Accidental Decapitation

A Case Report

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Abstract: We report a case of an accidental decapitation of an agriculture worker in a field. The scene investigation revealed that the worker had loosely tied a scarf tied over his face in an attempt to diminish his exposure to barley dust, to which he was allergic, while distributing the barley loads with a shovel upon a trailer. The trailer was simultaneously being loaded by a helix elevator machine and its rotating shaft suddenly caught the victim's scarf and pulled it down to the victim's neck. The rotating motion immediately tightened the scarf around the neck resulting in hanging/strangulation noose that, by continued tightening, caused decapitation of the victim. The victim's body was found on the ground by the trailer and the victim's head was discovered in the barley load in the trailer. Examination revealed that the neck was severed at the level of the second and third cervical vertebrae.

Key Words: decapitation, accident, death

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Decapitation of bodies, although not uncommon in situations of armed conflict, is a rare event in civilian settings, and accounts for about 0.1% of forensic autopsies.[1] Decapitation has been reported in cases of suicidal, homicidal, and accidental deaths, and there are several examples of autopsy findings that are indicative of each mode of death.[2–8]

Farm accidents are a frequent occurrence in many countries; in the United States farming is rated second only to mining in terms of occupational danger.[9] However, there is no sufficient official statistical data about farm accidents in Turkey. In this article, we report a decapitation case resulting from a farm accident, and the decapitation mechanism is discussed in light of the published data.

CASE REPORT

The victim was a 41-year-old male farmer. In the stackyard, a helix elevator machine was loading a trailer with barley while the victim was distributing the loaded barley with a shovel in the trailer. He had tied a scarf loosely over his face and neck because he was allergic to the barley dust. When the victim's head and neck were level with the turning helix elevator shaft, the scarf was pulled up and wrapped around the shaft. The scarf then slid around the victim's neck and tightened, causing the head to separate from the body.

At the scene, a trailer full of barley was behind a tractor, and the helix elevator was behind another tractor. The investigation revealed that the victim's head was in the trailer full of barley under the helix elevator (Figs. 1, 2). There were dense trails of blood and torn pieces of the victim's shirt and scarf over the shaft of the helix elevator (Fig. 3). The decapitated body of the victim was on the ground between the trailer and helix elevator (Figs. 4–6). There was a pool of blood under the neck region of the corpse. The total height of the victim was 172 cm, the length of the victim's head was 22 cm, and the distance between the turning shaft and the trailer full of barley was 150 cm.

In the external examination, the head was separated from the body between the second and third cervical vertebrae. There were bloody grains of barley on the base of the head.

In the internal examination, all internal organs were pale owing to massive external bleeding. There was blood in the trachea and esophagus, and an air embolus in the right ventricle. The toxicological analysis was negative.

DISCUSSION

Decapitation has been used for execution throughout the world, and is still used for enactment of the death penalty in some countries. Complete and sole decapitation—-without any further mutilation of the victim—connected with violent homicides is, relatively rare. Postmortem decapitation must be considered highly indicative of a homicide.[10]

Suicide by decapitation is unusual. Most suicides involving decapitation involve the deceased placing his or her head on a train or tramline, resulting in severing of the head by a moving engine.[1] Rarely, a victim may construct a device such as a guillotine to specifically achieve suicidal decapitation rather than relying on train trauma.[6] Less-common suicidal decapitations result from hanging or ligatures attached between the neck of the driver of a car and a stationary object.[1,4,11] Distinguishing suicide from an unintentional death can be difficult in these circumstances; however, decapitation by a train has been found to be indicative of suicide, whereas multiple injuries from blunt trauma caused by a moving train is more often an accident.[5]

Accidental decapitations can also result from traffic accidents, or occupational accidents. Decapitation may be associated with failure to use seat belts, fast driving speeds, and road barriers.[8,12] Unrestrained children may also be at risk for decapitation from airbags.[13] Decapitation by industrial trauma can occur at any age, and is often associated with heavy machinery in workshops or farm equipment being towed behind a tractor.[14]

The helix elevator that caused the death in this case is an appliance connected to a tractor. It is used for loading grains from a field to any vehicle, such as a trailer, for transportation. A helix elevator machine generally consists of 3 parts: (1) a shaft over the machine, (2) a helix elevator in a wide tube, and (3) a belt on the superior tip of the machine, connected to the shaft and helix elevator. The helix elevator machine mechanism is simple: while the shaft is turning around its axis, it operates the helix elevator via the belt that connects these 2 parts of the machine. The helix elevator, located in a wide tube, takes the grains from the stackyard and discharges them into a trailer or other similar vehicle.

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FIGURE 1. The victim's head in the trailer under the helix elevator. full color online

FIGURE 2. The victim's head in the trailer full of barley. full color online

FIGURE 3. Dense trails of blood, torn pieces of the victim's shirt and scarf over the shaft of the helix elevator. full color online

FIGURE 4. Headless corpse on the ground. full color online

FIGURE 5. The head was separated from the body between the second and third cervical vertebrae. full color online

FIGURE 6. Helix elevator, the victim's head and body on the ground. full color online

In the present case, when the victim was redistributing the barley in the trailer with his back turned to the helix elevator, so he could not see this machine. The scarf was then pulled and wrapped over the turning shaft together with his shirt when it came in contact with the shaft. As the helix elevator continued to operate and the shaft continued to turn, the scarf tightened around the man's neck and decapitated him. The decapitated body of the victim, fell to the ground, while the head fell into the trailer full of barley. During the examination of the helix elevator, it was found that the shaft mechanism that caused the accident was exposed. If there had been a safety cover around the turning shaft, such an accident would not have occurred. We believe that the agricultural machinery should be designed safely, and special clothing should be worn by farmers while working near such machines to prevent this type of accident.

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