

Deaths due to Bull Attack in Artvin: Case Series

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Abstract

Aggressive and unpredictable behaviors of livestock, particularly bulls, present a significant risk of injury and death to farmers involved in animal husbandry. Given the cultural importance of bull breeding in Artvin, analyzing and evaluating the injuries that occur in this context is crucial. This study aims to present cases of bull-related injuries resulting in autopsy in Artvin, highlighting fatal injuries that may occur during animal handling. We retrospectively analyzed cases of individuals who died due to attacks by the cattle they raised among the autopsies performed at the Artvin Forensic Medicine Branch Directorate between 2016 and 2024. Four cases were identified where individuals succumbed to attacks by the bulls. In the autopsies, three of these cases exhibited fractures of the sternum, ribs, and spine, along with internal organ injuries. One individual died from head trauma and cerebral hemorrhage caused by a bull kick. For those engaged in bull breeding, the physical strength and behavioral responses of the animals can lead to head trauma, internal organ damage, and multiple bone fractures. Therefore, the use of protective equipment and its widespread adoption among all workers is essential for ensuring the safety of individuals involved in animal husbandry.

Keywords: Autopsy, bull, fatal injury

Introduction

Attacks by animals such as bulls, horses, pigs, or dogs can cause high-energy trauma, leading to severe injury or death (1). Bull attacks are particularly common in Latin American countries due to the use of bulls in demonstrations (2). Additionally, aggressive and unpredictable animal behavior is observed in regions of Turkey where agriculture and animal husbandry are intensive (3-5). Such encounters can result in injuries from crushing, chewing, goring, or biting; these injuries can range from ecchymosis and lacerations on the skin to damage to internal organs and vessels, bleeding in body cavities, and limb amputations. Traumas to the head, chest, and abdomen are especially life-threatening (6-9). The bull statue at the entrance of Artvin city and the bull fighting festival, which strengthens social ties, illustrate that bull breeding has become a symbol of the city and is integrated into its sociocultural structure (10, 11). Therefore, analyzing the fatal injuries caused by bull attacks in Artvin is of great importance. This study aims to present cases of bull-related injuries resulting in autopsy in Artvin, highlighting fatal injuries that may occur during animal handling.

In this study, autopsies performed at the Artvin Forensic Medicine Branch Directorate from January 1, 2016,

to December 31, 2024, were retrospectively analyzed. Information regarding the cases, including age, gender, crime scene investigation images, witness statements, external examinations, and autopsy findings, was obtained from archive records and the National Judicial Network Project (UYAP) system.

This study was presented at a meeting of the Ministry of Justice's Forensic Medicine Institute Education and Scientific Research Commission on March 18, 2025, and was approved under decision number 21589509/2025/349. The research was conducted in accordance with the principles of the Declaration of Helsinki. Additionally, the Artvin Coruh University Scientific Research and Publication Ethics Committee determined, in its decision dated March 9, 2025, and numbered E-18457941-050.99-171952, that approval for compliance with scientific research and publication ethics is not required for our study.

Case Reports

Case-1

In October 2020, an investigation was launched into the suspicious death of an 87-year-old man in a village in central Artvin. The man's body was discovered near the area

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where his bulls were grazing. An autopsy was performed at the Artvin Forensic Medicine Branch Directorate to determine the exact cause of death. The autopsy revealed a hemothorax, lacerations in both the lung and liver, and signs of internal hemorrhage in the thoracic and abdominal regions. Additionally, deformity was noted in the thoracic region, along with comminuted and hemorrhagic fractures in the sternum and ribs. Hemorrhagic fractures were also found in the 5th and 6th cervical vertebrae.

Case-2

In May 2022, the body of a 66-year-old man was found in a village in Artvin province. When the family did not receive any news from him, they went to the grazing area where the bulls were located, and there they discovered his body adjacent to the spot where the animals were. An autopsy was performed at the Artvin Forensic Medicine Branch. The autopsy revealed a laceration in the lung and subarachnoid hemorrhage (SAH) in the brain. Additionally, signs of internal hemorrhage in the thoracic region, comminuted and hemorrhagic fractures in the sternum and ribs, and a hemorrhagic fracture in the cervical spine (C7) were also found.

Case-3

In September 2024, an 84-year-old man living in a village in the district of Artvin was found dead by his neighbor on the farm where he raised bulls. According to reports, the neighbor went to the scene after hearing shouting and discovered the body. An autopsy was performed at the Artvin Forensic Medicine Branch Directorate to determine the cause of death. The findings revealed comminuted, hemorrhagic fractures in the sternum and ribs, signs of internal bleeding in the thoracic region, and a comminuted, hemorrhagic fracture in the cervical (C4) vertebra.

Case-4

In September 2024, a 68-year-old man sustained injuries in a village in the district of Artvin when he was kicked by an animal while tending to his bulls. Conscious after the incident, he was immediately taken to the district central hospital and then transferred to the state hospital in the city center. Brain

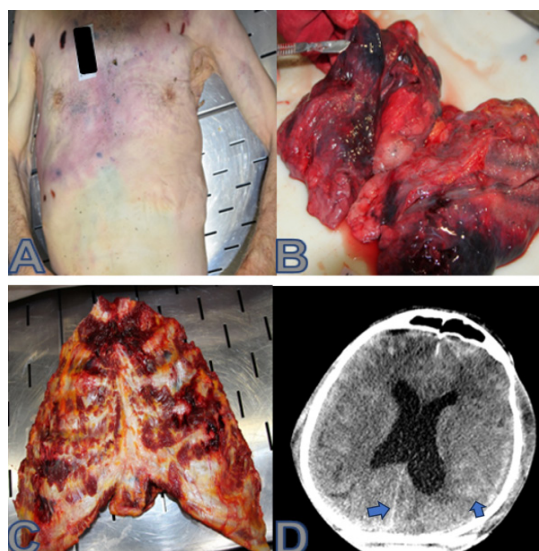


Figure 1. A) Hyperaemic deformed appearance of case 1 showing collapse of the chest. B) Contusion and haemorrhage areas in the lung of case 2. C) Multiple rib fractures of case 3 with separation and haemorrhage. D) Tomography image of diffuse subarachnoid haemorrhage in case 4.

tomography revealed collapse fractures in the frontal and parietal bones, as well as diffuse subarachnoid hemorrhage. Following these findings, the patient was admitted to the intensive care unit and intubated. Unfortunately, he died later that same day. The cause of death was determined to be skull dome fractures and cerebral hemorrhage.

The findings from all cases are presented in Table-1 and Figure-1.

Discussion

Our study found four cases of death resulting from attacks by bulls raised on farms. Autopsies of the cases revealed fractures of the sternum, ribs and spine, as well as internal organ injuries in three of the cases. One case was found to have died as a result of head trauma and cerebral haemorrhage caused by a bull kick. Bull farming poses serious safety and health risks to live stock workers worldwide. The primary reason for these risks is the bulls' large size, sudden mobility, and unpredictable behavior (6). While kicking

Table 1: Information and findings of the cases

Case	Age	Gender	Place of death	Season*	Injured Body Part	Organ injury	Bone fracture	Cause of Death
1	87	Male	Rural	Autumn	Chest-Neck	Lung, Liver	Sternum, multiple rib, C5-6 vertebral fracture	Internal Organ Damage and Internal Haemorrhage
2	66	Male	Rural	Spring	Head-Chest-Neck	Brain, Lung	Sternum, multiple rib, C7 vertebral fracture	Internal Organ Damage and Internal Haemorrhage
3	84	Male	Rural	Autumn	Neck	Medulla Spinalis	Sternum, multiple rib, C4 vertebral fracture	Complication due to neck (C4) fracture (Neurogenic Shock)
4	68	Male	Hospital	Autumn	Head	Brain	Frontal and parietal bone	Brain haemorrhage (Subarachnoid Haemorrhage)

*; Winter: December, January, February, Spring: March, April, May, Summer: June, July, August, Autumn: September, October, November

is more common, head butting and crushing can result in more severe injuries. Additionally, cases of entrapment in confined spaces may occur during the transport of bulls to stables or transport vehicles (3). One study found that these injuries accounted for 0.02% of all traumas (12).

The fact that all of the patients in our study were male and in the advanced age group (mean age: 76.25 years) was found to be consistent with previous literature (4, 5). In a study, it was found that bull injuries were significantly more common in the male gender (198:18 ratio) (13). Activities such as shepherding, village guarding, hunting and outdoor sports, which have historically been attributed to men, bring about a more intense interaction of men with nature (4). This increases the risk of contact with domestic or wild animals and therefore leads to higher mortality rates in men from such contact.

In a study conducted in Poland, a total of 1,872 cases of animal-related injuries were analyzed, revealing that 98 (5.2%) of these cases resulted from bull attacks. It was also emphasized that 94% (n=92) of bull attacks occurred in rural areas, indicating a significant concentration in the geographical distribution of these injuries (1). Consistent with findings in the literature, the fact that all cases in our study occurred in rural areas supports the notion that these locations and certain working conditions constitute important risk factors. Accordingly, implementing necessary safety measures and increasing risk awareness in rural areas are critical to preventing such injuries.

In our study, we found that deaths occurred primarily during the autumn months (September-October), which aligns with the existing literature (8). Autumn is a time when both calving and milking begin, and dairy cows are gathered into tighter herds for these purposes (4). During this period, animals can experience increased stress, leading to more unpredictable behavior. Especially in autumn, animals gathering in large herds can cause them to exhibit increased stress and aggressive behaviour. In addition, increased work load during this period can cause workers to become tired and careless, increasing the risk of injury. Therefore, the seasonal distribution of injuries highlights the potential impact of agricultural activities, particularly livestock husbandry practices, on workers.

Injuries from bull attacks can occur in various ways and affect different parts of the body. Typical traumatic findings in the thoracic region include "flail chest" due to multiple rib fractures, as well as haemothorax, pneumothorax, and internal organ damage (5). Abdominal injuries are usually penetrating and may include intestinal perforations and severe organ damage, such as lacerations of the liver and spleen. The literature reports that the incidence of abdominal injuries varies between 4% and 64% (14, 15). Additionally, some studies have noted simultaneous diaphragm and

jejunum perforations (16). Craniofacial injuries typically result from crushing or kicking blows, manifesting as spinal or skull fractures, as well as subdural, subarachnoid, and extradural haemorrhages, along with brain contusions and lacerations (17). In our study, most cases revealed comminuted fractures of the sternum and vertebrae, accompanied by chest and abdominal visceral injuries. In one case, diffuse subarachnoid haemorrhage developed following a blow to the head. These findings indicate that bull breeding can lead to serious and potentially fatal trauma. At this point, it is of utmost importance to maintain high-level safety measures and conduct regular risk assessments when working with bulls. In addition, providing animal behaviour training that includes topics such as reading animal body language and recognising signs of stress and aggression, informing employees about the use of protective equipment, and implementing emergency scenarios are important for improving safety.

Conclusion

The physical force and behavioral responses of animals, such as bulls, can cause fatal injuries to individuals engaged in cattle breeding. These injuries often result in head trauma, internal organ damage, and multiple bone fractures. Therefore, it is vital to implement measures such as the use of protective equipment for the safety of those involved in animal husbandry and to ensure this equipment is distributed among all employees. Additionally, strengthening emergency medical response facilities in rural areas is an essential requirement.

In cases of suspicious deaths in rural areas, particularly those involving multiple, separate rib and vertebral fractures, the possibility of animal intervention should be assessed in relation to the cause of death. Additionally, injuries that may have developed in the internal organs should be examined in detail. In such instances, it is essential to evaluate the findings at the scene of the incident, information obtained from local residents, hospital records, and autopsy results collectively. This comprehensive approach can lead to a more accurate understanding of the cause of death and the mechanism of injury.

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