

## ORIGINAL RESEARCH

**Different Type of Cut Neck Injuries – Review of 46 cases**Nirupama Moran<sup>1</sup>, Pinpo Teron<sup>2</sup>, Debojit Sharma<sup>3</sup>, Rupjyoti Borthakur<sup>4</sup>**ABSTRACT**

**Background:** Cut neck injuries may be inflicted by sharp elements such as knives, razor, broken bottle pieces or glasses which may be accidental, homicidal or suicidal in nature. These may be superficial or deep and open on penetrating in nature. **AIM:** To observe the pattern, type of injuries and their later consequences and the treatment, duration of hospital stay and morbidity.

**Material and Method:** This prospective observational study was conducted in the Department of ENT and Head and Neck Surgery at Assam Medical College and Hospital, Dibrugarh, Assam, from September 2013 to February 2015.

**Results:** A total of 46 cut neck injury victims were included in the study. Out of these, 35 were male and 11 female cases are found. Majority of the victims were 17–30 years i.e. 30 (65.21%). 35 (76.08%) were from rural community, 40 (86.95%) were belong to the low socioeconomic class and only 6 (13.04%) were from higher socioeconomic class. Out of 46 cases, 34 (73.91%) victims were due to homicidal, 8 (17.39%) accidental and only 4 (8.69%) person were due to a suicidal attempt. Most of the victim arrived in the hospital within 24 hours of injury (99%). Emergency tracheostomy was needed in three victims (6.52%) and blood transfusion was needed 25 (54.34%) cases for haemorrhage. As a consequence of injury one victim (2.17%) had died due to haemorrhagic shock, 2 persons developed brachial plexus injury. Ugly scar 12 (26.08%) and secondary wound infections (22.72%) were regarded as minor morbidity.

**Conclusion:** Early intrference in an improved management setup with surgical intervention may reduce mortality and morbid consequences.

**Keywords:** Cut neck injury, homicidal, suicidal

**How to cite this article:** Nirupama Moran, Pinpo Teron, Debojit Sharma, Rupjyoti Borthakur. Different type of cut neck injuries – review of 46 cases. *International Journal of Contemporary Medical Research* 2015;2(2):140-144

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**Source of Support:** Nil

**Conflict of Interest:** None

**INTRODUCTION**

Cut neck injuries may be inflicted by sharp elements such as knives, razor, broken bottle pieces or glasses which may be accidental, homicidal or suicidal in nature. These may be superficial or deep and open or penetrating in nature. They may present as single isolated injury or may be accompanied by multiple injuries in other parts of the body.<sup>1-3</sup> Cut neck injuries lead to so many deaths in our society and the additional number of patient who managed to survive; live with permanent disability. The fatality of cut neck injuries result due to profuse haemorrhage from damaged major blood vessels, air embolism or airway obstruction. The patient typically presents with visible external blood loss, neck hematoma formation, and varying degree of shock.

Hypopharynx and larynx may be exposed. The complications of untreated neck trauma are related to the individual structures injured. Injuries to the larynx and trachea can result in acute airway obstruction, sepsis and late tracheal stenosis. Carotid artery injuries can produce death from haemorrhage, stroke or cerebral ischaemia. Major venous injury can result in exsanguination, air embolism and arteriovenous fistula formation at a later stage if there was concomitant arterial

injury. Prevention of these complications depends upon accurate and rapid diagnosis, immediate resuscitation by securing the airway by tracheostomy or intubation, prompt control of external hemorrhage and blood replacement.

All patients of attempted suicide should have a psychiatric consultation and victims of homicidal cut-neck need psychological support too to overcome the mental trauma. When disability resulting from injuries is also taken into consideration, injuries represent an even more significant public health problem, especially due to the fact that it affects mainly young adults that is to say, the economically most productive sector of the population. The magnitude of the problem can be termed as number of years lived with disability. Globally cut-neck trauma currently accounts for 10% of all disability adjusted life years (DALYS) lost and this is expected to increase to 20% by 2020.<sup>4</sup>

The present study attempts to initiate measures in order to minimize the mortality related to trauma. According to Roon and Christensen, Anatomy of the Neck is divided into three zones:<sup>5</sup>

- Zone-I: Sternal notch/clavicle to cricoid cartilage.
- Zone-II: Cricoid cartilage to angle of mandible.
- Zone-III: Angle of mandible to base of skull.

Zones I and III are protected by bones and the vital structures in the Zone II are not protected by bone, so the risk of injury is different in three zones. Aim of the study was to observe the pattern, type of injuries and their later consequences, to observe the treatment outcome, duration of hospital stay and morbidity.

## MATERIALS AND METHODS

This prospective observational type of study was conducted in the Department of Otorhinolaryngology and Head & Neck Surgery, Assam Medical College & Hospital, Dibrugarh. The protocol was approved by the Institutional Review Board (IRB) of Assam Medical College and Hospital, Dibrugarh. It was conducted from September 2013 to February 2015. A total of 46 cases of cut neck injury were included in the study irrespective of age and sex, who were admitted in

the ward. Minor neck injury not requiring admission and patient with minor trauma in the neck but major trauma in other parts of the body needing hospitalization were excluded from the study.

All the data regarding study population were collected and compiled in a structured questionnaire after considering all ethical implications. All the data pertinent to the patient were kept confidential. Data were categorized according to the demographic pattern of the patient, site of the neck injury (according to the defined zone of the neck), type and extent of the tissue damage or involved, presentation during admission, time taken from the site of incidence to the hospital and duration of the hospital stay, type of special intervention given, records of mortality, noticeable morbidity and outcome.

## STATISTICAL ANALYSIS

The accumulated data were compiled and analyzed by descriptive statistical method and then presented in the figures and tables.

## RESULTS

A total of 46 cut neck injury victims were included in the study. Out of these, 35(76.08%) were male and 11 (23.92%) female cases are found (Fig-1). The age of the victims ranged from 17—47 years. Majority of the victims were 17—30 years i.e. 30 (65.21%). 35 (76.08%) were from rural community, 40 (86.95%) were belong to the low socioeconomic class and only 6 (13.04%) were from higher socioeconomic class. Out of 46 cases, 34 (73.91%) victims were due to homicidal, 8 (17.39%) accidental and only 4 (8.69%) person were due to a suicidal attempt (Fig-2).

Out of 34 cases of homicidal cut neck injuries 30 belong to lower socioeconomic class 40 middle and regarding zones involve zone I 5, Zone II 25, Zone III 4 1 victim died. Out of 8 cases accidental cut neck injuries 2 belong middle class and 6 upper class where zone I 5, Zone II 2 and zone III 1. Out of 4 cases suicidal cut neck injuries 2 belong to lower socioeconomic class and 2 middle where zone I 3 and zone III 1 (Table-1).

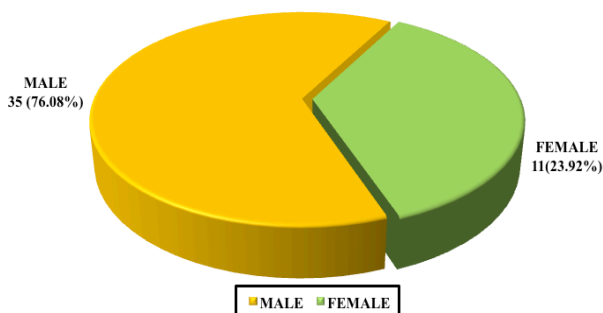
In this study, alcoholism is the most common cause of homicidal cut neck injury 20 (43.47%) followed by land dispute 5 (10.87%), familial disharmony 4 (8.69%) others 5 (10.87%) were the major contributing factors for homicidal cut neck injury. Road traffic accident is the main cause of accidental cut neck injury 6 (13.04) followed by fall 2 (4.34%) Psychiatric is the main cause of suicidal cut neck injury 3 (6.52%) followed by familial problem 1 (2.17%). (Table-II)

During the presentation of the cut neck injury victims majorities were presented with active haemorrhage, open wound, bandage in the neck done elsewhere. Two victims presented with haemorrhagic shock and one presented with severe respiratory distress.

Regarding anatomical site (zone) of the neck involvement of case, 27 (58.7%) cases were Zone II, Zone I 13 (28.26%), Zone III 6 (13.04%). [Table-III] Most of the victim arrived in the hospital within 24 hours of injury (99%). Emergency trachesotomy was needed in three victims (6.52%) and blood transfusion was needed 25 (54.34%) cases for haemorrhage.

As a consequence of injury one victim (2.17%) had died due to haemorrhagic shock, 2 persons developed brachial plexus injury. Ugly scar 12 (26.08%) and secondary wound infections (22.72%) were regarded as minor morbidity. Hospital stay was less than 15 days (76.08%) on an average.

Figure-1  
SEX DISTRIBUTION OF THE VICTIMS



**DISCUSSION**

Injuries and violence pose a major public health development problem worldwide. According to world Health Organization (WHO), every year over 5 million people around the world die as a

Figure-2  
MODE OF INJURY OF CUT NECK VICTIMS

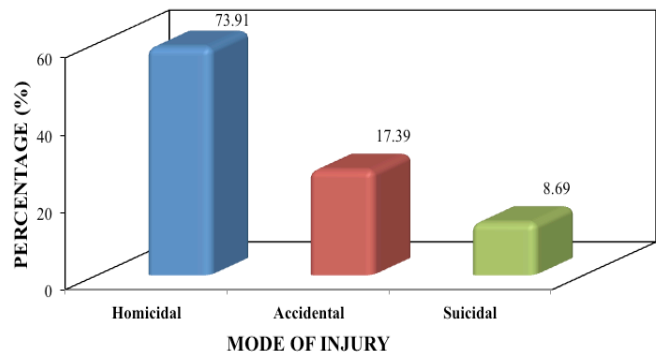


Table-1: Distribution of the causes and the demographic status of the cut neck victims (n = 46)

Type	Total	Socioeconomic Class			Zone			Mortality
		Lower	Middle	Upper	I	II	III	
Homicidal	34	40	Nil	Nil	5	25	4	1
Accidental	8	Nil	Nil	6	5	2	1	0
Suicidal	4	2	2	Nil	3	Nil	1	0

Table-2: Causes and the motives of the cut neck injury (n = 46)

	Number (n)	Percentage (%)
<b>Homicidal:</b>		
Alcoholism	20	43.47
Land Dispute	5	10.87
Family Disharmony	4	8.69
Others	5	10.87
<b>Total</b>	<b>34</b>	<b>73.9</b>
<b>Accidental:</b>		
Road Traffic Accident	6	13.04
Fall	2	4.34
<b>Total</b>	<b>8</b>	<b>17.38</b>
<b>Suicidal:</b>		
Psychiatric	3	6.52
Family Problem	1	2.17
<b>TOTAL</b>	<b>4</b>	<b>8.69</b>

Table-3: Anatomical sites (zones) average delay in hospital arrival of the cut neck injury victim (n = 46)

Anatomical Sites (Zones)	Number (n)	Percentage (%)
Zone I	13	28.26
Zone II	27	58.70
Zone III	6	13.04
<b>Total</b>	<b>46</b>	<b>100.00</b>

result of an injury. As per WHO, it is estimated that for every death 10-20 gets hospitalized and 50-100 receives emergency care, indicating the enormous burden on the resources of the country.<sup>6,7</sup>

In our study, all the patients with cut neck injury admitted in ENT ward and those patients referred to us from surgical department, first we evaluated the injuries of the neck according to depth and sites. Management was done according to these criteria. Patient with superficial cut injuries were managed by wound repair in layers. The patients with zone II injury involving the pharynx, larynx and trachea were transferred to the OT after initial resuscitation. In such patients, emergency tracheostomy was done where needed. During wound repair, first the wound was washed with normal saline thoroughly and then the wound repaired in layers. Ryle's tube insertion was done in those cases where cut Injury involved hypo pharynx also. We repaired the wound in four layers, for mucous membrane, muscles and soft tissue of the neck, we used vicryl 3, 0 suture material and for the cartilages of the larynx prolene 2,0 was used.

There are reports in the medical literature of cut neck injuries from West Africa on the complication and principles of management of such wounds with emphasis on the forensic implications.

Iseh KR et. al suggested that pharyngeal, hypopharyngeal and laryngeal mucosal lacerations should ideally be repaired early (within 24 hours).<sup>8</sup> Japhet M Gilyoma et al found most of patients in his study were unemployed and uneducated and the majority of them came from low-income areas.<sup>9</sup> Nock et al. concluded that mental disorders predict suicidal behaviors similarly in both developed and developing countries.<sup>10</sup> Zafarullah Beigh et al. study showed that 66% of attempted suicide cases had some form of psychiatric ailment; 33% had major depression.<sup>11</sup>

In this study, alcoholism, land dispute, familial disharmony were the major contributing factors for homicidal cut neck injury. Road traffic accidents were the major causes of accidental cut neck injury, mostly due to the broken glass or the sharp projection of the distorted metallic part of the vehicles.

One victim died due to haemorrhagic shock. A few others developed some form of morbidity (e.g. wound infection, scar, weakness of limbs) later on. Adequate wound toileting and proper repair of wound in early admission<sup>12,13</sup> allowed better wound healing and most of the patients were discharged within 15 days.

According to anatomical position, the neck zone-II was the commonest site of cut neck injury. Zone III was least common site. Almost all wound at the level of Zone-I were homicidal.

## CONCLUSION

Incidence of cut neck injuries and associated morbidities and mortalities are not uncommon in our society. In conclusion it is said that homicide is the commonest cause of cut neck injury in this area of North Eastern India. Young adult of rural area are common victims.

According to the result and analysis of this study can be concluded that early appropriate measure could save majority of the patient's life and morbidity and mortality rate can be brought down.

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