

# CASE REPORT

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## Fatal Arrow Wounds

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**REFERENCE:** Hain, J. R., "Fatal Arrow Wounds," *Journal of Forensic Sciences*, JFSCA, Vol. 34, No. 3, May 1989, pp. 691-693.

**ABSTRACT:** Two instances of fatal arrow wounds are described, one by a field-tip (target arrowhead), the other by a broadhead (large-game hunting arrowhead). The essential characteristics of the two types of wounds are discussed. In particular, the field-tip can closely simulate a bullet wound by causing a circular entrance hole with abraded margins, whereas the broadhead can create unusual radiating incised wounds.

**KEYWORDS:** pathology and biology, arrow wounds, injuries

Arrow wounds are currently rarities among fatal injuries inflicted by weapons in most areas of the United States. With the rising popularity of both bow hunting and target shooting, sporadic homicides, suicides, and accidental deaths can be expected. Two instances of fatal arrow wounds were seen at the Wayne County Medical Examiner's Office in Detroit, Michigan, within the last eight years. These provide the material for the following case reports which demonstrate the essential characteristics of entrance wounds caused by hunting and field-tip arrowheads.

### Case Reports

#### *Case 1*

On a summer evening in 1979 a 26-year-old white male was found by family members in the basement of his well-kept home after fatally shooting himself in the chest with an arrow propelled by a crossbow. Leaving a note relating his unhappiness about the right-sided paralysis he had contracted in a previous auto accident, the decedent sat in a chair and shot himself using a crossbow which he had rested on a table in front of him. Close-up photographs of the entrance wound and field-tip arrowhead are shown in Fig. 1. Shaped much like the nose of a bullet, the conical tip and shaft of the arrowhead created an entrance hole in the skin having circumferentially abraded margins virtually indistinguishable from an entrance gunshot wound. No internal examination was performed.

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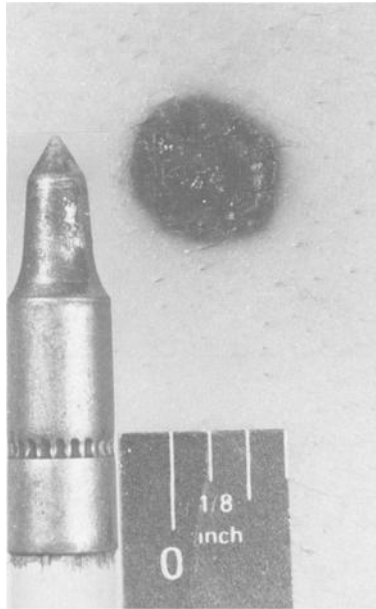


FIG. 1—Close-up photograph of entrance wound of chest with field tip arrowhead (inset).

### Case 2

Following an argument with a group of acquaintances, a 32-year-old black male armed himself with a shotgun and confronted them in a threatening manner outside his house. Meanwhile, one of the others had obtained a compound bow and, outflanking the gunman, shot him from the right side with a hunting arrow. The arrow went through the right biceps, entered the right side of the chest, and nearly exited from the left side of the chest, causing rapidly fatal injuries. Figure 2 demonstrates the entrance injuries caused by the 4-edged, razor sharp, "broadhead" hunting arrow. The distinctive x-shaped or star-shaped, gaping skin incision created by the arrowhead lacked significant marginal abrasion at both the entrance and exit. Likewise, the injuries to the muscle and thoracic viscera consisted of gaping incised defects causing instant pneumothorax and rapid hemorrhage.

### Discussion

Shaped much like the nose of a bullet, the conical tip and shaft of the field-tip arrowhead create an entrance hole in the skin having circumferentially abraded margins virtually indistinguishable from an entrance gunshot wound. In the event a field-tip (target) arrow was removed from a decedent's body before its discovery, the examiner could mistakenly assume that the wound had been caused by a bullet. Failure to find a bullet during autopsy should alert the pathologist to the possibility that a field-tip arrow may have caused the injury. Furthermore, were the tip of such an arrow to exit, its exit wound in the skin would also simulate that of a bullet, lacking abrasion of the rim if unsupported and possessing one when firmly supported. Naturally, owing to the much lower kinetic energy carried into the body by an arrow, its wound tract would not be associated with the effects of cavitation. The relative absence of damage surrounding the tract of injury therefore could be an aid in distinguishing a field-tip arrow from a gunshot wound.

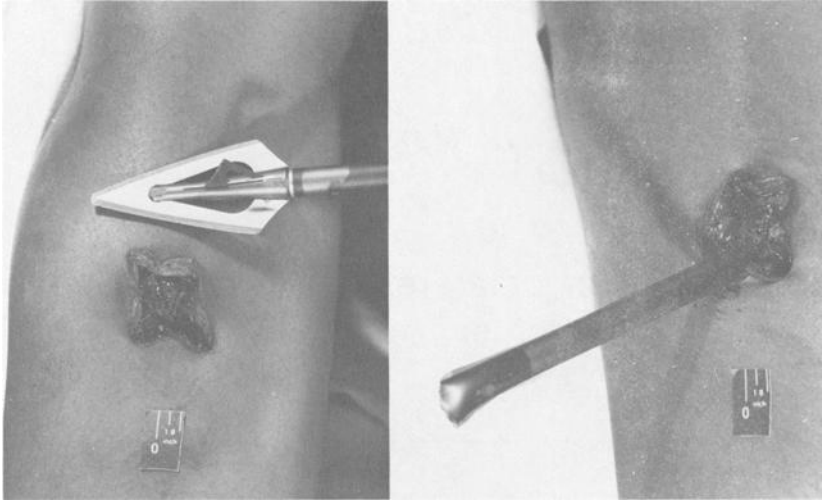


FIG. 2—Photos of broadhead hunting arrow entrance wounds: left: arrowhead and wound of right forearm and right: shaft of arrow protruding from wound of right chest.

The distinctive x-shaped or star-shaped gaping skin incision created by the hunting-style arrowhead lacked significant marginal abrasion at both the entrance and exit sites. Penetration of the arrow through the right biceps and entire width of the chest with the creation of gaping injuries throughout its path dramatically proved the deadly potential of a high-velocity hunting arrow. Although such hunting arrows cannot penetrate weight-bearing bones, ribs pose little barrier to razor-sharp arrowheads when propelled by a modern hunting bow. It is conceivable that such a projectile could create a through-and-through tract with a distinctive entrance and exit wound composed of two to five radiating incisions reflecting the number of blades radiating from the arrowhead. Because the blades can break or deform after striking bone the exit wound may possess a different appearance from the entrance. Fragmentation of the blade inside the body as a result of impact with bone or dislodgement of the arrowhead from the shaft during attempts at removal could also result in hidden hazards for the unsuspecting prosector.

### Conclusions

Field-tip (target) and broadhead (hunting) types of arrowheads cause injuries which could be misinterpreted by the examiner should the arrow be absent at the time the body is discovered. Field-tip arrows create entrance wounds that closely mimic gunshot wounds. Razor-sharp, broadhead hunting arrows can cause radiating incised wounds with devastating injuries to internal organs and possess the potential to pass completely through the body.

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