



### H19 What a Dangerous Place: An Unusual Homicide in the Hospital

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**Learning Overview:** After attending this presentation, attendees will understand patient outcomes resulting from a complex mix of preventable and/or unpreventable factors.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by demonstrating that an absolutely safe place doesn't exist, and autopsy is an essential investigative procedure.

Presented here is a strange case of murder: a hospital—a health care institution providing patient safety—became the setting for an act of lethal aggression.

A 73-year-old woman, confined to bed after a fracture of the femur, suffering from severe Alzheimer's disease and spasticity post cerebral ictus, was admitted to the emergency department with reported episodes of hypotension and bradycardia. After a neurological assessment, the woman was waiting for the diagnostic results in the waiting room. There, from 3:53 a.m. to 3:54 a.m. (when her son, who is assisting her as a caregiver, leaves her for a moment to go to the bathroom), she is the victim of an aggression by another patient (male, 42 years old, repeat offender with psychic disturbances, not in therapy, who had gone to the emergency room for a reported aggression by a known person).

The postmortem examination showed the right temporal region had an excoriated ecchymosis, irregularly oval, with a red-violet color, with small epidermal ridges, with a full thickness discontinuity in its center of the galea capitis, irregularly quadrangular, with dimensions of 2mm x 5mm. The soft tissue wound was next to a hole in the bone of a coarsely roundish shape, with neat margins, regular on the outside, approximately 7mm diameter, flared inside. The described wound, which calls to mind the entrance hole of a single projectile, had a more or less circular shape on the bone that reproduced the shape of the harmful tool. The dura mater presented a wound with morphological characteristics and dimensions compatible with the use of a tool such as a screwdriver, with an approximate diameter of 7mm. There was also a significant presence of small bone fragments in the brain parenchyma, transported inside by the action of the tool.

Penetrating head injuries due to the use of screwdrivers as wounding agents in acts of interpersonal violence are rarely reported events in forensic literature, and the mortality rate is approximately 47.6%.<sup>1</sup>

The cause of death in the present case report was a cardio-respiratory arrest by massive intra-parenchymal hemorrhage, widespread subarachnoid, and bilateral hemispherical subdural (as often happens with unipolar trauma) because of traumatic penetration of the skull.

The thickness of the bone of the victim—not particularly consistent—had facilitated the penetration of the tool and, therefore, the depth of the damage (determined by the introduction of the shaft inside the cerebral parenchyma), different than what has happened after a similar action of the same tool (screwdriver) in well-known cases in the literature.<sup>2</sup>

The autopsy allowed the reconstruction of the dynamics of mortal wounding and of the modality/tools used, even if there were no documented probative-value elements (activated cameras in the waiting room). The probative value of other evidence confirmed the reconstruction. In cases in which technology has its limits (malfunction of the video surveillance system of the waiting room), the integrated evaluation of the acquired elements with the medicolegal investigation can be successful: the compatibility of the injuries found with the use of a rigid tool, as a screwdriver (cut or star pattern), used as a dagger, led to the murderer.

In conclusion, the case presented will demonstrate that the solution is teamwork and an accurate integration of each element of probative value.

#### Reference(s):

1. Pavlidis P. et al. Traumatic Brain Injury Due to Screwdriver Assaults: Literature Review and Case Report. *Am J Forensic Med Pathol.* 2016 Dec; 37(4):291-298.
2. Purtskhvanidze K. et al. Orbital Screwdriver Injury in a Toddler, *Ophthalmologie.* 2018 Jan 24. Doi: 10.1007/s00347-018-0654-8.

#### Hospital Murder, Screwdriver, Penetrating Head Wound