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## Surgical management of big ball size chondro osteosarcoma of horn in a crossbred Ongole bull: A rare case report

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### Abstract

A 2 year old crossbred Ongole bull was presented to the Veterinary Clinical Complex, College of Veterinary Science, Proddatur with history of decreased feed and water intake, bleeding from right nostril, head shaking, rubbing against hard object, keeping its head down and a ball like huge yellow tinged mass was observed at the tip of the horn since 3 months. Physical examination revealed pain on palpation at the tip of right horn. Based on history and clinical examination, the case was diagnosed as horn cancer and surgical correction was decided. Under sedation and cornual nerve block, horn amputation was undertaken by flap method. Tissue sample histopathology revealed Chondro osteosarcoma. Post-operatively, the bull was administered with antibiotics and analgesic daily for seven days. Sutures were removed on 12th post-operative day and bull was recovered uneventfully.

**Keywords:** Crossbred Ongole Bull, Big ball, Horn amputation, Chondro osteosarcoma

### Introduction

The horn is prone to various types of affections like avulsion, fracture, overgrowth, sepsis, fissures and cancer (Rama Rao *et al.*, 2014)<sup>[6]</sup>. Horn cancer is a common condition in bullocks in India affecting one percent of the population (Giri *et al.*, 2011, Veena *et al.*, 2011 and Mahla *et al.*, 2021)<sup>[1, 9, 4]</sup> and causing serious economic losses. Horn cancer is generally unilateral and is encountered in cattle in the age group of 5-10 years. The bullocks appear to be highly susceptible as compared to bulls and cows. The disease is associated with chronic irritation of the horns at their base of yoke (Tyagi and Singh, 2015)<sup>[8]</sup> stated that exact etiology of horn cancer is obscure and cause of tumor is considered to be multifactorial. The disease is associated with chronic irritation of horns at their base (Sastry, 2001)<sup>[7]</sup>. The most consistent clinical signs are frequent head shaking, tilting at affected side, bending of affected horn and increase nasal discharge on affected side in advance cases (Joshi *et al.*, 2009)<sup>[2]</sup>. The present communication reports big ball size rare horn cancer and its management in a crossbred Ongole bull.

### History and Diagnosis

A 2 year old crossbred Ongole bull was presented with history of decreased feed and water intake, bleeding from right nostril, head shaking, rubbing against hard object, keeping its head down and a ball like huge yellow tinged mass was observed at the tip of the horn since 3 months (Fig. 1). Physical examination revealed pain on palpation at the tip of right horn. Based on history and clinical signs, the case was diagnosed as unilateral horn cancer and surgical correction was decided.

### Treatment

The owner was advised to keep the animal withheld from feed for 24 hours and water for 12 hours. The site was prepared for aseptic surgery and sedated with Xylazine hydrochloride @ 0.01mg/kg b.wt intramuscularly. Regional anaesthesia was achieved by cornual nerve block by 2% Lignocaine hydrochloride and local infiltration around the base of horn. A deep elliptical incision was made at the junction of skin and horn around the base (Fig. 2). Two vertical incisions were made from the ends of earlier incision, one anteriorly up to the frontal crest and other posteriorly up to nuchal crest (Fig. 2). To expose the frontal bone, undermined skin and raised the dorsal flap. Horn was separated from frontal bone by using hack saw, chisel and

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mallet and after careful dissection, raised ventral flap (Fig. 4). The blood clots were drained out by thorough irrigation with Normal saline mixed with Povidone iodine solution. The two skin flaps were approximated using Silk no.2 in horizontal mattress pattern (Fig. 5). Excised big ball size mass was measured with tape having 19 cm length, 17 cm width and 15 cm height and subjected to histopathological examination (Fig.6). The animal was administered with Streptopenicillin 5 g and Meloxicam @ 0.2 mg/kg b. wt. daily for seven days besides daily dressing with Povidone iodine. Skin sutures were removed on 12<sup>th</sup> post-operative day and bull was recovered without any complications (Fig.7).



**Fig 1:** Big ball size tumor mass at the tip of the horn in a Ongole bull



**Fig 2:** Skin incision was made encircling the base of horn immediately below coronary band



**Fig 3:** The exposed horn was dehorned close to its base and the remaining attachment to the bone was chiselled out



**Fig 4:** Underlying tissues are separated at base of horn to raise full thickness dorsal & ventral skin flap



**Fig 5:** Skin apposition by horizontal mattress pattern with No.2 Silk



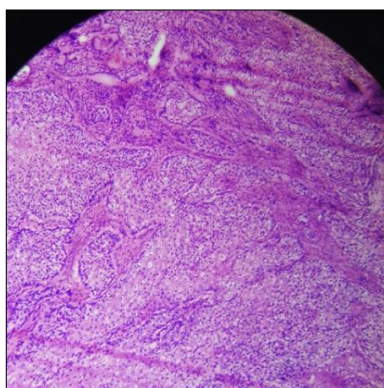
**Fig 6:** Measurement of big size mass with tape



**Fig 7:** Post operative sutures were removed at the site and complete healing was noticed in a Ongole bull

### Histopathology

Microscopically tumor tissue revealed proliferating neoplastic cells showing ovoid, grooved nuclei with pale eosinophilic cytoplasm and more atypical nuclei with mitotic figures and malignant osteoid deposition. The proliferation of fibrous connective tissue around the islands was seen which supported the multiplying cells. The growth was identified and diagnosed as Chondroosteosarcoma and very rarely seen at horns (Fig.8).



**Fig 8:** Chondroosteosarcoma in histological section and revealed anaplastic, chondroblast and osteoblast mesenchymal differentiations and increase in mitosis, consistent with chondroblastic osteosarcoma (H & E 200 X)

### Discussion

Horn cancer is one of the common malignancies observed in castrated bovines (Tyagi and Singh, 2015) [8]. The predisposing factors for occurrence of horn cancer are irritation due to yoke, trauma, tying the rope at base of horn, rubbing against hard object, fighting, pairing of horns, painting, solar radiation, genetic predisposition and sex hormone imbalance (Yadav *et al.*, 2002) [10]. In our case, it might be due to trauma and fracture at tip of horn core, subsequent cutting of horn distal to fracture and letting the surgical wound open exposing the horn core and sinuses open to surroundings might have resulted in infection and irritation resulting in big ball size growth at tip of horn. Similar findings were also observed by Pittlawar *et al.*, (2016) [5].

Horn amputation by flap method under sedation with Xylazine, cornual and ring block with 2% Lignocaine hydrochloride made easy in all three bovines as mentioned by Rama Rao *et al.* (2014) [6]. For horn amputation, flap (Giri *et al.*, 2011) [1] method was followed. Hacksaw, hammer and

chisel were used to separate horn at base. Thorough irrigation of frontal sinus with normal saline helped in removing pus, blood clots and free necrotic tissue.

Histological examination of tissue revealed proliferating neoplastic cells showing ovoid, grooved nuclei with pale eosinophilic cytoplasm and more atypical nuclei with mitotic figures and malignant osteoid deposition which suggested that growths were of Chondro osteosarcoma. In contrast, squamous cell carcinoma of horn observed by Kumar *et al.* (2013) [3]. The specific chemotherapy including antineoplastic drugs could not be undertaken due to economic considerations and lack of owner consent (Veena *et al.*, 2011) [9]. But Kumar *et al.* (2013) [3] used successfully Vincristine sulphate @ 0.025 mg/kg intravenously thrice at interval of seven days for squamous cell carcinoma of horn after surgical excision. In the present case chemotherapy was not undertaken. The recovery was uneventful and uncomplicated. Complete cure and no recurrence of horn cancer was noticed. Hence early diagnosis and treatment is very essential for a good post-operative prognosis of the animal.

### Conclusion

In the presented case report, big ball size tumor of horn was diagnosed and histopathologically diagnosed as Chondro osteosarcoma, a very rare case of horn cancer with sinusitis was treated successfully and managed.

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