

H51 A Pen as an Intermediate Target Becomes a Secondary Projectile Causing a Unique Patterned Injury

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Learning Overview: The goal of this presentation is to help attendees better understand how intermediate targets, especially those within gun barrels, may become secondary projectiles and create unique patterns of injury.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by helping forensic pathologists recognize situations in which secondary projectiles from intermediate targets may have been involved in gunshot wounds. Recognition of these findings can support other autopsy findings and scene investigation.

Introduction: The phenomenon of intermediate targets becoming secondary projectiles in gunshot wounds have been well described in the literature.¹⁻³ However, cases in which intermediate targets within gun barrels—that are not bullets—are a rarity. In general, when a bullet strikes a non-resistant intermediate target, assuming the main mass of the bullet is intact, it produces a single entrance wound with fragments of the intermediary target scattered around or within the entry wound.¹

Case: The case involves a 16-year-old male and his father, who was manipulating a .40 semiautomatic handgun to demonstrate how the weapon worked. At one point, the father had placed an ink pen in the barrel of the firearm and pulled the trigger, ejecting the pen out the barrel. His son saw this and wanted his father to launch the pen once again. The father placed the pen in the barrel, pulled the slide back and did not notice that a live round entered the firing chamber. The weapon was discharged causing fatal injury to his son. Autopsy findings revealed a single entrance wound to the left chest where a fully jacketed, mildly deformed projectile was retrieved from the decedent's back. Over the left abdomen, multiple scattered superficial abrasions were present along with a 7 x 1.5cm Y-shaped patterned abrasion with central clearing of the lower portion of the wound was found. Surrounding the abrasions were thick, viscous splotches of black pigment consistent with pen ink that was also found on the bilateral hands, forearms, and on the front panel of the decedent's t-shirt. Upon close examination of the Y-shaped abrasion, the central clearing appeared to outline internal components found in pens, such as the spring and ink chamber.

Discussion: In this case, a pen, the intermediate target, became a secondary projectile, striking the decedent and creating a patterned abrasion. A similar situation has been described in a case report by Ellis who found a metal barrel-cleaning brush and bullet in a single-wound suicide.⁴ In that case, the brush, which was inside the firearm barrel, created the initial wound with the bullet in tandem entering the same wound. This study's case represents a similar mechanism of action; however, the intermediate target was likely partly destroyed and fragmented as it was pushed out of the barrel by the bullet, as evidenced by the scattered abrasions and ink splotches around the large Y-shaped abrasion. Identification of the Y-shaped abrasion as the pen corroborated with the rest of the autopsy findings and scene investigation.

Conclusion: This case highlights the importance of understanding how intermediate targets within a gun barrel can become secondary projectiles when propelled by the primary projectile. Recognition of unique patterns of injury in gunshot wound cases can help forensic pathologists in identifying this phenomenon.

Reference(s):

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4. Ellis, Peter S.J. 1997. Fatal Gunshot Injury Caused by an Unusual Projectile-A Barrel-Cleaning Brush as a Tandem Bullet. *The American Journal of Forensic Medicine and Pathology* 18 (2): 168–71. <https://doi.org/10.1097/00000433-199706000-00012>.

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