



Profile of Animal Inflicted Injuries to Head, Face and Neck: An Experience in Tertiary Care Hospital

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Abstract

Background and Aims: Animal-related injuries are a significant public health concern. Animals bite injuries are caused by a wide variety of domestic and wild animals. Key to successful management of such wounds are meticulous cleansing of wounds, careful debridement, primary repair, appropriate antibiotic therapy and rabies and tetanus immunization where indicated. The present study was undertaken with an objective to study the epidemiology treatment of animal inflicted injuries to head, face and neck. **Material and Methods:** The study was an observational cross sectional study carried out on 40 patients having animal inflicted injuries over head, face and neck requiring treatment by suitable modalities admitted to Government Medical College and hospital Jammu over a period of 1-year w.e.f. 1st October 2020 to 31st September 2021. All the patients were treated as inpatients. **Results:** Most common type of animal involved was dog accounting for 27 cases (67.5%). Maximum number of patients were in the age group of < 10 years which accounted for 47.5% of patients. Face was the most common site of defect due to animal induced injuries accounting for 20 cases (50%). Out of total 40 cases of animal inflicted injuries, most common treatment modality used were anti-septic dressings (65%), followed by primary closure of defects in 12 cases (30%); whereas nasolabial flap coverage, and wedge resection with lip advancement was done in one case each (2.5% each). 5% of wounds were infected and were managed by antibiotics and antiseptic dressings. **Conclusion:** The most common animal injury in our study was dog bite and young children are especially vulnerable. A variety of treatment modalities in form of various procedures such antiseptic dressings, primary closure, split thickness skin grafting, nasolabial flap flap and wedge resection with lip advancement were employed for treatment of the various injuries.

Keywords

Animal inflicted injuries; Head, neck and face; Modality of treatment

Introduction

Since human-animal contact is daily occurrence for most people worldwide; as a result of these contacts, bite injuries are caused by a wide variety of domestic and wild animals. Males are more likely to be injured by animals than are females^[1]. Animal inflicted injuries to head and neck area are involved in almost 70% in case of children as compared to only 5-15% in case of adults. Due to

their short stature children are the most common victims of dog bites^[2]. Bite injuries are most commonly made by dogs (80-90%). Most bites in children affect the head and neck region, with 76% affecting lips, nose and cheek^[3]. Injuries caused by animal attacks to the face can cause complex injuries to soft and hard tissues,

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presenting as perforations, lacerations, crushes, avulsion or fractures. The infection rate is low due to excellent blood supply to face^[4]. The patient's wound due to animal bites are classified according to Lackmann's classification^[5]. Rabies is a dreaded complication of animal bite due to its 100% fatality rate^[6] Key to successful management of such wounds are meticulous cleansing of wounds, careful debridement, primary repair, appropriate antibiotic therapy and rabies and tetanus immunization where indicated. For all the cases of animal inflicted injuries, advanced trauma life support (ATLS) should be followed^[7]. Facial wounds can be closed with high rates of success, probably due to high vascularity and absence of dependent edema^[8].

Aims and Objectives

- To study epidemiology of animal-inflicted injuries over head, neck, and face.
- To evaluate the various treatment modalities for animal bites to head, neck and face.

Material and Methods

The study was carried out on 40 patients having animal inflicted injuries to head, face and neck requiring treatment by suitable modalities admitted to Government Medical College and hospital Jammu over a period of 1-year w.e.f. 1st October 2020 to 31st September 2021 after obtaining clearance from institutional ethical committee vide No. IEC/GMC/2021/710. The patients were studied prospectively, personal and demographic data of the patient was noted. A detailed history including the age and sex of the patient, residence of the patients, occupation of patients, type of animal causing bite injury, provoked or unprovoked attack, was taken. Examination included general and systemic examination. Local examination of the wound was done and the patients were categorized as per Lackmann's Classification as:

Type 1 - Superficial lesion without muscle involvement.

Type 2 - Deep lesion with muscle involvement.

Type 3 - Deep lesion with muscle involvement and tissue defect.

Type 4A - Type 3 combined with vascular damage or nerve lesion.

Type 4B - Type 3 combined with bone damage or organ involvement.

The patients were subjected to routine investigations including serology for hepatitis and HIV for anesthetic fitness. The treatment modality was planned as per the injury sustained. All the patients received the anti rabies

vaccination and local serum infiltration.

Patients with associated severe head injuries and patients not fit for anesthesia were excluded from the study.

Results

In our study, we compiled the following observations, out of a total of 40 patients.

Table 1: Age Distribution of the Patients

Age Group	No. of Patients	Percentage (%)
< 10 years	19	47.5
11-20 years	2	5
21-30 years	8	20
31-40 years	3	7.5
41-50 years	3	7.5
51-60 years	1	2.5
61-70 years	3	7.5
71-80 years	0	0
81-90 years	1	2.5
TOTAL	40	100

The median age of the patients was 19.5 years. The youngest patient in the study was 2 years old whereas the oldest patient was 90 years old (*Table 1*).

Out of the 40 patients, 22(55%) were males and 18(45%) were females making a male: female ratio of about 1.2 : 1. Residents belonging to urban areas, accounted for higher number of patients in our study (70%), while rural dwellers accounted for the remaining 30%. Maximum number of patients were children (staying at home) comprising

Table 2 : Type of Animal Involved

Type of Animal Involved	No. of Patients	Percentage (%)
Dog	27	67.5
Cat	1	2.5
Horse	2	5
Bear	8	20
Leopard	1	2.5
Monkey	1	2.5
Total	40	100

Table 3: Type of Injuries as Per Lackmann's Classification

Pateint's Wound	No. of Patients	Percentage (%)
Type 1	24	60
Type 2	2	5
Type 3	10	25
Type 4 a	1	2.5
Type 4 b	3	7.5
TOTAL	40	100

Table 4: Site of Defect

Site of Defect	Number of Patients	Percentage (%)
Head	6	15
Face	20	50
Neck	1	2.5
Head + Face	12	30
Head + Face + Neck	1	2.5
TOTAL	40	100

Table 5: Treatment Modality Used

Treatment Modality Used	No. of Patients	Percentage (%)
Flap Coverage (Nasolabial Flap)	1	2.5
Primary Closure	12	30
Antiseptic Dressing	26	65
Wedge Resection with Lip Advancement	1	2.5
Total	40	100

47.5% of the total patients; house wives accounted for 25% of cases; inservice persons accounted for 15% of cases whereas labourers/farmers accounted for 12.5% of cases.

Most common type of animal involved in animal inflicted injuries was dog (67.5%) followed by bear (20%) (Table 2). 65% of the animals involved in animal inflicted injuries were stray. Out of 40 patients, 25 (62.5%) patients suffered unprovoked attack from animals.

Most of the wounds were Type 1 (60%) followed by

Type 3 (25%) according to Lackmann's Classification (Table 3). Table 4 shows the distribution of different sites of defect. Face (50%) was the most common site of defect in our study followed by Head and Face (30%). Most common treatment modality used were anti-septic dressings (65%) followed by primary closure of defects (30%) (Table 5). In our study, all patients received anti-rabies prophylaxis and T.T. prophylaxis. In our study, 5% of the patient's wounds (n=2) were infected and were managed by antibiotics and antiseptic dressings.



Figure 1: Preoperative pic showing loss of lateral part of lower lip following dog bite.

Discussion

In our study, 40 cases of animal inflicted injuries were included. Maximum number of patients were in the age group of <10 years which accounted for 47.5% of all the patients. The median age of the patients was 19.5 years. The youngest patient in the study was 2 years old whereas the oldest patient was 90 years old. Other authors have reported similar age distribution^[9,10].

The number of male patients in our study accounted for 55% of all the cases, whereas females contributed about 45% of all the total cases. The male to female ratio was about 1.2:1. The male preponderance has been noted in other studies also^[11,12,13].

In our study, most of the patients were residents of urban area and comprised 70% of total and rest 30% belonged to rural areas which is comparable with studies done by other authors^[14].

In the study entailed, children accounted for 19 cases (47.5%), housewives accounted for 10 cases (25%), in service patients accounted for 6 cases (15%), whereas labourers / farmers accounted for 5 cases (12.5%). Other



Figure 2: Intra operative pic showing lip advancement.



Figure 3: Post operative pic showing repaired lip defect.



Figure 5: Pre-operative and postoperative pictures showing primary repair of dog bite injury to face.

authors have similar findings^[15,16,17]
 In our study, dog bites constituted most cases (27 cases), contributing to 67.5% of the study group. The number of bear bite cases included in the study were 8 (20%), leopard bite cases were 1 (2.5%), cat bite cases were 1 (2.5%). Cases which suffered injuries due to horse and monkey bites were 2 (5%) and 1 (2.5%) respectively. Similar results have been reported in previous studies^[18,19].

In our study, face was the most common site of animal bite injury among head, face and neck region accounting for 20 cases (50%); head and face together were involved in 12 cases (30%); injury to head region contributed to 6 cases (15%); and injuries over neck alone and head, face and neck together were observed in 1 case each (2.5%).

Other authors have reported similar findings^[3,16].
 Out of 40 cases, 24 patients (60%) were having Lackmann Type-1 wounds followed by 10 patients (25%) who were having Lackmann Type-3 wounds. Type-2 wounds were sustained by 2 patients (5%), Type-4A by 1 patient (2.5%) and Type-4B by 3 patients (7.5%). Similar results were reported in a previous study^[20].

Out of total 40 cases of animal inflicted injuries, primary closure of the animal inflicted injuries on the head, neck and face was done in 12 cases (30%) (after administering 3 doses of ant rabies vaccine and local serum infiltration in the wound), wedge resection and lip advancement was the modality of treatment in 1 case (2.5%) whereas nasolabial flap coverage was required in 1 case (2.5%) and antiseptic dressings were the modality of treatment



in 26 patients (65%). Similar treatment modalities were undertaken in various studies^[12,21].

In our study, 5% of the patient's wounds (n=2) were infected and were managed by antibiotics and antiseptic dressings. Similar results were reported in a previous study^[12].

Conclusion

The animal bites to head, neck and face were evaluated as regards the demography and various injuries caused due to the bite. The wounds were evaluated and treatment was planned. The most common animal injury in our study was dog bite and young children were found to be especially vulnerable. A variety of treatment modalities in form of various procedures such as antiseptic dressings, primary closure, split thickness skin grafting, nasolabial flap and wedge resection with lip advancement were employed for treatment of the various injuries. Awareness in general population on the potential dangers of animal inflicted injuries could reduce the number and severity of cases.

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Nil.

Conflicts of Interest

There are no conflicts of interest.

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