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Rohit Kumar Sharma
Department of Veterinary Surgery & Radiology, CVAS, Navania, Rajuvas-South Campus, Rajasthan, India

SK Sharma
Department of Veterinary Medicine, CVAS, Navania, Rajuvas-South Campus, Rajasthan, India

Corresponding Author:
Rohit Kumar Sharma
Department of Veterinary Surgery & Radiology, CVAS, Navania, Rajuvas-South Campus, Rajasthan, India

Horn affections and their management in indigenous cows

Rohit Kumar Sharma and SK Sharma

Abstract
This study was conducted on total 36-indigenous cattle affected with various horn affections and presented to department of veterinary surgery and radiology, Navania from March 2021 to December 2021 and all cases were undertaken for surgical management. All the findings were observed, recorded and evaluated related to horn affections are discussed in detail in this article.

Keywords: Indigenous cattle, surgery, horn, outcome

Introduction
Bovines are known to have strong horn affections because their horns are weapons that they use to defend themselves, compete with others animals or humans in defensive situations, and assert dominance or breeding rights at the feed bunk, hay bale, shade tree, and water trough. (Hamdi *et al.,* 2013) [15].
Animals with horn affection should have pre- and post-operative pain treated to reduce stress as it may impact the animal's ability to produce milk. The majority of these affections require horn amputation because they do not respond to standard medical care. (Sreenu and Kumar, 2006) [8].
In India, owners are not particularly interested in early disbudding because the orientation of the horns-aside from other recognized traits-is used to determine the value of these animals, particularly buffaloes. (Prasad *et al.,* 2016) [16]. The current investigation was carried out on 36 cows with various horn affections that were reported to the Veterinary Clinical Complex in Navania.

Materials and Methods
The 36 cases of indigenous cows that were brought to the veterinary clinical complex in Navania for treatment of various horn affections were the subject of the current study. A variety of information was gathered and assessed, including the overall incidence and case presentation findings of all 36 reported cases as well as the intra-operative and post-operative complications of all 25 operated cases. Flap method was used as surgical technique for all cases. After surgery of all cases POC included regular cleaning of suture line with antiseptic dressing for 7-12 days and parental administration of drugs like Strepto-penicillin @ 2 to 7 gm. (on the basis of animal's body weight) and Meloxicam 0.2mg/kg body weight, O.D. for 5 days and 3 days, respectively. After 12 to 15 days of surgery, the sutures were taken out. To determine the level of analgesia during surgery, the base of the horn was tested using the pin-prick method. Here, the documented horn affections in Navania clinics were addressed and discussed in a suitable manner.

Results and Discussion

a. Overall incidence and case-presentation findings

Out of 36 cases of diverse horn affections 10 (27.78%), 6 (16.66%), 10 (27.78%), 6 (27.78%) were fractures, fracture with avulsion, septic horn and horn cancer respectively (See Table.1 for detailed findings).Various parameters and clinical findings like body weight, heart rate, respiration rate and temperature of all cases were noted immediate after reporting of cases at clinic and further evaluated (See Table.2). In present study the age of animals ranged from 2.5 to 20 years.

Table 1: Detailed data of overall incidence of all 36-Bovines

Type of horn-affection	Case reported	Affected animal and Sex				Horn involved			Injury Occurrence time		
		Sex		Rt.	Lt.	Morning	Evening	Night	Self-trauma	Fight	Unknown
Fractured horn	10	M	3	1	1	2	5	3	5	4	1
		F	7	6	2						
Fracture with Avulsion	6	M	1	0	1	1	5	0	2	2	2
		F	5	2	3						
Septic horn	10	M	4	3	1	Nil			2	4	4
		F	6	4	2						
Horn-cancer	10	M	8	7	1	About Paint-status of cancerous Horn			Nil		
						Painted-Cattle Horn	8				
		F	2	0	2	Non-painted	2				

Table 2: Clinical parameters noted during study at the time of case presentation

Parameter Noted	Mean ± S.E.
Temperature (in Fahrenheit)	100.11 ± 0.23
Heart beat per-minute)	66.68 ±2.33
Breath per-minute	20.67 ±1.33
Body weight in kilogram	350.04 ±19.11

Out of 36 presented cases, 25 cases were selected and operated (6-cases of horn cancers were avoided because of advance stage of cancer noted grossly) and numerous intraoperative observations, such as the patient's state of anaesthesia, type of anaesthesia, amount of anaesthetic used to achieve maximum analgesia, operative time, suturing time, bleeding status during surgery, and analgesia status during surgery and a few particular observations, such as out-pouching beneath the frontal crest, that were made immediately following local infiltration in each of the operated cases were noted separately and further assessed. (See Table. 3 for detailed findings).

Table 3: Intra-operative findings of all cases selected and operated

Intra-operative findings	Data was calculated from 25 operated cases	
Recumbency	Standing	7 (all were old-aged cattle)
	Lateral	18
Type of anaesthesia	Only-Local (2% Lignocaine)	20
	Local along with Sedation (Xylazine@0.05mg/kg)	5
Average amount of local anaesthesia used (in ml)		80.12 ± 4.15
Average operative-time (in minutes)		62.76 ± 3.06
Average suturing time(in minutes)		34.54 ± 1.34
Status of analgesia	Mild	3
	Moderate	16
	Proper	7
Bleeding status	Mild	19
	Moderate	8
	Severe	8
Radial Nerve paralysis immediate after surgery	3 However, bullocks were recovered from this condition after 1-2 days of surgery through gentle massage of affected limb.	

Post-operative complications included wound dehiscence, sinusitis (in 2 cases, 8%), and the presence of maggots at the incision line during the follow-up period (in 1 case, 4%).

Discussion

Higher numbers of horn affections in cows have been reported in Udaipur, Rajasthan; these have been attributed to specific geographic location, higher populations of specific species, poor animal rearing and management, owners' lack of access to scientific knowledge, and the unavailability of door-to-door treatment. After an 18–20 hour fast, the majority of cases in the current study underwent lateral recumbency during surgery as mentioned by Singh *et al.*, (2020) [17]. Because elderly bullocks are more likely to experience radial nerve paralysis, they underwent standing surgery (Peshin *et al.* 2020) [14]; nonetheless, a small number of cases were still documented with radial nerve paralysis right after surgery; however, the condition was resolved with mild massage within 1-2 days. The aforementioned complication in the current study may be caused by an extended duration of surgery. In this research, incidence were equally reported in fractured horn and septic horn; avulsion and horn cancer. Shivaprakash and coworker's (2007) [10] observations were linked to a higher incidence of horn fractures. Salgar (2008) [11] and Mistry (2009) [12] while Sreenu and Kumar (2006) [8] and Mahida *et al.* (2009) [9] reported higher incidence of Avulsion. Rao *et al.* (2016) [13] reported a higher incidence of fractures among horn affections. The occurrence of fractures and avulsions in the current study may be related to the bovines' fierce and competitive nature. The incidence of horn cancer in buffaloes was noted to be low by Kumar and Thilagar (2000) [7], who reported a case of bilateral horn cancer in a buffalo. In the current study, however, only one case of horn cancer in a buffalo was reported. Similar to

Sreenu and Kumar (2006) [8] successfully treated horn fractures by amputation using the flap method, the present study also employed this technique and good results were reported. According to Oheme and Prier (1974) [6], trimming a cow's horn is necessary to control its excessive growth because otherwise, it can lead to head pressure sores and vision problems. All avulsion cases in the current study were reported with fractured or broken horns, and amputation was the method of treatment However, Verma and Kumar (1999) [5] used an antiseptic dressing soaked in oil and containing carbolic acid and pine tar to treat horn avulsions. A combination of lime and palm Jaggary was used by Umadevi and Umakanthan (2013) [4] to treat horn avulsion in farm animals. According to Tyagi and Singh (2006) [3], horn cancer typically affects one side of the animal and affects cattle between the ages of five and ten. However, in the current study, cases of horn cancer have been reported in cattle as old as twenty. Vincristine was used in the post-operative phase by numerous researchers (Udharwar *et al*., 2008; Kumar *et al*., 2013) [1, 2]; however, in the current study, no case required such therapy during the follow-up period. While most cases recovered fully, a small percentage had post-operative problems.

Conclusions

Horn affections in are considered as one of the common affection of head region in bovines. Horn cancer should never be considered for sole conservation management. Surgical removal of affected horn in horn cancer can improve bullock's quality of life. Broken horn can be treated easily with good success. Septic horns usually required cleaning and antiseptic dressing at least for a week prior to surgery to achieve better outcomes with minimum complications.

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