

## A CLINICAL STUDY OF MANAGEMENT AND OUTCOME OF 60 CUT THROAT INJURIES

Rajesh Kumar Kundu<sup>1</sup>, Bivas Adhikary<sup>2</sup>, Sukanya Naskar<sup>3</sup>

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**ABSTRACT:** Cut throat injury have some open , incised or incised looking injury in the neck inflicted by sharp elements such as razor, knives or broken bottle pieces and glasses which may be superficial or penetrating in nature. Any injury in the neck regards as fatal injury because it contains vital structures. In case of cut throat injury there is high chance of injury to the vital structures of the neck, which may leads to profuse hemorrhage from injured major blood vessels, air embolism and airway obstruction. There are few studies carried out on cut throat injury in our country, as a result actual incidence, mortality and morbidity are not known .Present study attempts to overcome this lacuna, so that concerned authority and policy makers to initiate measure in order to minimize the mortality related to cut throat injury. This prospective observational type of study was undertaken in the department of Otorhinolaryngology in a Medical College of Eastern India. Total 60 cut throat patients were included in the study. After proper management it is found that 25 patients (25%) completely cured, living normal life. Living with minor morbidity are 27 patients (45%). 18 patients (30%) living with major problems. According to the result and analysis of this study it is established that early appropriate measure could save majority of the patient's life. Morbidity and mortality are related to delay in initiation of the treatment. Few deaths occur due to injury of great vessels and blood loss.

**INTRODUCTION:** Anterior neck injuries are varied in extent, depth and causes. They may be intentional or accidental .The injuries may be penetrating or non penetrating blunt trauma involving the soft tissues, cartilage, bones and neurovascular bundles or in combinations depending on the extent of the injury and force of impact, where as cut throat injury have some open , incised or incised looking injury in the neck inflicted by sharp elements such as razor, knives or broken bottle pieces and glasses which may be superficial or penetrating in nature, may be described by the term ' Cut- throat injury'.<sup>[1,2,3]</sup>

Most commonly these injuries are presented with a single wound or may be multiples injuries. Majority of them succumb to their injuries and some suffered from permanent disability like problem with deglutition, phonation and subglottic stenosis.

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According to Roon and Christensen's classification, neck injuries are divided into three anatomical zones. Zone I, extends from sternal notch /clavicle to cricoid cartilage. Zone II, extends from cricoid cartilage to angle of mandible and zone III, extends from angle of mandible to base of skull. Although zone I and III are more 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.<sup>[4]</sup>

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There are few studies carried out on cut throat injury in our country, as a result actual incidence, mortality and morbidity are not known. Present study attempts to overcome this lacuna so that concerned authority and policy makers to initiate measure in order to minimize the mortality related to cut throat injury. It was observed that appropriate measure could save more lives. Prompt shifting of the patient to hospital and energetic management by hospital staffs could save more life.

## **AIMS AND OBJECTIVES:**

1. To evaluate the different demographic factors and the common causes behind the cut throat injury in our country.
2. To observe the site of injury.
3. To observe the depth of injury
4. To observe out come in relation to repair of the wound in layers.

**METHOD AND MATERIALS:** This prospective observational type of study was undertaken in the department of Otorhinolaryngology in a Medical College of Eastern India. This study was conducted for 2 years period from April, 2011 to March, 2013.

Total 60 cases of cut throat wound were included in the study irrespective of age and sex who were admitted in our ward and the referred patients of general surgery ward.

The study populations were selected by purposive sampling from those patients who were admitted to this hospital and matches inclusion criteria. Minor cut injury of the neck and major lacerated injury of the neck and others parts of the body excluded from this study. All data regarding study population were collected and complied in a structured questionnaire thoroughly looked upon ethical implication.

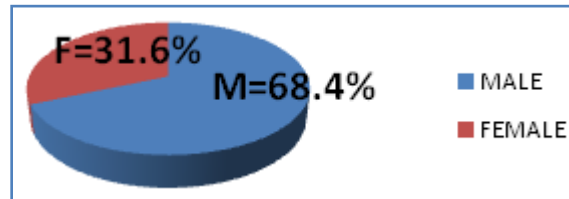
In all the patients with cut throat injury admitted in ENT ward and those patients referred to us from surgical department, first we evaluated the injuries of the neck according to depth and sites. Management was done according to these criteria. Patient with superficial cut injuries were managed by 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. 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 involving hypo pharynx also. We repaired the wound in four layers, for mucous membrane, muscles and soft tissue of the neck, we used vicryl 2,0 suture material and for the cartilages of the larynx prolene 2,0 was used. Most of the wound healed within 7 to 21 days. After discharge of the patients, follow up done for 1 year. Some complications arose in few patients.

**RESULTS AND ANALYSIS:** Total 60 cut throat patients were included in the study, of which 41 were male and 19 were female ( M:F=2.1:1) . Male were predominant (68.4%). The age of the patients ranged from 15 to 75 years (mean 22.2). Majority (60%) of the patients were young adult, aged between 16 to 30 years of which 43 (71.6%) were from rural community. Regarding causes and the motives behind the cut throat injury 40 out of total (66.7%) were due to suicidal injury and 13 out of total (21.7%) were due to homicidal injury. only 7 (11.6%) cut throat were due to accidental injury. Regarding anatomical site (Zone) of the neck involvement, 9 cases (15%) were zone I involvement, 44 cases (73.3%) were zone-II involvement and 7 cases (11.6%) were zone III.

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Sex	No	%
Male	41	68.4
Female	19	31.6

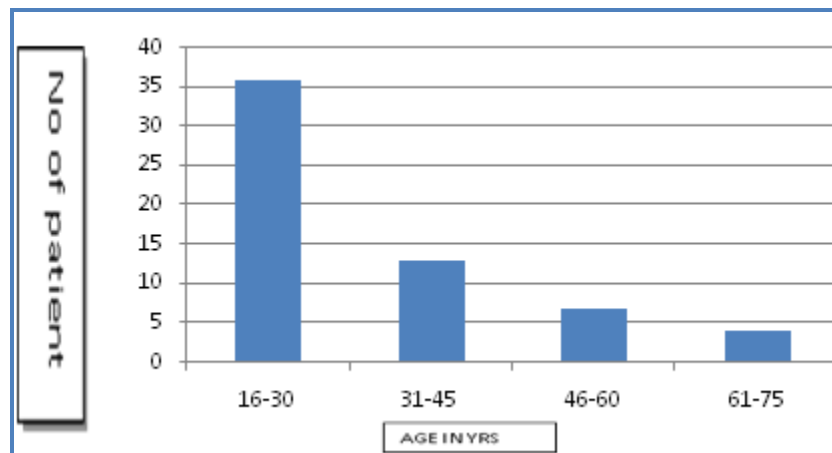
**Table -1: Sex distribution of the patients (n=60)**



**Sex distribution of the patients**

Age in years	No	%
<15	0	0
16-30	36	60
31-45	13	21.7
46-60	7	11.6
61-75	04	6.7

**Table- 2: Age distribution of the patients (n=60)**

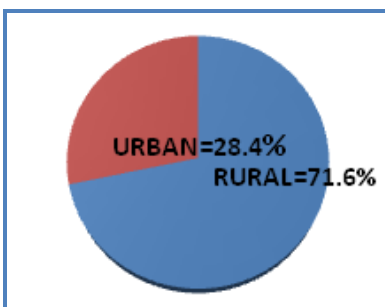


**Age distribution of the patients**

Habitat	No	%
Rural	43	71.6
Urban	17	28.4

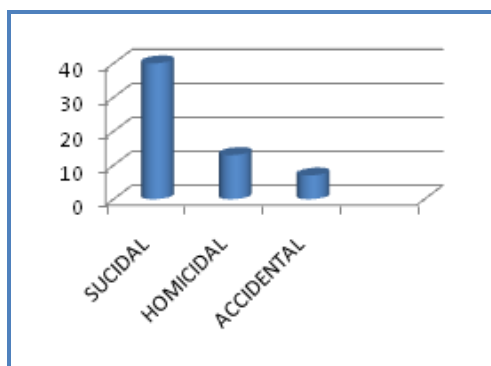
**Table-3: Habitat of the patients**

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Mode of injury	No	%	Male	Female
Suicidal	40	66.7	28	12
Homicidal	13	21.7	9	4
Accidental	7	11.6	3	4

**Table – 4: Mode of injury of the cut throat patients**



Anatomical sites(zone)	No	%
Zone-I	9	15
Zone-II	44	73.3
Zone-III	7	11.6

**Table – 5: Anatomical sites (zones) of injury of the patients**

Regarding presentation, the no of patients attended at emergency with open wound and bleeding were 24 (40%), cut throat injury with respiratory distress were 14 cases (23.4%) and referred patients with inadequate wound management at primary centre were 8 cases (13.3%). 6 patients (10%) were referred to our hospital with proper wound management at primary centre and 6 cases (10%) were severe cut injury with shock.

Regarding structures involvement it is found that the larynx and laryngeal cartilage injury were 27 cases (45%), thyrohyoid membrane and hypo- pharyngeal injury were 14 cases (23.4%), trachea opened up in 7 cases (11.6%), thyroid gland and thyroid vessels injury were 6 (10%), 4 cases (6.6%) were internal jugular vein injury and in 2 cases we found (3.4%) carotid artery injury. Study done in relation between delay in hospital arrival of the patients and the wound healing rate after repair (table-8).

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It is found that in 32 cases (53.3%) wound were completely healed those attended emergency less than 6 hours after injury. Post operative wound infection noted in 18 cases (30%) who arrived within 6 - 12 hours ,8 cases (13.3%) arrived within 13 – 24 hours were found wound gapping .and 2 (3.4%) patients arrived after 24 hours were developed cutaneous fistula.

Regarding treatment (table-9), repair of the larynx with tracheostomy was done in 27 cases (45%) and 32 cases (53.3%) needed blood transfusion to combat haemorrhagic shock. Simple repair and closure of the wound were done in 10 cases (16.6%). Repair of larynx and hypopharynx with tracheostomy were done in 14 cases (23.3%). In 4 cases (6.6%) we repaired the neck structures with ligation of internal jugular vein. Psychiatry consultation was taken in suicidal cases only (66.7%).

Regarding hospital stay (Table-10) we found majority of the patients (68.3%) were stayed in the hospital for 8 -14 days.

We lost total 3 patients due to this cut injury of throat of which 2 cases (3.3) were died due to injury of the carotid vessels and 1 cases (1.6)) died of aspiration pneumonitis later on.

Regarding morbidity (table-12) we found that 12 patients (20%) developed postoperative wound infection and 10 cases (16.7%) developed ugly scar. 9 patients (15%) developed voice disorder later on. 8 cases (13.3%) developed persistent dysphagia. Permanent tracheostomy were done in 6 cases (10%), in those patients who developed laryngeal stenosis as complication. 4 cases (6.7%) developed pharyngeal stenosis, 3 cases (5%) developed secondary bleeding. Pharyngocutaneous fistula developed in (3.3%) cases.

We tried to find out clinical outcome (table-13) of all patients of cut throat injury attended to our hospital. It is found that 25 patients (25%) completely cured, living normal life. Living with minor morbidity are 27 no of patients (45%). 18 patients (30%) living with major problem.

Presentation	No	%
Open wound with bleeding	24	40
Open wound with shock	6	10
Cut injury with respiratory distress	14	23.4
Inadequate wound management at primary centre	8	13.4
Proper wound management at primary centre with referral	6	10
Cut injury with death	2	3.3

**Table-6: Presentation of the cut throat patients**

Injury of Structures of the neck	No	%
Larynx & laryngeal cartilage	27	45
Trachea	7	11.6
Hypopharynx with thyrohyoid membrane	14	23.4
Thyroid & thyroid vessels	6	10
Internal jugular vein	4	6.6
Carotid vessel	2	3.4

**Table-7: Injury of structures of cut throat patients**

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Time of delay in hospital arrival affecting wound healing	No	%	Wound healing
<6hrs	32	53.3	Completely healed
6-12hours	18	30	Wound infection
13-24hours	8	13.3	Wound gapping
>24hours	2	3.4	Cutaneous fistula

**Table-8: Time of delay in hospital arrival of patients and wound healing**

Treatment provided	No	%
Simple repair and closure	10	16.6%
Repair of larynx with tracheostomy	27	45
Repair of larynx, hypopharynx and tracheostomy	14	23.3
Repair of neck structures with ligation of internal jugular vein	4	6.6
Repair of neck structures with ligation of the carotid artery	0	0
Blood transfusion	32	53.3
Psychiatry consultation	40	66.7

**Table- 9: Treatment provided of cut throat patients**

Average stay in hospital	No	%
3- 7 days	14	23.3
8-14 days	41	68.3
15-21days	3	5
>21days	2	3.4

**Table-10: Average stay in hospital**

Mortality	No	%
Shock and injury to the great vessels	2	3.3
Aspiration pneumonitis	1	1.6
Septicaemia	0	0

**Table-11: Mortality of cut throat patients**

Morbidity	No	%
Wound infection	12	20
Secondary bleeding	3	5
Voice disorder	9	15
Pharyngo-cutaneous fistula	2	3.3
Persistent mild dysphagia	8	13.3
Ugly scar	10	16.7
Laryngeal stenosis	6	10
Pharyngeal stenosis	4	6.7
Permanent tracheostomy	6	10

**Table-12: Morbidity of cut throat Patients**

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Clinical outcome of treatment	No	%
Complete cured and living normal life	15	25
Living with minor morbidity (dysphonia, mild dysphagia)	27	45
Living with major morbidity (pharygocutaneous fistula, permanent tracheostomy)	18	30

Table - 13: Clinical outcome of treatment

**DISCUSSION:** It is found in the world that, penetrating neck injuries accounts for 5- 10% of all trauma cases. Cut throat injury is potentially dangerous and requires emergency treatment.

According to world Health Organization (WHO), every year over 5 million people around the world die as a 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>[5,6]</sup> Despite the undisputed impacts of the injury burden, limited attention has been paid to the injury as a public health problem, particularly in developing countries. There are several reasons for this relative inaction, one of which is the lack of reliable and valid information on injuries that makes the size of the problem invisible to policy makers.

Cut throat injuries are reported a few in the medical literature and death due to cut throat injury are not uncommon in our country . It is challenging to save the life of a cut throat injury patient. In this context, Amadasun highlighted problems of decision making in this critical conditions of neck injury.<sup>[7]</sup> We found in an article on open neck injuries stressed on the surgical airway problems<sup>[8]</sup>

In this study total 60 cases of cut throat injury admitted in the ENT department of a rural medical college of Eastern India, were selected for this study. We found that most of the patients were male (68.4% M:F=2.1:1) and those came from rural area , that were very much similar to the other studies.<sup>[9]</sup> Though the age group of the patient was 15 to 75 years (mean 22.2years), majority (60%) were young adult (16-30years). 21.7% patients were within the 31-45 years age group. Those were the most active group of our society. In our study regarding the cause of cut throat injury, a maximum number of patients were due to suicidal injury. But we found in other study maximum cut throat injuries are homicidal in nature.<sup>[9]</sup> All patients those who attempted suicide were considered for the psychiatric consultation, this was because the act of suicide is a sign of underlying mental illness and there is possibility of a second attempt. A study reported 25% of patients as having made a second attempt of suicide.<sup>[7]</sup>

In our study we tried to find out anatomical position of the cut throat injury and structures involved in the neck. Maximum numbers of patients were zone II injury and zone III were minimum. It is usually found that suicidal cut throat injuries are at the level of zone II and homicidal cut throat injuries are at zone I. Regarding structures involvement we found that majority of patients attended at emergency with cut injury of larynx and laryngeal cartilage with haemorrhage (45%). Two patients died after attending at emergency due to carotid injury and blood loss.

Iseh KR et.al suggested that pharyngeal, hypopharyngeal and laryngeal mucosal lacerations should ideally be repaired early (within 24 hours).<sup>[10]</sup>

In our study we found that those who attended emergency early (<6 hours, and 6- 12 hours) and repaired within 24 hours, treatment outcome were excellent. Maximum number of the patient attended with cut injury with larynx, laryngeal cartilage and strap muscles of the neck and we

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managed such patients by resuscitation, tracheostomy and repair of the larynx in layers. Regarding hospital stay we showed that maximum number of patients (68.3%) cured with in 8 to 14 days. A few number of patient stayed in the hospital more than 15 days due to complications.

We studied for morbidity of cut throat injury, some complications noted after treatment, of which voice disorder and mild dysphagia were common. Few patients developed persistent complications like laryngeal stenosis, pharyngeal stenosis and pharyngocutaneous fistula.

**CONCLUSION:** Incidence of cut throat injuries and associated morbidities and mortalities are not uncommon in our society. Aims and objectives of our study were to analyze the demographic pattern, cause and motives of cut throat injury, its management and clinical outcome. So the demographic data, motive of injury, structures involved, treatment given, morbidity and mortality were analyzed. In conclusion it is said that suicide is the commonest cause of cut throat injury in this rural area of Eastern India. Young adult of rural area are common victims. Regarding treatment outcome some patients are living normal life after treatment, majority of the patients living normal life with minor disability like dysphonia and mild dysphagia. Laryngeal stenosis, pharyngeal stenosis and pharyngocutaneous fistula are worst complications.

According to the result and analysis of this study it is established that early appropriate measure could save majority of the patient's life and morbidity and mortality are related to delay in initiation of the treatment.

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**AUTHORS:**

1. Rajesh Kumar Kundu
2. Bivas Adhikary
3. Sukanya Naskar

**PARTICULARS OF CONTRIBUTORS:**

1. Post Graduate Trainee, Final Year, Department of ENT, North Bengal Medical College and Hospital.
2. Assistant Professor, Department of ENT, North Bengal Medical College and Hospital.
3. Post Graduate Trainee, Final Year, Department of ENT, North Bengal Medical College and Hospital.

**NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Rajesh Kumar Kundu,  
North Bengal Medical College & Hospital,  
Intern Hostel, Room No – A5,  
P.O – Sushrutanagar, Dist – Darjeeling,  
PIN – 734012, West Bengal.  
Email – rajesh.kundu84@gmail.com

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