

Original Article

Cut throat injury: review of 67 cases

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Abstract:

Introduction: To evaluate the demographic pattern types, motives and its consequences of cut throat injury.

Methods: This prospective observational study was conducted in the department of ENT-Head & Neck Surgery at Dhaka medical college hospital, Dhaka, from January 2009 to June 2010, among 67 admitted cases of cut throat injury victims.

Results: Among 67 cases, 47 were male and 20 were female, aged between 7 – 73 years (mean 28.82±11.38). Majority of victims were young adult 41 (61.19%), aged between 21 to 30 years, 52(77.61%) were from rural community and 53(79.10%) were belong to the low socioeconomic class. Homicide was commonest (71.64%) cause. Only 7 (10.44%) victims had suicidal attempt for doing self cut, where female out numbered. Political conflict (22.38%) and the land dispute (25.37%) were the major contributory factors behind the homicidal cut throat injuries. 50 (74.63%) victims were injured at the zone-II level of the neck. 34(50.75%) victims were injured in larynx. Emergency tracheostomy needed among 38 (56.72%) victims and blood transfusion needed among 30(44.78%) cases for haemorrhage. Majority stayed less than two week duration (80.59%) in the hospital. As the consequence of this injury 8.96% victims died due to haemorrhagic shock, aspiration pneumonitis & septicaemia.

Conclusion: Social and political motivation, increase literacy rate and economical growth along with improvement of law and order of the land prevent vast majority from homicidal cut throat. Early interference in an improved management set up with surgical intervention may reduce the mortality and morbid consequences.

Key words: Cut throat injury, Neck injury, Penetrating neck injury.

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Introduction:

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.^{1,2,3} This may result from accident, homicide or suicide.

Though cut throat or penetrating neck injuries are reported rarely in the medical literature, they are presented either as single wound or

along with multiple injuries. Cut throat injuries and associated deaths are common in our society. Majority succumb to their injuries and an additional number of injured persons suffered some form of permanent disability. So many factors contribute to this type of trauma regarding causes and fatalities.

All injuries to the neck are potentially life-threatening because of the many vital structures in this area. In case of cut throat wound there may be possibility of injury to the vital structures that may become rapidly fatal from profuse haemorrhage from damaged major blood vessels, air embolism or airway obstruction.

Injuries of the neck are divided into three anatomic zones. Zone I injuries occur at the thoracic outlet, which extends from the level of the cricoid cartilage to the clavicles. Zone II 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.^{2,3}

The common causes of cut throat injuries (CTI) in this country are homicidal. The motives of homicide included political conflict, land related disputes, dacoity (robbery), sex related crimes, familial disharmony etc. Suicide by incising one's own throat without hesitation marks remains a rare, and only few cases have been reported in the forensic literature. Familial troubles, psychiatric illness and poverty were the triggering factors in suicidal attempts. Regarding accidental causes mostly related to the road traffic accident.

The location of the injury suggests which structures may be involved. Injuries to the larynx and trachea can be asymptomatic or may cause hoarseness, laryngeal stridor, or dyspnea secondary to airway compression or aspiration of blood. Injury to the great vessels may follow the cut throat injury (CTI) and the patient typically presents with visible external blood loss, neck hematoma formation, and in varying degrees of shock.

Exposed hypopharynx and or larynx following cut throat, haemorrhage, shock and asphyxia from aspirated blood are commonest cause of death following cut throat injury. It was observed that appropriate measures could save lives in vast majority.³

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, late tracheal stenosis, and sepsis. Carotid artery injuries can produce death from haemorrhage, stroke, or cerebral ischemia. Major venous injury can result in exsanguination, air embolism, and arteriovenous fistula formation if there is concomitant arterial injury.

Prevention of these complications depends upon immediate resuscitation by securing the airway by tracheostomy or intubation, prompt control of external hemorrhage and blood replacement, protection of the head and neck, accurate and rapid diagnosis, and prompt intervention or operative treatment when indicated.

Immediate tracheostomy should be performed when airway obstruction exists. A proper tracheostomy should be fashioned to continue keeping the airway patent, as well as protecting the tracheo-bronchial tree from aspiration. The worth of tracheostomy in the management of CTI was highlighted in the literatures.^{4,5} Endotracheal intubation via the oral or nasal route is an alternative method of

securing a patent airway but distorted upper airway anatomy could make intubation difficult and there is the additional hazard of inhaling vomitus, blood or secretions.^{2,6,7} The securing of a patent airway by intubating the trachea with an anaesthetic endotracheal tube through the neck wound was a commendable effort by the doctor, who gave emergency treatment in a desperate situation with inadequate facilities. A similar action reported in the literature also proved life-saving.⁷

All patients attempted suicide should have a psychiatric consultation. This is because the act of suicide is a sign of underlying mental illness and there is a possibility of a second attempt. Ellis reported 25% of his patients as having made a second attempt at suicide. 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.⁶

When disability resulting from injuries is also taken into consideration, injuries represent an even more significant public health problem, especially light of the fact that injuries affect mainly young people that is to say, the economically most productive sector of the population. The magnitude of the problem can be quantified in terms of the number of years lived with disability (ie the burden of disease). Globally trauma currently accounts for 10% of all disability adjusted life years (DALYS) lost and this is expected to increase to 20% by 2020.⁸

There is no wide scale study on cut throat injury in our country. As a result actual mortality & morbidity incidence are not known in our country. A retrospective study on cut throat injury was done in a limited way.⁹

The present study attempts to overcome there lacuna and thereby suggesting to the concerned authorities, policy makers to initiate measures in order to minimize the

mortality related to trauma. It was observed that appropriate measures could save lives in vast majority. Prompt help in shifting the victims to the hospitals and energetic management of hospital staff can save the life of some of these victims.

Objectives:

- To evaluate the different demographic factors and the common causes behind the cut throat injury in this country.
- To observe the pattern and type of injuries and their later consequences.
- To observe the time of delay in intervention and treatment and the duration of hospital stay and morbidity.

Methods:

This is a prospective observational type of study was conducted in the department of otolaryngology and head neck surgery at Dhaka medical college hospital which is one of the biggest tertiary hospital in the country. This study was conducted for one and half year period from January 2009 to June 2010. Total 67 cases of cut throat wound were included in the study irrespective of age and sex who were admitted in the ward with cut throat trauma. Minor neck injury not required admission and patient with minor trauma in the neck but major trauma in other parts of the body need hospitalization were excluded from the study.

The study population were selected by purposive sampling from those patients who were admitted to this hospital and matches the inclusion criteria. All the data regarding study population were collected and compiled in a structured questionnaire with thoroughly looked upon ethical implication. All the data pertinent to the patient kept confidential. Data were categorized according to the demographic pattern of the patient, cause behind the injury, site of the neck injury

(according to the defined zone of the neck), type and extend of the tissue damage or involved, presentation during admission, time taken or delay from the incidence to the hospital attendance and duration of the hospital stay, type of special intervention given, records of mortality, noticeable morbidity and outcome. The socio economic state are clarified by the average monthly income less than taka 5000, 5000 to 10000, more than 10000 were considered as lower, middle & upper class respectively. The accumulated data were compiled and analyzed by standard statistical method and then presented in the following figures and tables.

Results:

Total 67 cut throat victims were included in the study. Total 47 male and 20 female cases were found. (M:F=7:3) Male were predominant (70.15%). The age of the victims ranged from 7 to 75 years (mean 28.82±11.38). Majority (61.19%) of victims were young adult aged between 21 to 30 years. 52(77.61%) were from rural community. 53(79.10%) were belong to the low socioeconomic class and only 5(7.46%) victims were from higher classes. Regarding causes and the motives behind the cut throat injury 48 (71.64%) was due to homicidal injury, 12 (17.91%) victims were due to accidental injury and only 7(10.44%) person were due to suicidal attempt. Political conflict (22.38%) and the land dispute (25.37%) were the major

contributory factors behind the homicidal cut throat injuries. Amongst the suicidal attempted person 4(5.97%) of them had definite history of psychiatric illness & others were attempted due to frustration regarding family problem and sexual assault (rape).

During presentation of the cut throat injury victims majorities were present with active haemorrhage (29.85%), open wound (23.88%), bandage in the neck (17.91%). 6 (8.96%) victims were present with haemorrhagic shock and 4 (5.97%) were with severe respiratory distress. Majority had the laryngeal (50.75%), hypopharyngeal (37.31%), thyroid gland and cartilage (29.85%) and tracheal (17.91%) injury. Regarding anatomical site (Zone) of the neck involvement 50 cases (74.63%) were zone-II involvement. Most of the victim arrived in the hospital within 24 hours of injury (88.06%). Emergency tracheostomy needed 38 (56.72%) victims and blood transfusion needed 30(44.78%) cases for haemorrhage.

As the consequence of this injury 6(8.96%) victims were died due to haemorrhagic shock, aspiration pneumonia & septicaemia, 8 (11.94%) needed permanent tracheostomy due the laryngeal stenosis, 3(4.48%) victim developed hemiplegia. 10 (14.93%) developed persistent dysphagia. Ugly scar (19.40%) and wound infection (14.93%) were regarded as minor morbidity. Regarding hospital stay majority was stay less than two week duration (80.59%).

Age & Sex distribution of the cut throat injury victims (N= 67)

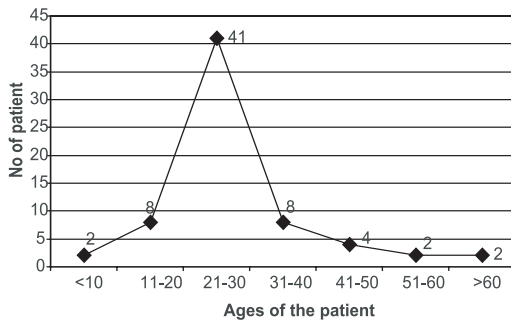


Fig.-1

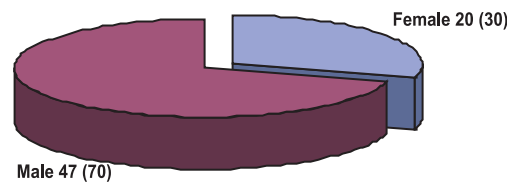


Fig.-2

Habitat & cause of the cut throat injury victims (N= 67).

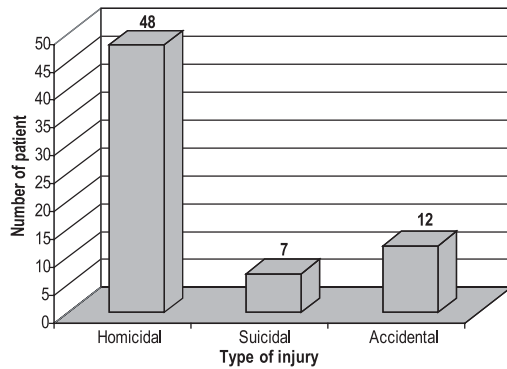


Fig-3

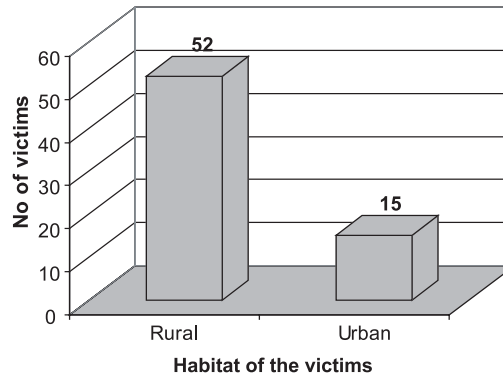


Fig-4

Table-I

Distribution of the Causes and the Demographic status of the cut throat victims (N=67)

Type	Total	Male	Female	Rural	Urban	Lower class	Middle class	Upper class	Zone I	Zone II	Zone III	Mortality
Homicide	48	38	10	43	5	43	3	2	2	42	2	3
Accident	12	7	5	4	8	4	5	3	5	5	2	1
Suicide	7	2	5	5	2	6	1	0	4	3	0	2
Total	67	47	20	52	15	53	9	5	11	50	4	6

Table-II

Causes and the motives of the cut throat injury (N=67)

Motives of the cut throat injury		
	No	%
Homicidal		
Political conflict	15	22.38
Land dispute	17	25.37
Robbery	5	07.46
Family problem	7	10.45
Sexual violence	2	02.99
Others	2	02.99
Total	48	71.64
Suicidal		
Psychiatric	4	05.97
Family problem	1	01.49
Sexual violence victim	2	02.99
Total	7	10.45
Accident		
RTA	10	14.93
Fall	2	02.99
Total	12	17.91

Structured injured, Presentation of the cut throat injury victims during hospitalization (N =67)

Table-III

Structures injured	No	%
Skin, softtissue, small vessels	67	100.00
Trachea	12	17.91
Hypopharynx	25	37.31
Larynx	34	50.74
Thyroid & Thyroid vessels	20	29.85
Internal Jugular Vein	10	14.93
Carotid vessel	4	05.97

Table-IV

Presentation	No	%
Open wound	16	23.88
Active bleeding	20	29.85
Bandage in the neck	12	17.91
Inadequate wound management	7	10.45
Proper wound management	2	02.99
Bleeding with shock	6	08.96
Respiratory distress	4	05.97
Total	67	

Anatomical site (Zones) Average delay in hospital arrival of the cut throat injury victim (N=67)

Table-V

Anatomical sites (Zone)	No	%
Zone-I	11	16.41
Zone-II	50	74.62
Zone-III	4	05.97
	67	100.00

Table-VI

Time of delay in hospital arrival	No	%
<6hours	8	11.94
6-12 hours	21	31.34
12-24 hours	30	44.78
>24 hours	8	11.94
Total	67	100

Treatment provided, Average hospital stay of the cut throat injury victim (N=67)

Table-VII

Treatment Provided	No	%
Simple repair & closure	15	22.39
Repair of larynx & Hypopharynx	38	56.72
Ligation of major veins	16	23.88
Ligation of major arteries	10	14.92
Tracheostomy	38	56.72
Blood transfusion	30	44.78
Psychiatric consultation	5	07.46

Table-VIII

Average time of hospital stay	No	%
<3days	6	08.96
3-7 days	15	22.39
8-14 days	33	49.25
15-21days	8	11.94
>22 days	5	07.46
Total	67	100.00

Table-IX

Morbidity and mortality of cut throat injury victim (N=67)

Mortality	No	%
Haemorrhagic shock	3	04.48
Aspiration pneumonitis	2	02.98
Septicemia	1	01.49
Total	6	08.96
Morbidity		
Wound infection	10	14.93
Secondary bleeding	4	05.97
Hemiplegia	3	04.48
Persistent voice change	12	17.91
Persistent dysphagia	10	14.93
Ugly scar	13	19.40
Pharyngeal stenosis	2	02.99
Pharyngocutaneous fistula	1	01.49
Laryngeal stenosis	8	11.94
Permanent tracheostomy	8	11.94

Discussion:

Injuries and violence pose a major public health development problem worldwide. According to recent estimates of WHO, each 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.^{10,11} Despite the undisputed impacts of the injury burden, limited attention has been paid to injury as a public health problem, particularly in low income 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. Cut throat injuries and

associated deaths are not uncommon in our society. There are reports in the medical literature of cut throat injuries from West Africa reported on the complication and principles of management of such wounds with emphasis on the forensic implications.² In an article on open neck injuries stressed on the surgical airway problems.⁵ Amadasun highlighted problems of decision making in this critical conditions of neck injury.⁶

In this study total 67 cases of cut throat injury needed admission in the ENT department of Dhaka Medical College, Dhaka were selected for study. Most of the victims were male (70%), came from rural area (77.61%) of lower socioeconomic group (79.1%). Those were vary much similar to the other series and reports. Though the age incidence of the victim was 7 to 73 years (mean 28years), majority (76.12%) were young adult (<30 years). 41(61.19%) victim were within the 21-30 years age group. These were the most active group of our society. Regarding the cause of cut throat injury a great number (71.64%) of victims were due to homicidal injury, accidental (17%) and suicidal (10.45%) injury. Political conflict, land dispute, familial disharmony were the major homicidal causes. Road traffic accident were the major causes of accidental cut throat injury, mostly injury due to the broken glass or the sharp projection of the distorted metallic part of the vehicles. There were two victim (one of them was a child) were have the history of fall over the sharp objects (Botti- a special kitchen knife and a sharp edge of the fence made by tin). Suicidal cut throat injury were found about 10.45% of all CTI, Modi observed that in India suicidal wounds of the throat were rare.¹¹ On the contrary, cut throat was reported to be suicidal in majority of cases in western studies.^{12,13} In our study the victims of suicidal

CTI females were out numbered males. Another study noted that the suicidal cuts were more frequent in men than in women.^{14,15} In our male dominating society where the female are mentally, socially, financially suppressed and become the easy victims of social and familial torments. Because of dowry system, physical weakness, familial disharmony & sexual violence & abuses are the main contributing factors. In our series majority of them were suffered from psychiatric problem.

As the CTI is a major neck injury most of the victims were attended to the nearest available medical facilities as early as possible. Majority were referred to the tertiary hospital for appropriate intervention within 24 hours. Poor communication, inadequate first aid knowledge, facilities and lack of skilled manpower in peripheral centers were responsible for delayed presentation to hospital. Very few were found properly managed outside. A number of victims were present with open wound and active bleeding. Six patients were found with hypovolumic shock.

Due to anatomical position the neck zone-II was the commonest (74.62%) site of CTI. Zone III was least common site. Almost all wound at the level of Zone-I were homicidal. Regarding the involvement of the deep structures of the neck larynx (50.74%), hypopharynx (37.31%) and trachea (17.91%) were the common organs. 10 victims had the internal Jugular vein injury and 4 victims were with carotid artery injury presented with massive bleeding and hypovolumic state.

Only 15 (22.39%) patient were simply treated with local wound toileting and repair. Others need repair of deep organ and injured structures and blood vessels. 10 (14.92%)

victims needed ligation of the major arteries. As the laryngeal and upper tracheal injury the aims of the management was to ensure the airway patent and free from aspiration along with the injury repair, total 38 (56.72%) victims required tracheostomy. The worth of tracheostomy in the management of CTI was highlighted in the literature. About 30 (44.78%) victims needed blood transfusion and victims with hypovolumic shock were transfused massive amount of blood (>5 units).

All patients that 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 at suicide.⁶

Total six (8.96%) victims of CTI were died within 24 hours after admission due to haemorrhage, hypovolemic shock, and aspiration. Three victims were died only due to massive blood lose. One victim died due to septicaemia with multi-organ failure. None of the cut throat patient died with opened larynx because the CTI opened the lumen of the larynx or trachea and these opening functioned as a laryngotomy or tracheostomy, albeit a crude one.

Among others were developed some form of morbidity (e.g. wound infection, scar, persistent voice changes and dysphagia, permanent tracheostomy due to laryngeal stenosis) later on. Some of the morbidity was either due to trauma or surgical repair could not be evaluated because most of repair and assessment was done by the beginners of the specialty or less experience surgeon on emergency duty. Long term follow up is necessary to ensure that laryngotracheal stenosis when not prevented is treated appropriately.

Adequate wound toileting and proper repair of wound in early admission allowed better

wound healing & most of the patients (73.13%) discharged with in 14 days. Tracheostomy tube removal was possible in 7 to 10 days time in most of the patients. Only 8(11.94 %) victims were become the patient of permanent tracheostomy.

Conclusion:

Incidence of cut throat injuries and associated morbidities & mortalities are not uncommon in our society. The objective of the study was to analysed the demographic pattern, cause or motives of the cut throat and its consequences. The demographic data, motives of trauma, structures injured, treatment given, complications and mortalities were analysed. In conclusion it is said that homicide is the commonest cause of cut throat injury, young adult of low socioeconomic class are mostly affected and laryngeal stenosis is the worst complications.

According to these results of the study it is supposed that the early appropriate measures could save lives in vast majority although morbidities or complications developed in few cases. It is expected that appropriate measures by the government agencies for enforcement of law and order will reduce the burden of homicidal cut throat in near future.

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