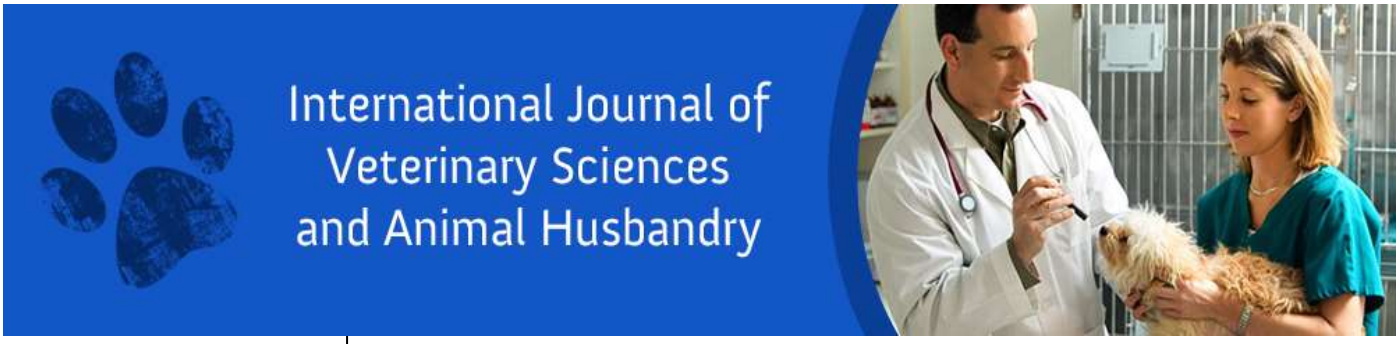

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Surgical management of unilateral horn cancer in cattle

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Abstract
The report describes a case of unilateral (left) horn cancer in a 15 year old cattle. The horn was soft at the base and bent downward and backward. The affected horn was surgically amputated under inj. Xylazine HCl sedation and cornual nerve block and ring block around base of the horn with 2% Lignocaine HCl. The cattle recovered uneventfully. Histopathology confirmed the condition was squamous cell carcinoma of horn.

Keywords: Horn cancer, cattle, dehorning

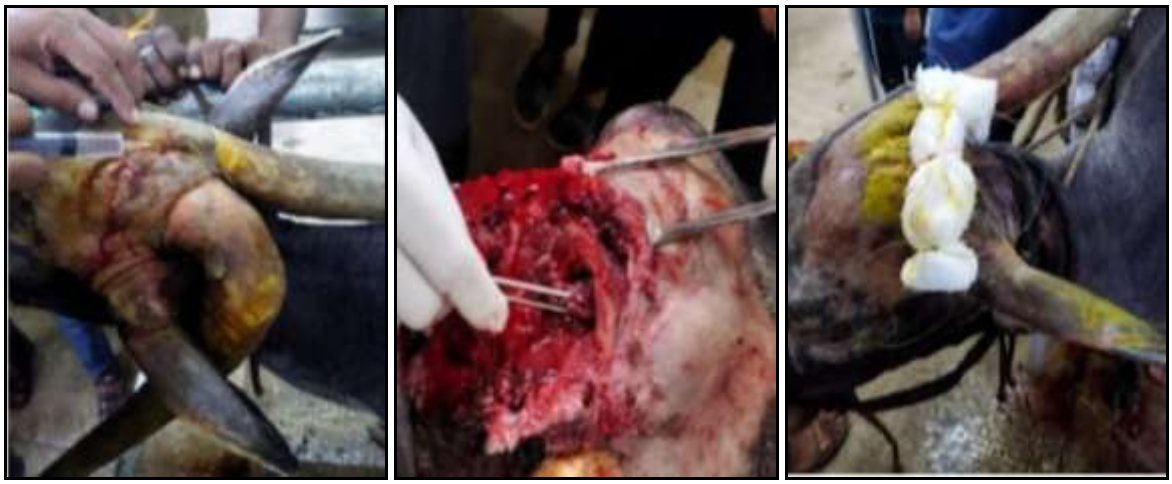
Introduction
Horn cancer is common in bulls with big horns and usually affects one-sidedness in the 5-10 age groups (Giri *et al*., 2011; Veena *et al*., 2011; Tyagi and Singh, 2006) [2, 20, 18]. This pain is caused by chronic pain at the base of the horns as a result of animals rubbing against the skin. Many predisposing factors such as irritation, horn dye, solar radiation, genetic predisposition, and sex hormones are associated with it (Sahoo *et al*., 2022) [3]. Head shaking, bending at impact, bending at impact angle, and nasal bleeding are common symptoms in animals (Joshi *et al*., 2009; Sodhi and Sangwan, 2019) [6, 17]. Amputation is recommended to treat horn cancer. However, chemotherapy and amputation were also reported by Udharwar *et al*. (2008) [19], Kalim *et al*. (2021) [7] and Goode *et al*. (2022) [3]. This document describes the successful treatment of unilateral horn cancer in cattle.

Case details
15 year old cattle presented with history of bending of the horn of left horn along with discharge from horn base since 2 months. Clinical examination showed unstable horn and foul smelled discharge from the left horn base. Based on history and clinical examination a tentative diagnosis of horn cancer and animal was scheduled for surgery.

Fig 1: Photograph showing bending of the left horn (yellow arrow)

Anaesthesia and surgical procedure

Inj. Xylazine HCl @ 0.03 mg/ kg was administered intramuscularly to sedate the cattle and Cornual nerve block was performed parallel to the frontal crest to desensitize the nerve and additional ring block around the base of the horn (Figure 2A) with 2% Ligocaine HCl achieve complete analgesia. The surgical site was prepared aseptically by shaving hairs around base of the horn and scrubbing using Chlorhexidine solution followed by surgical spirit and povidone iodine. An elliptical skin incision was given at the base, saving maximum possible skin. The skin was undermined for the loosening and exposure of skull bone. Following skin incision the cornual artery were located and ligated by chromic catgut No.1. The bleeding was controlled using artery forceps and with gauze pieces. The part of skull bone at the base was evenly removed using hexablade to make space for skin suturing (Figure 2B). The tissue growth and the thick pus were removed from the frontal sinus using gauzes and were flushed with normal saline solution and suction. The skin was sutured with Nylon No.1 in vertical mattress suture pattern. Antiseptic bandaging was done to prevent surgical site (Figure 2C). The sample of the tissue removed from the sinus was sent for histopathology.



A B C

Fig 2: A. Ring block with 2% Lignocaine HCl. B. Affected horn removed at base. C. Application of antiseptic bandage.

Post-operative care

Post-operative care included antibiotics inj. Streptopencillin @ 10.000 IU/kg, for 7 days, and inj. Tolfenamic acid @ 2 mg/kg and inj. Chlorpheniramine maleate @ 0.3mg/kg intramuscularly for 3 days. Dressing of the suture site with 5% Povidone iodine solution and fly repellent spray. The skin sutures were removed on 22nd post-operative day.

Results and Discussion

Horn cancer is a sporadic, malignant disease affecting the horn core epithelium and predominantly seen in aged bovines. In the present report 15 year old cattle affected with horn cancer. Clinical signs include downward bending of affected horn, soft at the base and shaky with loss of rigid orientation. Similar findings were recorded by Kumar *et al*. (2013) [9], Prasad *et al*. (2016) [13], Reddy, *et al*. (2017) [14] and Sodhi and Sangwan (2019) [17]. Dehorning is a delicate procedure because poor technique and management of wounds may result in ample complications that will lead to septicemia and delayed wound healing (Jesse *et al*., 2016) [5]. In the present case dehorning of affected horn was performed under inj. Xylazine HCl sedation and cornual nerve block with 2% inj. Lignocaine HCl. Similar anaesthesia protocol recorded by Kumar *et al*. (2013) [9], Reddy *et al*. (2017) [14], Sodhi and Sangwan (2019) [17] and Mulatu *et al*. (2021) [10]. The chemotherapy treatment was not undertaken due to economic considerations of the owner. However, Udharwar *et al*. (2008) [19] and Kumar *et al*. (2013) [9] reported successful use of intravenous injection of Vincristine sulphate @ 0.025 mg/kg thrice at interval of seven days. Cattle recovered uneventfully and there was no recurrence after surgery. Similar observations were reported by Giri *et al*. (2011) [2], Jaiswal *et al*. (2014) [4], Sharma and Singh, (2014) [16], Pitlawar *et al*. (2016) [16] and Behera *et al*. (2016) [1]. Histological examination of collected sample was suggestive of squamous cell carcinoma with typical keratinized squamous cell with characteristic epithelial pearls. Similar finding were reported by Kumar *et al*., 2013 [9], Jaiswal *et al*. (2014) [4], Reddy *et al*. (2017) [14] and Sodhi and Sangwan (2019) [17].

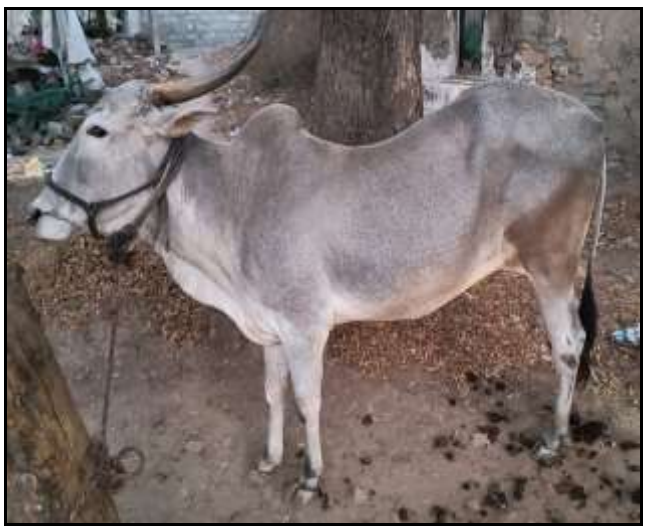


Fig 3: Photograph showing the normal wound healing and uneventful recovery of cattle

Conclusion

In the present case cattle affected with horn cancer treated surgically by dehorning under Xylzine HCl sedation and Lignociane local analgesia resulted in satisfactory outcome. Early Diagnosis and treatment is essential for good prognosis.

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