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## A retrospective study of wounds in cattle

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### Abstract

A retrospective study was conducted to find out the incidence of wound in animals from total cases registered at Teaching Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Rewa, Divisional Veterinary Hospital, Bichhiya, Rewa and Laxman Bagh Gaushala, Bichhiya, Rewa, Madhya Pradesh, for treatment of traumatic wounds. During the study period, a total of 2120 cases were registered and out of them 196 had wounds, representing an incidence of 9.25 percent. Out of 196 instances of wound, 90 cases (45.92%) were canine, 64 cases (32.65%) involved bovine, 35 cases (17.86%) involved caprine and 7 cases (8.40%) involved other animals. Males had the higher incidence (65.62%) as compared to females (34.38%). The age groups of 6 months to 1 year and above 3 years showed the highest and lowest incidence rates, 68.75% and 6.25 percent % respectively. Most cases were brought to the clinics between 5–10 days (62.5%) and least cases between 0–2 days (7.81%). The incidence of wounds was highest on the limb (40.63%) and lowest in the tail (6.25%). Lacerations were the most common types of wounds (31.25%).

**Keywords:** Bovine, incidence, species, wound

### Introduction

Wounds are most common surgical affection encountered in bovines and other small ruminants. Bovines when let loose by the farmers get their way on road and highways and meets an accident with speeding vehicle. Intentional kicking by farmers to prevent their crops and biting by ferocious canines plays a pivotal role for wounding an animal. Beside these factors, animal too gets wounded by accidental fire, slippery floor and fighting among themselves in paddock area. Wound is an injury usually involving disruption of tissue or rupture of the integument or mucous membrane due to external violence, mechanical or chemical agents and sometimes due to a disease manifestation. Wounds in domestic animals maybe encountered due to injury while fighting, animal or insect bites, injury due to barbed wire while grazing, accidents and blows. Complications associated with a wound arises due to an infection as toxins are released by the bacteria at the site leading to abscess, necrosis, slough etc. (Rai *et al.*, 2017) [3]. Apart from these, wound may occur due to mechanical trauma, surgical interventions and reduction in blood supply, burns, or senility (Allgower *et al.*, 1995) [2].

Succeeding an injury or wounding, healing process come into play. Wound healing is a biological complex cascade of predictable over-lapping events and is a natural restorative response to tissue injury. The continuum of interrelated processes is classically divided into the inflammatory, proliferative, epithelialization and remodeling phases. Each phase is regulated by biochemical mediators such as cytokines, growth factors and other cellular components that stimulate or inhibit the cellular responses that facilitate healing. The biologic process for wound healing is same for all wounds, although the specific mechanisms may vary (Hanks and Spodnick, 2005) [4]. Wound healing rate depends on factors such as medicament applied, nature and extent of injury. Wound healing is very cumbersome in veterinary patients as healing process progresses for a certain time up to 21 days to 30.

### Materials and Methods

Incidence of wounds was calculated from the total cases registered at Teaching Veterinary Clinical Complex, College of Veterinary Science and Animal Husbandry, Rewa, Divisional Veterinary Hospital, Bichhiya, Rewa and Laxaman Bagh Gaushala, Bichhiya, Rewa, during study period of six months. Data were analyzed with regards to species, age, sex, location of wound, type of wound and presentation to the clinics after occurrence.

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**Results and Discussion**

A total of 2120 cases were registered during the study period, out of which 196 cases were of wound which accounted for 9.25 percent. These findings are in agreement with the findings of Verma (2019) [9] who observed an incidence of 7.9 percent and in partial agreement of Arju *et al.* (2014) [5] who noted an incidence of 11.99 percent during their study. Contrary to this Sarkar *et al.* (2013) [7] observed an incidence of 20.19 percent. Disaccord in the findings might be due to the fact that the rate of incidence in our study was computed from total cases reported during the study period. However; Sarkar *et al.* (2013) [7] had calculated the incidence of wounds from the total surgical affections. Incidence of wound in different species of animals were too recorded and it was found that out of 196 cases of wound, 90 cases (45.92%) were in canine followed by 64 cases (32.65%) in bovine, 35 cases (17.86%) in caprine and 7 cases (8.40%) in other animals. These findings are in agreement with the findings of Verma (2019) [9] who observed maximum cases of wounds in canine (41.66%) followed by bovine (37.71%) and caprine (17.2%). In divergent to this Arju *et al.* (2014) [5] noted maximum cases of wound in cattle (60.38%) followed by goat (30.18%), sheep (1.89%) and pig (7.55%). Dissension in the result from present study might be due to limitation in study population of Arju *et al.* (2014) [5] who included only cattle, goat, sheep and pig whereas, in present study all the species reported at clinics during the study period were included in calculation.

**Table 1:** Incidence of wound in different species of animals reported during the study period

S. No.	Species	Cases	Percentage
1	Canine	90	45.92
2	Bovine	64	32.65
3	Caprine	35	17.86
4	Ovine	2	1.02
5	Rabbit	4	2.04
6	Birds	1	0.51
	Total	196	100.00

Incidence of wound in different sex was also noted and recorded in table 2. Data in Table 2 depicted higher incidence of wound in male (65.62%) as compared to female (34.38%). These findings are similar to the findings of Sharma (2018) [8] and Verma (2019) [9] who observed higher incidence of wound in male as compared to female in dog and bovine calves respectively.

In disagreement to the above findings Arju *et al.* (2014) [5] recorded maximum wound in females than males. Disparity in the findings might be due inclusion of all the species reported at their clinics during their study period whereas, in present study only bovines was considered to calculate the same.

Higher incidences of wounds in male than female calves might be due to the fact that male are left abandoned by the farmers due to recurring expenses of feeding in rural, urban and peri-urban areas as there is diminution of grazing land with increasing human population. These neglected animals make their way to the highway, farmer’s field and stray dog territory for shelter and feed and often meets an accident by the speeding vehicle, intentional kicking by farmers and biting by ferocious canines. Contrary to these females are nourished by the farmers in order to get an economic return in terms of milk and offspring.

**Table 2:** Sex wise incidence of wound in bovine reported during study period

Sex	Number	Percentage
Male	42	65.62
Female	22	34.38

Wounds in different age group of bovine were too recorded (Table 03). Maximum incidence of wounds were observed in animals of age group 6 month to 1 year (68.75%), followed by below 6 months (14.06%), 1 to 3 years (10.94%) and above 3 years (6.25%).

Above findings are in disagreement with the findings of Sharma (2018) [8] who found maximum incidence rate in age group of 3-5 years and minimum in 6-8 years. Difference in finding from present studies might be due difference in species. Sharma (2018) [8] studied the incidence in canine in which the animals of age group 3-5 years are innately uncompromising in nature and get entangle in territorial fight. Findings of present study is also in contrast with the findings of Verma (2019) [9] who reported highest incidence of wound in 1-3 years age group and lowest in age group below 6 month in bovine calves. Maximum incidence of wound in age group 6 month to 1 year might be due to the fact that farmers keep the calves in early stage, since it is essential for them to keep the calves for milking the animal. As the calf grows older farmers let them go to avoid the burden of feeding. These novice animals in an altered environment find it difficult to match it to the surrounding and become prone to injuries as they are not familiar with new habitat. These calves as they grow older become very acquainted with the changes and learn how to cope with it and avoid accidents and injuries.

**Table 3:** Age wise incidence of wound in bovine

Age	Number	Percentage
6 month to 1 year	44	68.75
Below 6 months	9	14.06
1 to 3 years	7	10.94
Above 3 years	4	6.25

Presentation of case to the clinics after the incidence was too noted as stated in Table 04. Data in the table depicts that, maximum cases were presented to the clinics between 5-10 days (62.50%) which was followed by above 10 days (17.19%), 2-5 days (12.50%) and 0-2 days (7.81%) respectively. These findings are similar to the findings of Verma (2019) [9] who reported that highest cases presented at the clinic between 5-10 days.

However, the findings of present study disagrees with Sharma (2018) [8], who found that maximum cases (62.5%) were presented at the clinics in between 2-3 days after occurrence of the wound. This disaccord might be due to the fact that most of the dog owners have sound economic background and are aware and vigilant about their pets whereas, the cattle are mostly reared by farmer who delays treatment to their livestock due to poor economic condition, lack of empathetic commitments, negligence and applying all skill of self - treatment before consultation.

**Table 4:** Presentation of animal to clinics following the incidence

Duration	Number	Percentage
0-2 days	5	7.81
2-5 days	8	12.50
5-10 days	40	62.50
Above 10 days	11	17.19

Location of wound on different body parts of bovine was also recorded. Data in the Table 05, discloses highest incidence of wound on limbs (40.62%) followed by trunk (28.13%), head and neck (17.19%), udder and teat (7.81%) and tail (6.25%). These findings are in agreement to the findings of Acharya (2017) [1] and Verma (2019) [9] who found highest incidence of wound in limbs followed by trunk.

Highest incidence of wound on limb in present study might be due to the fact that limbs are foremost part that get entangled with hazards after any mishaps due to its anatomical positioning which is followed by trunk since it comes in contact as the animal falls on the ground.

**Table 5:** Location of wound on different body parts of bovine

Body part	Incidence	Percentage
Limbs	26	40.62
Trunk	18	28.13
Head and neck	11	17.19
Udder and teat	5	7.81
Tail	4	6.25
Total	64	100.00

Type of wounds and their incidence rate observed during study period is depicted in Table 06. From the table it can be inferred that maximum cases were of lacerated wounds (31.25%) followed by maggot wounds (28.13%), bite wounds (14.06%), wounds along with fractures (9.38%), teat laceration (7.81%), incised wounds (4.69%) and punctured wounds (4.68%). These findings are in congruence with the findings of Verma (2019) [9] who reported highest incidence of lacerated wounds (30.74%) followed by maggot wounds (29.39%), bite wounds (13.85%), wounds accompanied by fracture (9.8%), teat laceration (7.09%), incised wounds (4.39%) and punctured wounds (4.73%) in bovine calves. On the other hand these findings are in divergence with the findings of Kozar *et al.* (2018) [6] who reported highest incidence of dog bite followed by dehiscence from old wounds and complications from surgical wounds. Dissimilarity in findings might be due to species variation. They studied the incidence of canines and felines whereas, present study is on bovine.

Maximum cases of lacerated wounds in present study might be due to the fact that bovines when let loose by the farmers get their way on road and highways. Falling on rough surface of road due to an accident and slippery barn at farm might be the reason of lacerated wound.

**Table 6:** Incidence of different types of wounds reported during study period

Type of wounds	Incidence	Percentage
Lacerated	20	31.25
Maggot wound	18	28.13
Bite wounds	9	14.06
Wound along with Fracture	6	9.38
Teat laceration	5	7.81
Punctured wound	3	4.69
Incised wound	3	4.68
Total	64	100

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