



H16 A Deadly Blade of Grass: A Case Report of a Penetrating Head Injury and Its Sequelae

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After attending this presentation, attendees will have a greater insight into the pathophysiology of penetrating head injuries and their sequelae.

This presentation will impact the forensic science community by providing information regarding low-velocity, foreign body, penetrating head injuries as they relate to cause and manner of death.

Traumatic brain injuries, including blunt force and penetrating head injuries, are commonly encountered in the field of forensic pathology. Approximately 1.7 million cases of traumatic brain injury occur in the United States per year, leading to approximately 50,000 deaths.¹ Concussions, as a result of blunt force trauma, represent 75% of traumatic brain injuries, making penetrating head injuries far less common.¹ Of the penetrating head injuries, the majority involve high-velocity projectiles, such as firearm injuries. Low-velocity foreign bodies are the least common and are rarely reported in the literature. They are more common in young children, when the bones are soft; however, in adults, they tend to occur in a transorbital location due to the thin nature of the bone. Reported low velocity foreign bodies have included a pencil, chopstick, TV antenna, tree branch and pool cue.²⁻⁴

A case is presented of a 40-year-old man who suffered a fatal pulmonary thromboembolism following prolonged immobilization due to a penetrating wound of the head by a single blade of grass, a rarely reported penetrating foreign body. At the time of autopsy, he was also found to have an associated skull fracture and cerebral abscess, both of which contained retained fragments of plant material. Gross and microscopic autopsy findings will be presented.

Penetrating injuries of the head are known to cause a variety of short- and long-term complications. These sequelae include meningitis, cerebral abscess, sepsis, focal neurologic deficits, intracranial hemorrhage, cerebrospinal fluid leak, and even death.⁵ Factors influencing the development of sequelae are the location of penetration, velocity of the impact, size of the foreign body, and the treatment/management of the patient.

In all cases of penetrating head injuries, forensic pathologists should conduct a thorough autopsy to attempt to retrieve any retained foreign body and determine the wound tract, if possible. Depending on the post-insult latent period, external injuries may be healed at the time of death, making this more difficult. Therefore, proper death investigation, including gathering appropriate remote and recent medical history, is essential in determining a correct cause, mechanism, and manner of death.

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Penetrating Head Injury, Cerebral Abscess, Pulmonary Thromboembolism