

Original article:

Cut Throat Injuries- Review of 41 Cases at a Tertiary Referral Hospital

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Abstract:

Objective: To analyze the socio demographic pattern, sex and age ratio, common causes, the most common site and extent of the injury in the patients with cut throat injury at our hospital.

Setting: Department of ENT, Government Medical college , tertiary referral hospital from June 2014 to June 2017.

Material &Methods: A total of 41 cases of cut throat injury were included in the study. Separate proforma was prepared to collect the patients' data. Structured questionnaire was offered.

Results: 41 cases of cut throat injury patients were included in the study. Age varied from 11years to 75 years. Out of 41 cases, there were 31 males, 10 females and . Male to female ratio was 3:1. All the patients were belonging to lower socioeconomic status . Amongst them 16 cases were due to homicidal attack; 14 cases due to suicidal attempt; 9 cases due to road traffic accident; 1 case of Bull horn injury ;1 case due to accidental fall. . An average hospital stay for most of the patients was less than 3 weeks. In our study, primary repair of the wound was performed in 24 patients, out of 10 required tracheostomy in view of upper respiratory obstruction.

Conclusions: Our study found that the majority of the victims were males of age between 20 years to 40 years from poor socioeconomic status. Social commitment and political motivation, decrease in the poverty, individual awareness, increase in economic growth, and literacy rate will prevent the cut throat injuries. Early and improved management will reduce the mortality and morbidity.

Keyword Cut Throat Injury, Treatment, Tracheostomy, Outcome

INTRODUCTION

Neck being relatively unprotected anatomic region is a common site for injuries that are potentially dangerous and requires immediate management. There have some open or incised or incised looking injury in the neck inflicted by sharp elements such as razor, knives or broken bottle pieces or glasses which may be superficial or a penetrating in nature, may be described by the term 'cut-throat' injuries.[1-3] Injuries to the neck can be secondary to both blunt and penetrating trauma. A cut throat severity varies from simple to life threatening because of vital structures densely packed in the neck. It could be damage to airway leading to airway obstruction or haemorrhage from damaged blood vessels.

Cut throat injuries are a unique form of trauma that is potentially devastating and associated with substantial emotional, physical and financial burden on community and hospital resources ,[4]

Cut throat injuries causes profound morbidity due to prolonged hospitalization, high cost of health care, loss of productivity and reduced quality of life and above all death Globally cut throat injuries account for approximately

5% to 10% of all traumatic injuries with multiple structures being injured in 30% of patients Cut throat injuries pose a great challenge because multiple vital organs for phonation, deglutition, vascular and neurological structures vulnerable to injuries are present in the small, confined unprotected area. A sudden increase in the number of admissions of patients with cut throat injuries in our setting prompted the authors to analyse this problem.

The causes could be homicidal, suicidal or accidental. The homicidal being the most common. Its motives include political conflict, land related disputes, dacoity (robbery), sex-related crimes, familial disharmony etc.[5] Regarding accidental causes, most often due to fall on sharp objects, road traffic accidents. Suicidal is rarely without hesitation cuts. The cause includes mental illness and familial disharmony in most of the cases.

The location of the injury gives a clue of which structures may be involved. The variation in injuries could range from being asymptomatic to hoarseness, laryngeal stridor, or dyspnea secondary to airway compression or aspiration of blood. Injury to the great vessels may follow the cut throat injury and the patient typically present with visible external blood loss, neck hematoma formation, and in varying degrees of shock.

Injuries of the neck are divided into three anatomic zones according to Roon and Christensen's classification. Zone I injuries occur at the thoracic outlet, which extends from the level of the cricoid cartilage to the clavicles. Zone II is superior to zone I injuries occur in the area between the cricoid and the angle of the mandible. Injuries here are the easiest to expose and evaluate. Zone III injuries are between the angle of the mandible and the base of the skull. Although 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.[6]

Tracheostomy should be performed when airway obstruction exists or there is suspected chance of aspiration into tracheobronchial tree. The importance of tracheostomy in the management of neck trauma/cut throat injury has been highlighted in the literature.[7]

The aim of the treatment is not only to saving a life but restoring airway, voice and swallowing. Victims of homicidal cut-throat need psychological support to overcome the trauma to their psyche, which may linger long after the neck wounds, have healed. [8]

All patients who attempted suicide should have a psychiatric consultation. This is because the act of suicide may be a sign of underlying mental illness and needs proper management. The ultimate aim is the rehabilitation of the patient back into the society with the help of a psychologist. The appropriate and prompt measures could save lives in the vast majority. It involves the rapid shifting of the victims to the hospital and proper management by the otolaryngologist and anaesthetist

MATERIAL AND METHODS

The study was conducted at Tertiary care referral Hospital . The study period was from June 2015 to June 2017. The type of study is a Retrospective study.

The ethical clearance was obtained from university ethical committee.

A total of 41 cases of cut throat were included in the study. All patients with neck injury or cut throat during the study period who came directly to ENT department or referred from other departments were included in the study. The consent was obtained from the patient or the relatives in case of a minor.

Data was categorised according to name, age, sex, address, mechanism of injury, cause of injury, site of injury(according to the defined zone of the neck), extent of the injury, socio-demographic pattern, hospital arrival delay, duration of hospital stay, treatment given and the final outcome of the patient. The Socio-economic classification was calculated based on education, occupation and monthly family income using Kuppusamy classification . A score of 26-29 is upper, 16-25 is upper middle, 11-15 is middle, 5-10 is lower upper and 0-5 is low socio-economic class.

The evaluation of a patient with cut throat injury should start with advanced trauma life support (ATLS), which begins with a primary survey giving importance to the airway, breathing, and circulation (ABC).RAO

To secure the airway tracheostomy was done when needed. After the stabilisation of the patient, a complete history is taken and through physical examination is done. These steps not only helped to save lives but also to identify the injury and to direct diagnostic test or management.

Most of the patients were managed in minor operation theatre under local anaesthesia by infiltrating the margins with 2% xylocaine and adrenaline. The airway was anesthetised with 10 % lignocaine spray.

The superficial cut throats were managed with the simple layered closure of wound under aseptic precautions. All patients were given tetanus toxoid and antibiotics. Dirty wounds were cleaned first with a lot of saline followed by diluted Betadine and antibiotic solution. After thorough cleaning the injury is properly examined. The Laryngeal, pharyngeal and tracheal injuries were managed in OT after doing a tracheostomy. 2-0 proline was used to repair the laryngeal and tracheal defects. Muscles, thyroid gland, and soft tissues were approximated by 4-0 or 3-0 vicryl sutures. Skin is closed in two layers by 3-0 vicryl subcutaneous tissue and 4-0 nylon for the epidermis. Ryle's tube was placed cases with laryngeal and pharyngeal injuries. Average hospital stay was less than 2 weeks.

All the data regarding study population were collected and compiled in a structured questionnaire. All the data pertinent to the patient kept confidential.

STATISTICAL ANALYSIS

The data was collected and analysed by descriptive statistical methods. All the data was presented in the following table

RESULTS

1.Age and Sex Distribution

AGE (YEARS)	MALE	FEMALE	TOTAL	PERCENTAGE %
< 20	7	1	8	19.5
21-30	10	3	13	31.7
31-40	6	2	8	19.5
41-50	2	2	4	9.75
51-60	2	1	3	7.31
>60	4	1	5	1.21
TOTAL	31	10	41	100

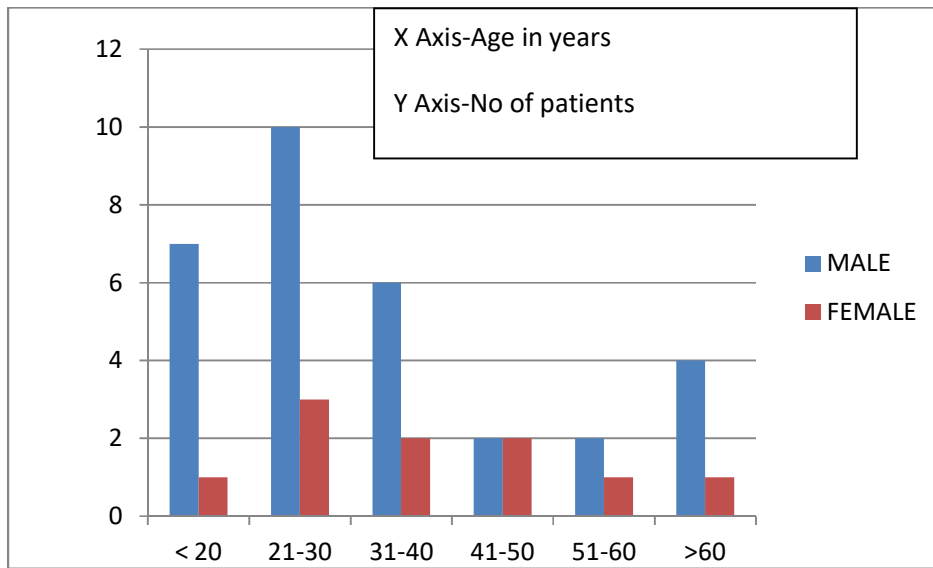


Table 2: Habitat of the patients

HABITAT	NO	PERCENTAGE %
RURAL	32	78.1
URBAN	9	21.9
TOTAL	41	100

Table 3: Cause of cut throat injury

CAUSE	NO	PERCENTAGE %
HOMICIDE	16	39.02
SUICIDE	14	34.14
RTA	9	21.95
BULL HORN	1	2.43
ACCIDENTAL	1	2.43
TOTAL	41	100

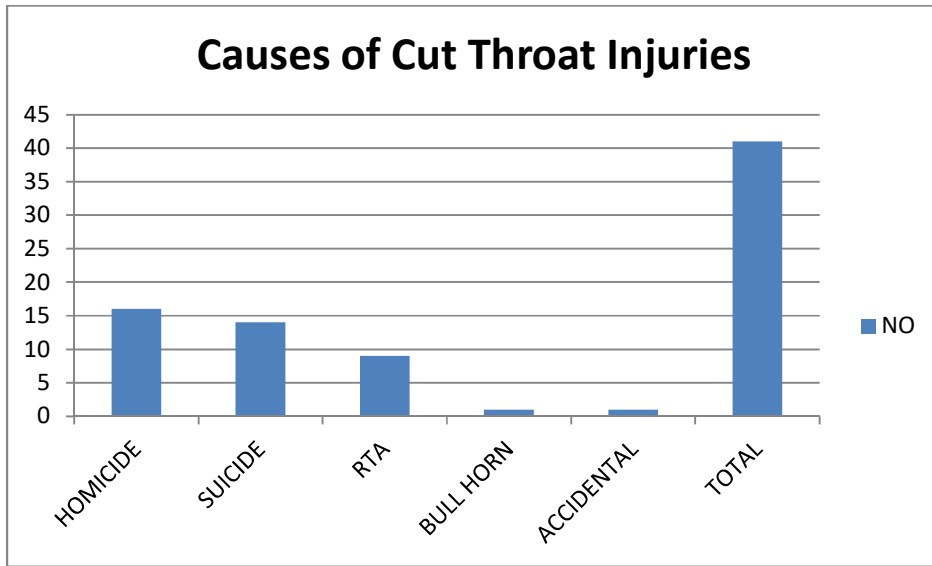


Table 4 : Psychiatric Status

Psychiatric Assessment	Number	Percentage %
Mentally Sound	31	75.61
Psychiatric Stressor/ Involvement	10	24.39
Total	41	100

Table 5 : Anatomical Sites (Zones) of injury

ZONE	NO	PERCENTAGE %
I	5	12.13
II	29	70.73
III	7	17.03
TOATL	41	100

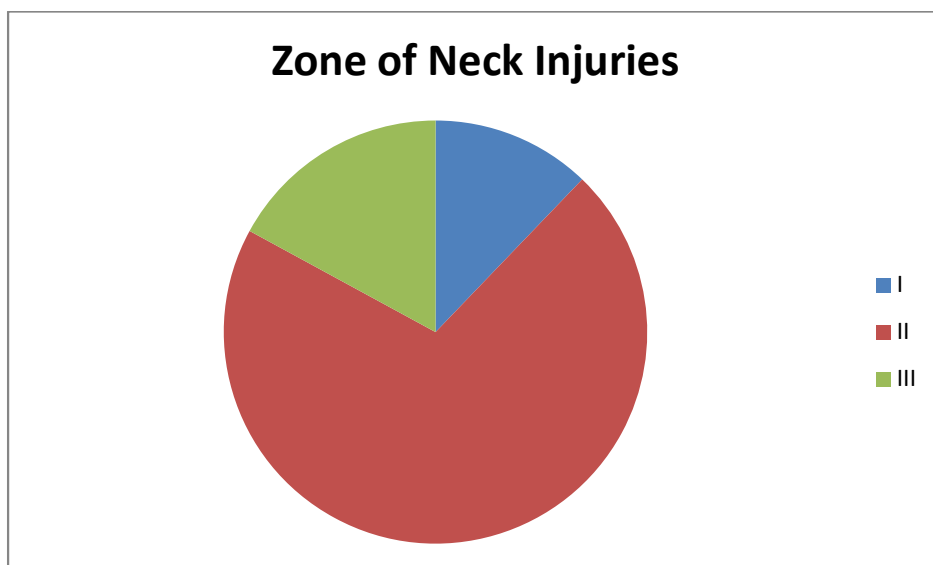


Table 6. Presentation of the cut throat patients

Presentation	Number	Percentage %
Open wound & bleeding	16	39.02
Respiratory distress	12	29.26
Inadequate wound management	4	9.75
Proper wound management	4	9.75
Severe cut injury in shock	5	12.19
Total	41	100

Table 7: Structures injured in the neck

Structures	Number	Percentage %
Skin, platysma, soft tissue, fascia(superficial & deep), small vessels	41	100
Larynx	12	29.26
Pharynx	4	9.75
Trachea	2	4.87
Internal jugular vein	1	2.43

Table 8: Treatment provided for cut throat patients

Treatment provided	Number	Percentage %
Simple repair and closure	21	51.21
Laryngeal repair	7	17.07

Laryngeal and Hypopharyngeal repair	4	9.75
Tracheostomy	10	24.39
Ligation of major veins	1	2.43
Blood transfusion	5	12.19
Psychiatric consultation	10	24.39

Table 9: Time of delay in hospital arrival of the patients

Time of delay in hospital arrival	Number	Percentage %
<6 hours	21	51.21
6-12 hours	10	24.39
13-24 hours	5	12.19
>24 hours	5	12.19
Total	41	100

Table 10: Average duration of hospital stay

Duration	Number	Percentage %
<3 days	11	26.82
3-7 days	9	21.95
8-14 days	18	43.91
15-21 days	2	4.87
>21 days	1	2.43
Total	41	100

Table 11: Post repair morbidity

Morbidity	Number	Percentage %
Satisfactory wound	31	75.61
Secondary infection and scar	2	4.87
Decannulation problem	2	4.87
Post op laryngeal stenosis	3	7.31
Permanent tracheostomy	1	2.43
Neurological deficit	3	7.31

A total 41 cases of cut throat injury were included in the study, in that males were 31(86.06%) and females were 10(13.9%) . Male to female ratio was 6.17:1.

Age ranged from 6 years to 80 years (mean 25.2). The peak age incidence was in the age group of 21-30 years and accounted for 43.03% of cases 32 (78.1) cases from rural community. The most common cause of cut throat in our study was homicide (39.02%), followed by suicidal (34.14%), road traffic accident (21.95%), bull horn injury (2.43%) and accidental fall (2.43%). According to the anatomical site, 29 (70.73%) cases had injury in Zone II, 7 (17.03%) cases in Zone III and 5 (12.13%) cases in Zone I.

Majority of the patients were referred to our hospital after primary resuscitation at other hospitals. The most common presentation was with open wound and bleeding 16 (39.02%) cases presented with this finding. Cutthroat injury with respiratory distress were 12 (29.26%) cases. Referred patients with inadequate wound management at primary center were 4cases (9.75%). 4 patients (9.75%) were referred to our hospital with proper wound management and 5 cases (12.19%) were with severe cut injury in shock.

Skin, soft tissue and small vessels were severed in all the 41 cases (100%). 12 cases (29.26%) had laryngeal injury. Pharynx was injured in 6 cases (9.75%).Trachea was cut in 2 cases (4.87%). IJV was cut in one case (2.43%).Study was done to know the time required to reach our hospital. Majority patients arrived in 6 hrs to 12 hrs following injury.

Treatment provided at our hospital was analyzed. Simple wound closure was done in 21 (51.21%) cases. Laryngeal repair was done in 7 (17.07%) cases. Laryngeal and hypopharyngeal repair done in 4 (9.75%) cases. Tracheostomy was done in 10 (24.39%) cases. Blood transfusion given for 5 (12.19%) cases. Psychiatric consultation obtained for 10 (24.39%) cases.

The hospital stay was on an average less than three weeks. Most common causes of morbidity were wound infection, change of voice, dysphagia, tracheal stenosis and permanent tracheostomy.



1



2



3



4



5



6

DISCUSSION

Cut throat injuries are quite common but data on guidelines for proper management are lacking in the medical literature. The aim of our study was to assess clinical profile and demograph factors of patients with neck trauma and to observe cause/ motive of injury and the type and pattern of injuries and their consequences Penetrating neck injury constitutes 5% to 10% of all the trauma cases. Amongst these, 30% patients have multiple injuries in other parts of the body. According to the world Health Organization(WHO), every year over 5millionpeople around the world die as a result of injury. As per WHO, it is estimated that for every death 10-20 gets hospitalized and 50 - 100 receives emergency care, indicating the burden on the resources of the country. 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. Cut throat injuries are less commonly reported in the literature.

In this review of 41cases, most of the cut throat injury patients were young males in their third decade of life belonging mainly to rural areas, a finding which agrees with findings reported elsewhere [5,9,10,11].Most

of these males had low education level and were unemployed. Male preponderance in this age group is attributable to their active participation in risk taking behaviours and their frequent involvement in interpersonal violence.

This has great economic impact since these are people in their most productive years and the injuries impose a considerable burden on their families and the society as a whole. Unemployment can act as a stressful life event leading to suicide with studies suggesting an increase in the suicide rates among unemployed individuals than in the general population,[12]

Socioeconomic improvement of otherwise normal individuals by provision of jobs for example and family planning education can eliminate the triggering factor of unemployment. The most common cause was found to be homicide followed by suicidal attempt, road traffic accidents and accidental fall in our study. Males dominated both in homicidal and suicidal cut throat injury. Study conducted in the western population shows suicidal cut throat to be the most common cause, in contrast to our study.

But in developing countries homicide is the most common cause for cut throat,[11, 12]. Psychiatric illnesses are the strongest predictors of suicide. Suicide occurs 20.4 times more frequently in individuals with psychiatric illness than the general population,[12]

According to Roon and Christensen's classification, neck injuries are divided into three anatomical zones.

Zone I is defined as the area from the clavicles to the inferior margin of cricoid cartilage. Structures within this zone include the vertebral and proximal carotid arteries, major thoracic vessels, superior mediastinum, lungs, oesophagus, trachea, thoracic duct and spinal cord. Zone II extends 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 are found in this zone.

Zone III is located between the angle of the mandible and the base of the skull. It includes the carotid and vertebral arteries, pharynx and spinal cord,[6]. The majority of injuries in our study were in Zone II and most of them had laryngeal injury which is in keeping with other studies,[10]. 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. Injuries in this zone are the easiest to expose in cut throat injury. As reported by others,[5, 9] majority of patients in this study presented with open wounds and active bleeding 39.02% and respiratory distress were reported 29.26% of cases. Exposed hypopharynx and or larynx following cut throat, haemorrhage, shock and asphyxia from aspirated blood are commonest cause of death following cut throat injury. A good knowledge of the nature and type of cut throat wounds allows the clinicians to understand the type of weapon used and this is of great importance for medico-legal purposes and surgical treatment.

In this study, simple repair, laryngeal/hypopharynx repair and tracheostomy were the most common surgical procedures performed. Similar treatment patterns were reported by other authors,[5,9,10]

Cut throat injuries require a multidisciplinary approach involving the anaesthetist and psychiatrists working in conjunction with the Otolaryngologist and could be managed with better prognosis if the patients present early to the hospital and are given prompt attention,[10,13]. Iseh K.R. et al. suggested that pharyngeal, hypopharyngeal and laryngeal mucosal lacerations should ideally be repaired early (within 24 hours),[14]. Most of the patients reached the hospital within 6hrs following injury. Outcome was better for the patients who received timely

primary care and who managed to reach the hospital at the earliest. Patients who had laryngeal and pharyngeal injury had tracheostomy done for airway management. For most of them tracheostomy tube removal was done by 10 to 12 days.

In our study, psychiatric consultation was obtained in all patients who attempted suicide as suicide is a sign of underlying mental illness and there is a possibility of a second attempt, [5, 12]. The length of hospital stay has been reported to be an important measure of morbidity among trauma patients. Prolonged hospitalization is associated with an unacceptable burden on resources for health and undermines the productive capacity of the population through time lost during hospitalization and disability [4,5]

Conclusion

Cut throat injuries and its morbidities are common in India. The objective of the study was to analyse the demographic pattern, causes, and morbidities of the cut throat injuries and its management.

The Socio-demographic data, causes or motives of trauma, types of injuries, treatment given, complications, morbidities, and mortalities were analysed. In conclusion, it is said that accident is the commonest cause of cut throat injury in our study, young adults mostly involved, homicide is the commonest cause of cut throat injury. The Low socioeconomic class is mostly affected by homicidal injuries and laryngeal stenosis is the worst complications.

Improvement in law and order as well as socio-economic conditions can prevent homicidal injuries. All patients with a cut throat injuries should be referred immediately to hospital; early management of patients by a team of specialists can save the life of the patient most of the time.

All patients who have attempted suicide should undergo a psychiatric evaluation. This is because the act of suicide is a sign of an underlying mental illness and there may be a possibility of a second attempt.

Not all patients with cut throat injuries require tracheostomy. The majority of patients with cut throat injuries can be managed without tracheostomy.

According to results of the study, it is concluded that the early proper measures to shift the patient to definitive care could save lives and prevent morbidity in most of these cases.

Providing the efficient emergency health care services for primary care and effective ambulance system for immediate transport of cut throat victims to hospital will decrease time delay in reaching the hospital.

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