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Original Research Article

A study of cut neck injuries in A tertiary health care centre

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ABSTRACT

Introduction: Cut neck injuries are sharp incised injuries in the neck which if not treated promptly may lead to lifetime morbidity or even death of the patient.**Aim:** To study the socio-demographical pattern, various modes of injury and the management of cut neck injuries.**Materials and Methods:** This study was conducted in Tezpur Medical College from the time period of 01/01/20 to 31/12/21. A total of 28 cases of cut neck injuries were included in the study after obtaining proper consent from the patient party. The socio- demographic pattern, modes of injury and the treatment provided were recorded and analysed.**Results:** Out of 28 cases, 18 were males and 10 females. Majority of the cases were suicidal (15), followed by homicidal (10) and accidental (3). Patients from rural areas were 19 whereas 3 cases were from urban population. Tracheostomy was needed in 10 cases.**Conclusion:** Cut neck injuries are serious injuries that need prompt treatment, failing to which can be life threatening to the patient. In our study we found that most of the patients were from lower socioeconomic background from rural areas. We also found that male were more commonly affected than females with a male to female ratio of 1.8:1. Most of the injuries were suicidal in nature.This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: reprint@ipinnovative.com

1. Introduction

Cut neck injuries are quite common in India. These are sharp incised injuries in the neck. As the neck is relatively unprotected territory in the body, cut neck injuries bear a great significance in terms of morbidity and mortality. It is one of the emergencies that ENT specialists deal with and if not treated promptly, it may lead to death of the patient or lifetime morbidity of the patient.

Roon and Christensen's classification divides neck injuries into three different zones:

1. Zone I includes the area extending from the clavicles to the inferior margin of the cricoid cartilage. Major

structures lying in this area includes the vertebral and proximal carotid arteries, major thoracic vessels, superior mediastinum, lungs, oesophagus, trachea, thoracic duct and spinal cord.

2. Zone II is defined from the inferior margin of the cricoid cartilage to the angle of the mandible. The carotid and vertebral arteries, jugular veins, oesophagus, trachea, larynx and spinal cord lie within this zone.
3. Zone III is situated between the angle of mandible and the base of skull. Major structures found in this zone are the carotid and vertebral arteries, pharynx and spinal cord.

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Cut neck injuries are a great challenge as various vital organs for phonation, deglutition, neurovascular structures and the airway is at risk of injury that may be life threatening to the patient.

The mode of cut injuries can be divided mainly into three categories: suicidal, homicidal and accidental.

2. Aim of Study

1. To study the socio-demographical patterns of cut neck injuries reporting to the Department of ENT of our hospital.
2. To categorise the cases in terms of various modes of injuries.
3. To study the management of the cases including the emergency procedures performed.

2.1. Inclusion criteria

Patients presenting with cut neck injuries in the Emergency Department of Tezpur Medical College Hospital.

2.2. Exclusion criteria

1. Patients with cut neck injuries sustaining severe head injuries requiring ICU admission / neurosurgical intervention.
2. Patients with polytrauma and requiring admission in other departments.

3. Materials and Methods

The study was carried out in the Department of ENT, Tezpur Medical College & Hospital, Tezpur, Assam from the period 01/01/2020 to 31/12/2021 (total duration of study 2 years). A total of 28 cut neck injuries were reported during this period. Prior informed and written consent were sought from the patient parties for inclusion into the study.

The demographics of the patients, nature of the injuries, psychological status of the patients and the mode of management provided were recorded and analysed.

For the patients presenting with airway compromise, haemorrhagic shock, etc, vitals were recorded followed by resuscitation on their arrival in the Emergency Room. Two IV lines were established and fluids like normal saline, colloids were infused. Emergency blood transfusion were also done in some patients presenting with severe haemorrhagic shock.

After resuscitation and stabilisation of the patient, detailed examination and assessment of the extent of injury/s was done. The patient was then shifted to operation theatre and primary repairment of the wound was done in most of the cases. In those patients who presented with airway compromise and trachea was exposed and cut, thus warranting tracheostomy, emergency tracheostomy was done after obtaining consent for the same.

Wounds were repaired layers by layers so as to obtain a proper and tight sealing and to avoid subcutaneous emphysema and other associated complications. Absorbable sutures (Vicryl) were used to repair inner layers whereas non-absorbable sutures (Nylon) were used to repair the overlying skin in all the cases. Special care were taken while repairing the laryngeal and the tracheal framework in order to achieve a proper anatomical and physiological post-operative outcome.¹⁻⁶

Two (2) cases presenting lately but otherwise stable haemodynamically were admitted and secondary repairment of the wound was done after taking proper care and debridement of the wound.

After repairment of the wound, patients were shifted to ENT ward. Routine blood investigations like CBC, RBS, S.Creatinine, Viral markers, etc were carried out. In patients presenting with history of substance abuse (alcohol), investigations like LFT, GGT, etc were also carried out. CECT neck were done in selected cases to detect any abnormality and complication. In all the patients presenting with suicidal injuries and those with history of substance abuse, psychiatric opinion were sought.

Before discharging the patient, Video Laryngoscopic Examination was done to check for any residual morbidity like vocal cord weakness/palsy, granulation tissue formation, pharyngeal and laryngo-tracheal narrowing, etc.

4. Results

A total of 28 cases were included in our study. Age of patients included in our study ranged from 22 years to 55 years. Out of these 28 patients, 18 were male and 10 were female.

4.1. Nature of injuries

1. Homicidal- 10 cases;
2. Suicidal- 15 cases;
3. Accidental- 3 cases.

2 patients presented with hypovolemic shock and were resuscitated in the casualty. Except for 2 cases, in all the other cases, primary repairment of the wound was done. Emergency tracheostomy was done in 14 cases.

2 patients had unilateral vocal cord palsy and 1 out of them had tracheostomy tube in situ at the time of discharge as he did not tolerate decannulation (He had laryngotracheal irregular cuts at multiple level).

Table 1: Showing distribution of patients by gender

Gender	No. of patients (%)
Male (M)	18 (64.3%)
Female (F)	10 (35.7%)

Table 2: Showing distribution of injury according to mode of injuries

Mode of injury	No of patients	%	Male	Female
Suicidal	15	53.6	11	4
Homicidal	10	35.7	5	5
Accidental	3	10.7	2	1
Total	28	100	18	10

Table 3: Showing habitat of the patients

Habitat	No of patients	%
Rural	22	78.6
Urban	6	21.4
Total	28	100

Table 4: Showing the zones of injury

Anatomical sites (zones)	No. of patients	%
Zone I	3	10.7
Zone II	17	60.7
Zone III	8	28.6
Total	28	100

Table 5: Showing treatment provided to the patients

Treatment provided	No of patients	%
Primary repair only	12	42.9
Secondary repair	2	7.1
Tracheostomy with primary repair	14	50.0
Blood transfusion	19	67.9
Psychiatric consultation	17	60.7



Fig. 2: Laterally placed neck cut (deep).



Fig. 1: Suicidal cut neck with open larynx



Fig. 3: Multiple cut (homicidal/repaired).



Fig. 4: Follow up case (6 wks) of suicidal cut neck.

5. Discussion

As per WHO data, 5 million people die as a result of injury every year. Neck injuries constitutes about 5-10% of all the trauma cases, yet cut neck injuries are less commonly reported in literature. Most of the previous studies showed male preponderance in cut neck injuries. Aich et al reported 47 males and 20 females out of 67 cases they studied. In our study too, male were more than female with a male to female ratio of 1.8:1. Majority of the cases in our study were young adults falling under the age group of 21-40 years. Cut neck injuries may be fatal if major blood vessels are involved resulting in hypovolaemic shock or if there is severe airway obstruction due to laryngeal oedema or aspiration of blood. In case of airway compromise or breach of cricothyroid membrane, tracheostomy should be carried out. Iseh et al. did not agree to use tracheostomy routinely in all the patients with anterior cut neck injuries. In our study, tracheostomy was done in 14 cases out of 28 patients. Pharyngeal and hypopharyngeal laceration should ideally be repaired early, if possible within 24 hours. Poor socioeconomic background and remote residence of the patients are the main reason of delayed presentation to tertiary care centre. In our study, 2 patients presented late in the casualty in whom secondary repair was done. Homicidal injuries usually located centrally with tailing in one end and are usually deep cut injuries whereas suicidal cut injuries lie at a upper part of neck and usually to

one side of the neck depending on the dominant hand of the person and less in depth as compared to homicidal injuries. Suicidal cut neck injuries often presents with hesitant cut marks. Bhattacharjee et al. mentioned family problems, psychiatric illness and poverty as the main cause behind the suicidal attempts. In our study, 10 out of 15 patients with suicidal injuries were already known cases of underlying psychiatric illness, however psychiatric consultation was done for all the patients with suicidal injuries. Whereas 1 homicidal injury was inflicted by a person with psychiatric disorder.⁷⁻¹² All the suicidal cases were discharged only after taking clearance from psychiatry department. Homicidal injuries are mainly due to financial problems, family problems or dispute regarding land, properties etc. Among the accidental injuries, two were due to road traffic accident and was due to injury during work. In our study we adopted the modified Kuppaswamy classification of socio economic groups to categorise the patients in which different scores are given depending upon the education, occupation and monthly income of the person. A score of 26-29 is classified as upper class, 16-25 as upper middle, 11-15 as lower middle, 5-10 upper lower and below 5 as lower socioeconomic group. In our study we found most of the cases to be from upper lower and lower socioeconomic groups.

6. Conclusion

Cut neck injuries are serious injuries that can be fatal, but with immediate medical care and performing emergency procedures like tracheostomy promptly can reduce the morbidity and mortality rate to a great extent. In the study conducted we have seen most of the cases were males. Also majority of the cases were suicidal followed by homicidal and a small fraction was accidental. In the homicidal cases, most were from lower socioeconomic group and that in suicidal cases many had an underlying psychiatric condition. From our study we can conclude that majority of these injuries can be prevented by uplifting the socio-economic condition of the poor. Low penetration of education among the people in lower strata is also one of the major cause of these injuries. Thus proper education should be provided to those people. Moreover, mental health in India is less talked about and the people are unaware of its importance and ill effects. People should be made aware about mental health and motivate them to seek psychiatric consultation when they are in need of it. Also regular check ups and reviews to a psychiatrist is necessary even if the signs and symptoms of patients disappear. All these measures can drastically reduce the number of cut neck casualties in future.

7. Source of Funding

None.

8. Conflict of Interest

None.

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