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Unusual case of horse death due to Buffalo Horn-Induced Abdominal Punctured: Case Report

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Abstract: *This case report presents a unique incident of Horse death as a result of Bufalo gored. The sustained buffalo horn-induced abdominal puncture resulted in evisceration and death of the horse at the Oracle Zoo in Makurdi, Nigeria. The aim is to emphasize the importance of vigilant animal management practices, proper cohabitation of animal species, space management in zoos and wildlife parks, and prompt veterinary intervention in preventing and managing such injuries.*

Keywords: *Buffalo, Horn, Punctured wound, Horse.*

Introduction:

Buffalos belong to the Kingdom Animalia, Phylum Chordata, Class Mammalia, Order Artiodactyla, Family Bovidae, and Genus Bubalus (Asian buffalo) and Syncerus (African buffalo), with species including Bubalus bubalis and Syncerus caffer. Notable breeds include Murrah, Nili-Ravi, Surti (Asian buffalo) and Cape buffalo, Forest buffalo, Savannah buffalo (African buffalo). Buffalos are large, hooved, herbivorous mammals inhabiting grasslands, forests, and wetlands, living in social herds (10-100 individuals), semi-aquatic, and grazing on grasses, leaves, and aquatic plants. They are crepuscular, animals weighing 400-900 kg, with defense mechanisms including; massive size, strength, horns, group protection, quick running, and mud covering.

Buffalo is a valuable multipurpose animal since its meat, milk, horns, and skin can be utilized. In many parts of the world like India, Pakistan, and China, the domesticated water buffalo is often called "the living tractor of the East" since buffalo are used in field draft and transportation. Buffaloes are also valuable beasts of burden and work animals. Buffalos coexist with various species, form complex social hierarchies, and interact with livestock or predators.

They exhibit aggression in territorial disputes, mating season, protection of young, rough handling, and resource competition, displaying warning signs, charging, or engaging in dominance interspecific battles or with other species.

Buffalo use their horns to gore, targeting the abdomen, chest, or head, and can also inflict severe trauma through head butting, trampling, leading to asphyxiation or fatal trauma, and throwing or tossing victims. Common fatalities include exsanguination, thoracic or abdominal trauma, head trauma, and asphyxiation, while non-fatal injuries may involve soft tissue damage, fractures, internal injuries, and psychological trauma.

Injuries resulting from Bufalo’s altercation and attacks are violent and goring in nature. The wound sustained may be contusions, lacerations, criss-cross wounds, penetration of body cavities, and sometimes fractures. In the absence of any eyewitness, it becomes tough to believe the unsuspecting domestic water buffalo is the attacker. Factors contributing to severity include buffalo size and strength, horn size and shape, attack location, victim's age and health, and response time and quality of medical care.

Buffalos, along with other horned animals, gore their victims as may sometimes. However, deaths caused by these animals are rare with unwitnessed buffalo deaths difficult to prove because of the supposedly docile nature of the animals. To prevent injuries, maintain safe distances, avoid sudden movements or loud noises, wear protective gear, stay informed about buffalo behaviour and habitat, and follow guidelines from experienced handlers or zoo conservation staff. It's essential to exercise extreme caution around buffalo, recognizing their potential for causing severe injuries or fatalities. This case is reported for its rarity, for the awareness of the possible injuries in such unnatural deaths, and for factors predisposing to a buffalo attack.

Buffalos are known for their large size, strong horns, and aggressive nature when threatened. They pose a significant danger to humans and other animals, causing

injuries and even fatalities (Idikula *et al.,* 1991: Garba, 1999: Santhosh *et al.,* 2010: Anil *et al.,* 2013). It is estimated that more than 200 humans are killed by buffalos each year, making them the fifth largest animal killer (Braun *et al.,* 2016). Zoos and wildlife parks provide opportunities for close interaction between humans and animals, but these environments also come with potential risks (White, 1968). Incidents of domestic animals attacking humans are rare in Nigeria but have been increasing. In 2024, a veterinarian was killed by a lion in a zoo (Cable, 2024). Injuries caused by buffalo gore are also uncommon and differ from other casualties like stab injuries, abdominal perforation, and eye deformations (Ueli *et al.,* 2016: Ravina *et al.*, 2022). This case report documents a rare occurrence of a buffalo horn-induced fatal abdominal puncture in a horse resulting in the death of the horse at the Oracle Zoo.

Diagnostic

The horse was presented with a deep punctured wound in the abdomen which led to evisceration of the ascending loop of the colon (Plate: 3). Physical examination also revealed visceral petechial hemorrhages on the intestines, especially the colon. Additionally, the horse had multiple injuries in the vertebral column, including rib fractures.

Case Presentation:

A 5-year-old horse, cohabitating with other horses, camels, donkeys, and buffalos within a designated area at Oracle Zoo, sustained an abdominal punctured wound created by a buffalo horn during an unexpected encounter with a buffalo leaving the horse eviscerated (Plate 2). Upon witnessing the incident, Zoo staff immediately secured the injured horse. They restrained the horse on dorsal recumbency by both the fore and hindlimbs to prevent further damage and organized swift arrangements for veterinary attention.

Discussion:

Buffaloes, particularly African and Asian species, are known for their aggressive behaviour when feeling threatened or protecting their territory, earning them a reputation as "one of the most dangerous animals in Africa"

They are considered to be one of the "big five" most dangerous game animals to hunt in Africa, with hunters often injured or killed in the hunt.

The cape buffalo (Syncerus caffer) is a notoriously aggressive and unpredictable animal that can charge at speeds of up to 37 mph (60 km/h).

Bovids can easily cause injury to humans and other animals when provoked, fearful or excited, when protecting calves, or accidentally during handling. Published research of the human injuries caused by bovids note the common mechanisms of trauma as being tossed, crushed, kicked, trampled, head-butted, or gored. Buffaloes are responsible for a significant number of human and other animals' deaths in Africa. Fatal attacks have been reported on various species, including humans worldwide and tourists in national parks and game reserves (BBC News, 2019), as well as animals such as lions (Panthera leo) in African savannas (World Wildlife Fund, n.d.), leopards (Panthera pardus) in African and Asian habitats (IUCN Red List, 2020), hyenas (Crocuta crocuta and Hyaena hyaena), wild dogs (Lycaon pictus), cheetahs (Acinonyx jubatus), antelopes (e.g., impalas, kudus), zebras (Equus quagga), wildebeests (Connochaetes taurinus), giraffes (Giraffa camelopardalis) in rare instances, and rhinoceros calves (Diceros bicornis and Ceratotherium simum) (Kingdon, 2015; Estes, 1991). Domestic animals are also vulnerable, including dogs, cattle (Bos taurus), goats (Capra aegagrus hircus), sheep (Ovis aries), and horses (Equus caballus) (News articles and reports). Additionally, occasional reports of buffalo-crocodile conflicts have been documented (Crocodile Specialist Group, 2018). As noted by experts, "buffalo aggression can be influenced by factors like habitat, social structure, and human-buffalo conflict" (Estes, 1991).

Buffalo gore injuries or deathly attacks on humans and other domestic animals are not uncommon in rural areas or zoos where they are kept. But injuries due to buffalo gore are rarely observed and are different from other casualties like stab injuries, road traffic accident and so on. Bufalo's injuries can result from various mechanisms, including penetrating wounds from sharp horns causing internal damage, bleeding, and organ injury, lacerations from horns slicing through skin and muscle, blunt trauma from heads, bodies, or horns, and crushing injuries from trampling or pinning

Published research of the human and other animals' fatal injuries caused by buffalo follows the common mechanisms of trauma (like laceration, punctured, penetrating and fracture), as a result of being tossed, crushed, kicked, trampled, head-butted, or gore (Rau, 1982; Wasadikar *et al.,* 1997; Sinclair *et al.*, 2003: Rohit *et al.,* 2010: Roger, 2016) are minimal. The strength and durability of buffalo horns present significant potential hazards when interacting with horses or other animals

(Monferrer-Guardiola, 1990: Lily and Balison, 199: Kumar *et al.,* 2002). This case highlights the potential danger of keeping horses and buffalo nearby. In this case of buffalo aggressive attack, the horse sustained a deep puncture wound that penetrated the abdominal wall (Plate 3), which horse posed a grave risk of visceral organ damage, infection, and subsequent mortality. This report agreed with Roger (2016) and Uma (2017) who reported that large animal attacks may result in multiple injuries, and subsequent death (Rani *et al*., 2010). Prompt veterinary examination and care to ensure appropriate stabilization and surgical intervention (Chambres et al., 2002: Shukla *et al.,*1977: Christine *and* Mochal-King, 2015). Thus, minimizing complications and optimizing the recovery (Rachel *et al.,* 2019: Shankar *et al.,* 2010) could not yield positive results because the horse died. The horse died 43 minutes post-attack by the buffalo despite prompt attention by the veterinary team.

Plate 1 Plate 2 Plate 3

Plate 1: *African Buffalo*

Plate 2: Buffalos and Horses Cohabitation

Plate 3; *Horse on dorsal recumbency showing Buffalo horn-induced abdominal evisceration*

Conclusion:

Abdominal puncture wounds are a rare but potentially life-threatening injury in horses (White, 1968: Tournier-Lasserve *et al.,* 1982:Robin *et al.,* 2018). This case report highlights the importance of maintaining a safe environment for both animals and visitors in zoos and wildlife parks. Unforeseen interactions, such as the buffalo horn-induced abdominal puncture observed in this case, necessitate

immediate veterinary intervention. By promptly mobilizing veterinarians to address the injury and provide appropriate surgical care. However, optimal outcomes were not achieved because the horse had an overwhelming impact by the encounter with the buffalo and died on the team's arrival. In order to minimized risks to animal health and human welfare there should be adequate feed supply to the buffalo and avoid mismatched cohabitation of animals in the zoo to mitigate fatal buffalo'' attacks to other animals and humans.

The horse could not recover following swift veterinary care, by a well-equipped veterinary team that was mobilized to Oracle Zoo, the horse underwent a comprehensive physical examination, focusing on the stab wound and potential underlying injuries. A post-mortem examination revealed the internal trauma and petechia hemorrhages on the intestines. The horse was thoroughly examined, and the suturing process commenced using sterile surgical techniques but the horse could not make it. Despite Prompt supportive care given such as systemic antibiotics, analgesics, bleeding control, and wound parking.

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Conflicts of interest:

There are no conflicts of interest.

References:

Kumar, A., Niveditha, J. & Mahesh Babu, M. (2013). An unusual case of bull gore injury to the neck presenting with internal jugular vein thrombosis and retropharyngeal emphysema. *International Journal of Phonosurgery & Laryngology*, 3(1), 18-20.

Bonyongo, M. C., & Harris, S. (2007). Grazers species-packing in the Okavango Delta, Botswana. *African Journal of Ecology*, 45(4), 527-534.

Chambres, O., Giraud, C., Gouffrant, J. M., & Debry, C. (2002). A detailed examination of injuries to the head and neck caused by bullfighting, and of their surgical treatment; the role of the cervico-facial surgeon. *Revue de laryngologie-otologie-rhinologie*, 124(4), 221-222.

Chambres, O., Giraud, C., Gouffrant, J. M., & Debry, C. (2003). A detailed examination of injuries to the head and neck caused by bullfighting, and of their surgical treatment; the role of the cervico-facial surgeon. *Rev Laryngol Otol Rhinol (Bord)*, 124, 221-228.

Christine, T. L., & Mochal-King, C. A. (2015). Peritonitis, as a result of a retrograde postoperative incisional infection. *Journal of Equine Veterinary Science*, 35, 966-972.

Cornélis, D., Melletti, M., Korte, L., Ryan, S. J., Mirabile, M., Prin, T., & Prins, H. H. (2014). African buffalo Syncerus caffer (Sparrman, 1779). In *Ecology, Evolution and Behaviour of Wild Cattle: Implications for Conservation* (pp. 326-372). Cambridge University Press, Cambridge.

Estes, R. (2020). "Cape buffalo". *Britannica*. Retrieved 2023-02-16.

Garba, E. S. (1999). Subcutaneous evisceration of the intestine from cow horn injury. *Nigerian Journal of Surgical Research*, 1, 96-98.

Grubb, P. (2005). "Order Artiodactyla". In Wilson, D. E., & Reeder, D. M. (Eds.), *Mammal Species of the World: A Taxonomic and Geographic Reference* (3rd ed., pp. 695-696). Johns Hopkins University Press.

Idikula, J., Moses, B. V., Sadhu, D., Agarwal, S., Jahan, G., & Thomas, J. (1991). Bull horn injuries. *Surgery, Gynecology & Obstetrics*, 172(3), 220-222.

Jirik, K. (n.d.). *LibGuides: Forest Buffalo (Syncerus caffer nanus) Fact Sheet: Taxonomy & History*. Retrieved 2023-04-30.

Huffman, B. (2010, May 24). "Syncerus caffer – African buffalo". *Ultimateungulate.com*. Archived from the original on 2012-03-19. Retrieved 2010-10-23.

Korte, L. M. (2008). Variation of group size among African buffalo herds in a forest-savanna mosaic landscape. *Journal of Zoology*, 275(3), 229-236. doi:10.1111/j.1469-7998.2008.00430.x.

Kumar, D. P., Bora, V., Bisoi, S. C., & Dwevidi, U. S. (2002). Urethrorectal fistula by bullhorn injury. *Journal of the Indian Medical Association*, 100(1), 47.

Conrad, L., & Balison, J. (1994). Bison goring injuries: Penetrating and blunt trauma. *Journal of Wilderness Medicine*, 5(4), 371-381.

Monferrer-Guardiola, R. (1990). Wounds from gorings. Clinical and epidemiological assisted 204 cases in the General Hospital of Castelló, during the period 1978-1988. *Aspects Medical Science*, 7, 262-271.

Oindo, B. O. (2002). Body size and measurement of species diversity in large grazing mammals. *African Journal of Ecology*, 40(3), 267-275.

Hallie, R. B., Dormett, K., & Marc, O. (2019). Domestication and large animal interactions: Skeletal trauma in northern Vietnam during the hunter-gatherer Da But period.

Rani, M., Rohit, S. A., & Dikshit, P. C. (2010). Injuries by bull horns: Patterns and prevention protocols. *Anil Aggrawal's Internet Journal of Forensic Medicine and Toxicology*, 11(1), 1-26.

Rau, J. B. (1982). Bull gore injuries in rural areas. *Indian Journal of Surgery*, 44, 664-671.

Satish Nachnolkar, R., Dhawade Naik, V., & Usgaonkar, U. P. S. (2022). A case of eyelid avulsion injury caused by bull horn. *Journal of Ophthalmology*, 34(3), 265.

Fontenot, R. L., Crabtree, N. E., Hollier, H. D., Mochal-King, C. A., & Eddy, A. L. (2018). Management of a traumatic penetrating abdominal wound and associated complications in a horse. *Journal of Equine Veterinary Science*, 71, 112-119.

Byard, R. (2016). Causes and mechanisms of death in fatal water buffalo attacks. *Journal of Forensic Sciences*, 62(4).

Rohit, M. R., Sharma, A., & Dikshit, P. C. (2010). *Internet Journal of Forensic Medicine and Toxicology*, 11(1).

Santhosh, C. S., Vishwanathan, K. G., Satish Babu, B. S., & Kumar, S. (2010). An unusual case of death due to buffalo gore – A case report. *0973-9122*. Online ISSN: 0973-9130.

Shankar, M. B., Francis, M., Prashantha, B., & Gouda, P. K. (2010). Death by attack from a domestic buffalo. *Journal of Forensic and Legal Medicine*, 17(2), 102-104.

Shukla, H. S., Mittal, D. K., & Naithani, Y. P. (1977). Bull horn injury: A clinical study. *Injury*, 9, 164-167.

Sinclair, A., Mduma, S., & Brashares, J. S. (2003). Patterns of predation in a diverse predator-prey system. *Nature*, 425(6955), 288-290.

Tournier-Lasserve, M., Veillard, C. J., Samouth, M., & Di Schino, M. (1982). A misestimated aspect of tropical traumatology: Abdomen penetrating injuries caused by buffalo horn. *Review of 64 Cambodian cases*, 42(2), 161-167.

Braun, U., Gerspach, C., Stettler, M., Grob, D., & Sydler, T. (2016). Rumen perforation caused by horn injury in two cows. *Acta Vet Scand*, 58, 5. doi:10.1186/s13028-016-0185-8.

Hariharan, U. (2017). Bull horn injury: Management and review of the literature. *ResearchGate*, 8(3), 00305.

Visscher, D. R., Van Aarde, R. J., & Whyte, I. (2004). Environmental and maternal correlates of fetal sex ratios in the African buffalo (Syncerus caffer) and savanna elephant (Loxodonta africana). *Journal of Zoology*, 264(2), 111-116.

Wasadikar, P. P., Paunikar, R. G., & Deshmukh, S. B. (1997). Bull horn injuries in rural India. *Journal of the Indian Medical Association*, 95(1), 3-4.

White, J. A. (1968). Penetrating abdominal injuries. In W. W. Darvey (Ed.), *Companion to Surgery in Africa* (1st ed., pp. 275-279). London: Churchill Livingstone.

Brown, W. (1988). Age determination of the West African buffalo Syncerus caffer brachyceros and the constancy of tooth wear. *African Journal of Ecology*, 26(3), 221-227.

Groves, C. P., & Leslie, D. M. Jr. (2011). Family Bovidae (Hollow-horned Ruminants). In D. E. Wilson & R. A. Mittermeier (Eds.), *Handbook of the Mammals of the World* (Vol. 2, pp. 585-588). Lynx Edicions.

Hughes, K., Fosgate, G. T., Budke, C. M., Ward, M. P., Kerry, R., & Ingram, B. (2017, September 13). Modeling the spatial distribution of African buffalo (Syncerus caffer) in the Kruger National Park, South Africa. *PLOS ONE*, 12(9), e0182903. doi:10.1371/journal.pone.0182903.

Buffalo escapes the pride of 15 lions and then 3 hippos. (2023, March 31). *Getaway Magazine*. Retrieved 2023-04-30.

Graham, A. D. (1968). The Lake Rudolf Crocodile (Crocodylus niloticus Laurenti) population. Master's Thesis, The University of East Africa.

Kruuk, H. (1979). *The Spotted Hyena: A Study of Predation and Social Behaviour*. University of Chicago Press.

Trinkel, M. (2009, December 11). Prey selection and prey preferences of spotted hyenas Crocuta crocuta in the Etosha National Park, Namibia. *Ecological Research*, 25(2), 413-417. doi:10.1007/S11284-009-0669-3.

Hayward, M. W. (2006, December). Prey preferences of the spotted hyena (Crocuta crocuta) and degree of dietary overlap with the lion (Panthera leo). *Journal of Zoology*, 270(4), 606–614. doi:10.1111/J.1469-7998.2006.00183.X.

Laing, A. (2016, April 24). Why is this buffalo worth £8.5 million? *The Telegraph*. Retrieved 25 June 2019.

Ryan, S. J., Knetchtel, C. U., & Wayne, M. (2006). Range and habitat selection of African buffalo in South Africa. *Journal of Wildlife Management*, 70(3), 764-776. doi:10.2193/0022-541X(2006)70[764:RAHSOA]2.0.CO;2.

Main, M. B., & Coblentz, B. E. (1990). Sexual segregation among ungulates: A critique. *Wildlife Society Bulletin*, 18(2), 204-210. JSTOR 3782137.

Prins, H. H. T. (1996). *Ecology and Behaviour of the African Buffalo: Social Inequality and Decision Making*. Springer.

Melletti, M., & Burton, J. (Eds.). (2014). *Ecology, Evolution and Behaviour of Wild Cattle: Implications for Conservation*. Cambridge University Press.

Dunham, K. M., Ghiurghi, A., Cumbi, R., & Urbano, F. (2010). Human-wildlife conflict in Mozambique: A national perspective, with emphasis on wildlife attacks on humans. *Oryx*, 44(2), 185-193.

International Union for Conservation of Nature and Natural Resources (IUCN). (2019). "Syncerus caffer". *IUCN Red List of Threatened Species*. e.T21251A50195031. doi: 10.2305/IUCN.UK.2019-1.RLTS.T21251A50195031.en.

Cable news. (2024). Veterinary nurse killed by lion he nursed for nine years at OAU zoo. *The Cable*. Retrieved from https://www.thecable.ng/veterinary-nurse-killed-by-lion-he-nursed-for-nine-years-at-oau-zoo/ retrieved on 12/10/2024.