and nine projectile fragments were recovered. Five fragments were spoon-like, convex on one side with a shallow bowl on the other. Two fragments consisted of bases, and the additional two fragments were relatively small. None of the objects appear to have exited.

Law enforcement identified a suspect and it was revealed that Aguila® "IQ" 9mm hollow point ammunition was used during the shooting. The Aguila® "IQ" ammunition has been out of production for approximately a decade. It was produced in Mexico and is not a commonly used projectile. It was designed to break into three or four pieces when it struck a firm surface.

Law enforcement obtained a box of this ammunition and test fired it into a tank of water. Four rounds were test fired, and each round broke into four pieces, resulting in a base and three leaves.

Assessment of the fragments recovered at autopsy and correlation with the law enforcement ballistic findings support that one leaf fragment exited the atypical gunshot wound of the forehead, as supported by a keyhole defect in the skull. The remaining projectile fragments recovered were consistent with the fragments obtained from the decedent, supporting that each frangible projectile fragmented in a similar manner, with three leaves and a round base. The number of fragments found is consistent with two "IQ" ammo projectiles entering the head and one leaf fragment exiting the head.

This case emphasizes the wound interpretation challenges at autopsy that can arise with frangible ammunition as well as the importance of the utilization of firearm ballistics to correlate with wounds.

Gunshot Wound, Ballistics Testing, Frangible Ammunition