ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 04 | April - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

# A RETROSPECTIVE CROSS SECTIONAL STUDY ON CUT NECK INJURIES, PRESENTING AS AN EMERGENCY AT A TERTIARY REFERRAL HOSPITAL IN INDIA.

Otorhinolaryngology

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## ABSTRACT

**Introduction-** Cut neck injuries are very 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 otolaryngology department deal with and if not treated promptly, it may lead to death of the patient or lifetime morbidity of the patient. **Objective:-** The study was conducted with objective to analyze the socio-demographic profile of cut neck injury patients, characteristics of injury and also treatment provided to patients with cut neck injury in tertiary care hospital. **Methods and Materials:-** A retrospective study was conducted by department of otorhinolaryngology of tertiary referral hospital on 76 case records of cut neck injuries patients presenting as an emergency and managed over two year period from July 2020 to July 2022. **Result:-** In present study most of the study subjects were males I.e. 88.15%. 21-40yrs age group was found more in these patients I.e. 60.52% followed by 41-60yrs in 23.68% study subjects. Around 72.37% study subjects were from rural areas whereas 27.63% study subjects was from urban areas. In present study, most common mode of injury was road traffic accidents which was found in around 47.37%. Zone II was most commonly affected in injury. Cut neck injury patients needs multiple treatment at same time. **Conclusions:-** Cut throat injuries are major cause of morbidity and mortality among young adult male. Injuries as result of road traffic accidents and suicidal account for majority of cases in our study. Early intervention as a result of airway management and repair layer by layer is needed for surgical repair.

## KEYWORDS

Cut neck injury, socio-demographic profile, characteristics, treatment

## INTRODUCTION

Cut neck injuries are very 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 otolaryngology department deal with and if not treated promptly, it may lead to death of the patient or lifetime morbidity of the patient.[1] Penetrating neck injuries involves a sharp object penetrating the skin and cut the various structures present in the neck. This includes gunshot wounds, stab or puncture wounds, and fall on any sharp tools as seen in road traffic accidents. Penetrating neck injuries, like any trauma, may be classified as intentional or non intentional. It can also be classified as homicidal, accidental or suicidal.[2]

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.

Cut neck injuries are a great challenge as various vital muscles and organs for phonation, deglutition, neurovascular structures and the airway is at risk of injury that may be life threatening to the patient.[1-3] With this reference, study was conducted with objective to analyze the socio-demographic profile of cut neck injury patients, characteristics of injury and also treatment provided to patient with cut neck injury in tertiary care hospital.

## METHODS AND MATERIALS

A retrospective study was conducted by department of otorhinolaryngology of tertiary referral hospital on 76 case records of cut neck injuries patients presenting as an emergency and managed over two year period from July 2020 to July 2022.

Data were categorized according to the socio-demographic pattern of the patient, cause for the injury, site of the neck injury (according to the defined zone of the neck), type and extent of the injury, presentation at time of admission, treatment and outcome. The patients with superficial cut injuries, their wound was closed in layers under aseptic precautions. For patients, who had their larynx or trachea or pharynx injured were taken to operation theatre for repair and reconstruction under tetanus toxoid and broad spectrum antibiotic coverage. In such cases an emergency tracheastomy was done.

## RESULTS

In present study most of the study subjects were males I.e. 88.15%. 21-40yrs age group was found more in these patients I.e. 60.52% followed by 41-60yrs in 23.68% study subjects. Around 72.37% study subjects were from rural areas whereas 27.63% study subjects was from urban areas. (Table 1).

In present study, most common mode of injury was road traffic accidents which was found in around 47.37%. Other mode of injury were suicidal, homicidal and accidental fall in 38.16%, 11.84% and 2.63% respectively. Zone II was most commonly affected in injury I.e. 94.75% followed by zone III and zone I in around 3.94% and 1.31% respectively. Common presentation of cut neck injury in present study was open wound and bleeding. Other important presentation was respiratory distress,inadequate wound management, proper wound management and severe cut injury in shock. Most common structure involve in injury was skin, soft tissue & small vessels in around 67.10% cut neck injury patients. Other important tissues involved was larynges, hypo pharynx, thyroid and thyroid vessels, trachea and carotid vessels. (Table 2)

Cut neck injury patients needs multiple treatment at same time. Treatment provided at our hospital was analyzed. Simple wound closure was done in 56 (73.68%) cases. Laryngeal repair was done in 12 (15.79%) cases. Laryngeal and hypo-pharyngeal repair done in 18 (23.68%) cases. Tracheostomy was done in 4 (5.26%) cases. Blood

transfusion given for 9 (11.84%) cases. Psychiatric consultation obtained for all the suicidal cut neck injury patient and other anxious patients i.e. 58 (76.31%) cases.

**Table 1: Distribution of study subjects according to their socio-demographic profile**

| Socio-demographic profile | No. | % |
|---|---|---|
| Gender | | |
| Male | 67 | 88.15 |
| Female | 9 | 11.85 |
| Age group | | |
| 0-20 yrs | 5 | 06.59 |
| 21-40yrs | 46 | 60.52 |
| 41-60yrs | 18 | 23.68 |
| >60yrs | 7 | 09.21 |
| Place of residence | | |
| Urban | 21 | 27.63 |
| Rural | 55 | 72.37 |
| Total | 76 | 100% |

**Table 2: Distribution of study subjects according to characteristic's of cut neck injuries.**

| Characteristic's of cut neck injuries | No. | % |
|---|---|---|
| Mode of injury | | |
| Homicidal | 9 | 11.84 |
| Suicidal | 29 | 38.16 |
| Road traffic accidents | 36 | 47.37 |
| Accidental fall | 2 | 02.63 |
| Zones of injury | | |
| Zone I | 1 | 01.31 |
| Zone II | 72 | 94.75 |
| Zone III | 3 | 03.94 |
| Presentation of injury | | |
| Open wound and bleeding | 56 | 73.68 |
| Respiratory distress | 11 | 14.47 |
| Inadequate wound management | 3 | 03.95 |
| Proper wound management | 3 | 03.95 |
| Severe cut injury in shock | 3 | 03.95 |
| Structures of neck involved in injury | | |
| Skin ,soft tissue & small vessels | 51 | 67.10 |
| Laryngeal injury | 9 | 11.84 |
| Hypopharynx | 4 | 05.27 |
| Thyroid & thyroid vessels | 8 | 10.53 |
| Trachea | 2 | 02.63 |
| Carotid vessels | 2 | 02.63 |
| Total | 76 | 100% |

**Table 3: Distribution of study subjects according to treatment provided.**

| *Treatment provided to the study subjects | No.(76) | % |
|---|---|---|
| Simple wound closure | 56 | 73.68 |
| Laryngeal repair | 12 | 15.79 |
| Laryngeal & hypo laryngeal repair | | |
| Tracheostomy | 18 | 23.68 |
| Blood transfusion | 4 | 05.26 |
| Psychiatric consultation | 9 | 11.84 |
| | 58 | 76.31 |

*Multiple treatments given to cut neck injury patient.

**Fig 1: Emergency tracheostomy in cut neck injury patient.**

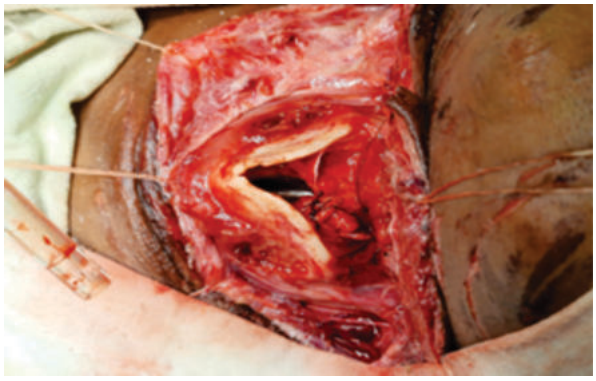

**Fig 2: Restoration of laryngeal framework in cut neck injury patient.**

## DISCUSSION

Penetrating neck injury constitutes 5% to 10% of all the trauma cases. Management of cut throat injury is a challenging task as the most important organs like larynx, trachea, pharynx, carotids and nerves are present in a small confined area. The majority of injuries in our study were in Zone II . The predominance of Zone II injuries in our study is attributable to the fact that unlike Zones I and III, Zone II is not protected by bony structures making it more vulnerable to injuries.Pharyngeal, hypopharyngeal and laryngeal mucosal lacerations should ideally be repaired early (within 24 hours).

In present study male were more than female and most of these these males were young adults falling under the age group of 21-40 years. Similar finding was found in study done by *Sarma et al.*[1]

In our study most common mode of injury was road traffic accidents followed by suicidal. S. A. Panchappa *et al*[2] found most common mode of injury as homicidal followed by suicidal which was slightly similar finding to our study. The majority of injuries in our study were in Zone II. Similar finding was found by study done by S. A. *Panchappa et al*[2] and *N. Bhattacharjee et al*[3].

Our study shows the similar treatment modalities (fig 1 &2) such as Simple wound closure, laryngeal & hypo laryngeal repair, tracheostomy, blood transfusion and Psychiatric consultation as found in our reference studies.[1-5]

## CONCLUSIONS

In conclusion, according to our study road traffic accidents are the commonest cause of cut throat injury, in this part of India. Cut throat injuries are major cause of morbidity and mortality among young adult male. Injuries as result of road traffic accidents and suicidal account for majority of cases in our study. Early intervention as a result of airway management and repair layer by layer is needed for surgical repair. Proper initial management and early repair of cut throat injuries reduce complications and post operative morbidity and mortality.

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