G80 A Fatal Case Due to a Pitchfork Penetrating Head Injury

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After attending this presentation, attendees will have a better understanding of an unusual fatal case of penetrating cranial stub injury due to pitchfork.

This presentation will impact the forensic community due to the rarity of the deaths by pitchfork, the particular features of eye and intracranial lesions caused by the tool, and for the importance of a careful autopsy examination in order to clarify the exact mechanism of the death.

Penetrating head injuries can be the result of numerous intentional or unintentional events, including missile wounds, stab wounds, and motor vehicle or occupational accidents (nails, screwdrivers). The most common wound is a knife injury, although bizarre craniocerebral- perforating injuries have been reported that were caused by nails, metal poles, ice picks, keys, pencils, chopsticks, and power drills. Here is presented a case where a farmer was wounded with a pitchfork.

In the rural area in southern Italy, a 56-year-old Caucasian farmer was found unresponsive by his father-in-law a few meters from their farmland, with a tine of the pitchfork penetrating the right eye. He was quickly taken by helicopter to the nearest hospital in serious clinical condition and immediately accepted in the Intensive Care Unit. Glasgow Coma Scale score was three. A penetrating circular wound in the right eye was detected. The cranium CT showed a large hemorrhagic area in the right frontal-temporal-parietal lobe, hemoventricle and right to left brain shift. Subarachnoid hemorrhage and fractures of the lateral wall of the orbital bone in the right occipital region was present. Neurosurgical treatment was performed for subarachnoid hemorrhage, but the man was pronounced dead four days after the penetrating stab trauma.

Prosecutor arranged the autopsy on the body because the circumstances of the wounding suggested that the death could have been a murder in connection with the father-in-law.

A complete autopsy was performed 24 hours after death. The external examination revealed a laceration in the external part of the upper eyelid measuring approximately 0.5 cm x 0.4 cm and surrounded by traces of reddish color, a wide subconjunctival hemorrhage and in the upper lateral quadrant of cornea a 0.5 cm in diameter circular tear. This corneal lesion penetrated in the eyeball that was removed and revealed on the lateral wall of the orbital bone a round bone defect measuring 0.5 cm in diameter that went through the orbit in the cranial cavity and exited in the anterior cranial fossa with a circular tear of dura mater measuring 0.5 cm in diameter. The brain was oedematous and was fixed for three weeks in 10% buffered formalin prior to being sectioned with coronal cuts. Dissection revealed right to left shift of the midlines structure. A circular injury measuring 0.5 cm was present in the right frontal region. This injury penetrated into the parenchyma from the base in the frontal region upwards and maintained the same diameter through the frontal end of the parietal lobes. The entire distance from the anterior cranial fossa bone defect to the parietal lobe measured 7 cm.

Wide foci of hemorrhages were present in the right hemisphere and characteristic petechial hemorrhages continuing throughout coronal cuts. Examination of the other organs was unremarkable. Routine histological investigation applying haematoxylin and eosin staining was performed on various organs and revealed a detachment of the upper epidermal areas mainly extends through the basal-cell layers with flattened and stretched epidermis on the eyelid skin. The deeper parts of stratum papillare and underlying upper layers of the corium were characterized for wide erythrocytes accumulation. The eye samples collected on the round laceration were stained with trichromic dye and presented the discontinuation of corneoscleral coat, choroids, until posterior camera and vitreous space with wide spread erythrocytes infiltration. Brain sections showed intraparenchymal diffuse hemorrhages.

The examination of the pitchfork showed a perfect compatibility with eye and intracranial lesions. No fingerprints from the father-in-law were collected on the pitchfork.

According to the autopsy findings and histological data, death was attributed to brain hemorrhages. The tool that caused the death was the pitchfork, and the mechanisms of trauma were consistent with an accidental trauma.

Furthermore, the circumstantial data confirmed the hypothesized death scene: it was an accidentally self-inflicted stab penetrating injury due to pitchfork.

Pitchfork, Self-inflicted Stab Lesions, Penetrating Head Injuries

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