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Original Research Paper

Otorhinolaryngology

A STUDY ON CUT THROAT INJURIES IN A TERTIARY CARE HOSPITAL,PATNA,BIHAR,INDIA

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ABSTRACT

Introduction: Cut throat injuries are potentially very dangerous, if it is not treated in time, it may lead to death. Over all cut throat injuries account for 5% to 10% approximately of all traumatic injuries . The etiology of cut throat injuries are: suicidal, homicidal and accidental .Accidental being the rarest .

Objective:

1.To evaluate the different demographic factors and the common causes behind the cut throat injury.
2. To observe the site of injury.
3. To observe the mode of treatment

Materials and Methods: A cross-sectional observational prospective study was conducted among all the 36 patient, who were conscious and came with cut throat to a tertiary care hospital in Patna district, Bihar, India. Data were collected and the distributions of responses were presented as frequencies,percentages using M,S excel 2010. **Results:** Male to female ratio was (2.6:1). Cut throat injury was more common in males who came from rural area. Most of them were from low socioeconomic group .Hindu > Muslims. The most common cause of cut throat injury in our study was homicidal 29 (80.6%) followed by suicidal 6 (16.7%) and accidental 1 (2.8%). In our study 13 (36.2%) cut throats were superficial and 23(63.8%) were deep.In all the cases (100%) skin, soft tissue and small vessels were severed.The laryngeal injury was present in 12 cases while tracheal injury in7 cases.All patients who reached the hospital and were conscious , were saved. Simple wound closure was done in 13 cases. Psychiatric consultation was needed in 6 cases . **Conclusion:** The 20 -40 years aged males were mostly affected. The majority had zone 2 injury. The most common cause was homicidal and motive behind was gang issues or close relative issues.low socio-economic status showed higher incidence.

KEYWORDS : Cut throat;Homicidal; Laryngeal and tracheal repair;Sucide;Zone II

INTRODUCTION

Cut throat injuries are potentially very dangerous, if it is not treated in time, it may lead to death of the patient due to asphyxia or haemorrhage. It may be open or incised or incised looking in the neck.

Over all cut throat injuries account for 5% to 10% approximately of all traumatic injuries.

However, in developing countries like India the incidence is increasing partly because of poor socioeconomic status, poverty, limited resources, unemployment, easy access to firearms, alcohol and substance misuse and increased crime rates.[1]

The etiology of cut throat injuries are: suicidal, homicidal and accidental. Accidental factors are mostly related to the road traffic accident and fall injuries. Apart from these, one of most common for accidental cut throat injuries in Gujarat, India is 'MANJA (kite thread) CUT INJURY', that occurs during regional festival famed as Uttarayan where people fly kites as a symbol of celebration and get accidently injured with strings of flying kites.[2]

Roon and Christensen classified the neck into three zones. Zone 1 between the clavicles and the cricoid cartilage; zone 2 between the cricoid cartilage and the angle of the mandible, while zone 3 is from the angle of the mandible to the skull base. This classification helps clinicians to make management decisions .

Vascular injuries are common in neck trauma, they responsible for 50% of mortalities. Laryngeal and tracheal injuries are more common than pharyngeal and esophageal injuries. [3]

Cut throat injuries pose a great challenge to the surgeon in their management. If not treated in time, they may lead to fatality of the patient due to asphyxia or hemorrhage . Immediate resuscitation should be done by securing the airway by tracheostomy or intubation, prompt control of hemorrhage and blood replacement . Tracheostomy should be performed immediately when airway obstruction or chances of aspiration of blood exists . The management of these injuries requires a multidisciplinary approach requiring close collaboration of otolaryngologist, anaesthesiologist and psychiatrist. Anesthesiologist secures an uncompromised airway and makes sure the patient is breathing. Otolaryngologist assesses the injury and repairs the severed tissues with the aim of restoration of swallowing, phonation and breathing. Psychiatrist provides adequate support and care after surgical treatment.[4]

There are few studies carried out on cut throat injury in our country,so actual incidence, mortality and morbidity are not known .Present study is an attempt to overcome this lacuna so that concerned authority would initiate measure in order to minimize the mortality . Appropriate and immediate measure could save more lives. So present study was conducted with following .

Aims and Objectives

1. To evaluate the different demographic factors and the common causes behind the cut throat injury .
2. To observe the site of injury.
3. To observe mode of treatment.

METHODS

Our study is a prospective study,conducted at tertiary care government medical college and hospital, Patna, Bihar, India, from Januray 2021 to December 2021. A total 36 cases of cut throat injuries were included in the study.

Inclusion criteria
All patients are taken into the study who came with cut throat and conscious. The consent was obtained from the patient or from their guardian (informed consent) in case of minor

Exclusion criteria
All unconscious patients ,patients who refused to give consent and patients with associated head injury.

Ethical clearance
Obtained from Institute's ethical committee.

Data collection
All the data regarding study population were collected and compiled in a structured.

Questionnaire (pre designed and pre tested). All data was kept confidential

Statistical Analysis
The data was collected and analyzed by descriptive method using M.S Excel All the data was presented in frequencies and percentages .

A total of 36 cases of cut throat were included in the study. All conscious 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. Data was categorized according to name, age, sex, religion,habitat, motivating factors , zone, type of injury,place of occurance,other injuries , weapon used,neck structures involved , treatment given and the final outcome of the patient. The data is represented in the form of tables and charts. The results obtained were expressed as percentage of the total cases included in the study.

The patients were evaluated with advanced trauma life support (ATLS),that begins with a primary examination of airway, breathing, circulation, disability and exposure. Followed by secondary examination after stabilization of patient which includes head to foot examination of the patient. After that investigations were done in stable patients to plan the further management of a cut throat injury.And along with this wound was categorized in one of the zones -zone I, zone II and zone III .

Blood transfusion with whole blood was given in patients who had severe bleeding and those who were in the state of shock. Suction clearance of the secretions and blood from the wound was done to prevent aspiration in patients. The debridement and repair of wound with or without tracheostomy was done depending on the severity of cut throat. The patients who came with zone II injury were transferred to the OT after initial resuscitation. If required emergency tracheostomy was done. During wound repair, first the wound was washed with normal saline completely. Wound was repaired in four layers, for suturing mucous membrane, muscles and soft tissue of the neck, we used vicryl 2,0 suture material and for the cartilages of the larynx and trachea we used prolene 2,0. Most of the wound healed within 10 days. After discharge ,patients were followed up after 20-25 days with x ray neck and CT scan .

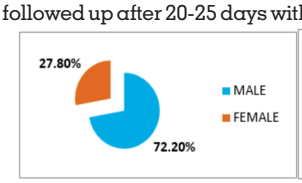

Figure I -gender

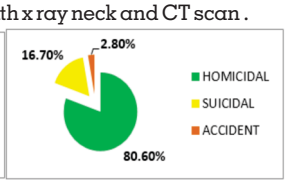

Figure II-Type of injury

RESULT
Among 36 patients there were 26(72.2%) male and 10(27.8%) female (FIGURE I). Among all causative factors, homicidal were attended in majority 29(80.6%)patient. 6(16.7%) patients were found to be victim of suicidal factors.Only 1(2.8%) (PICTURE I) presented with self injured causes. (FIGURE II)

The mean age of all study participants were 32.05 which ranged from 1-80 years and majority belonged to 20-40 years 22(61.1%) followed by 1-20 and 40-60 years 6(16.7%) followed by 60-80 years 2(5.6%).(FIGURE III).

Most of the patients were Hindu 33 (91.7%) by religion followed by Muslims 3 (8.3%).(FIGURE IV)

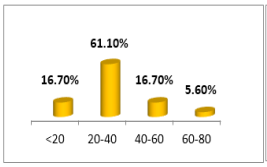

Figure III- Age distribution

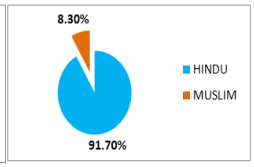

Figure IV-Religion

Around 27(75%) were from rural areas and 9 (25%) were from urban areas.(FIGURE V).

When socio-economic status was assessed around 14(41.7%) and 11 (30.6%) belonged to class iv and iii respectively followed by class ii 6(16.7%) followed by class I and v with 2(5.6%) members according to modified BG Prasad classification.(FIGURE VI)

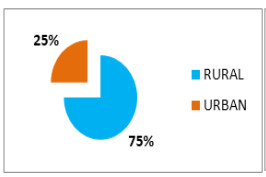

Figure V-Habitat

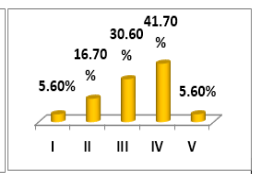

Figure VI-Socio-economic status(5)

When place of injury was assessed it was noticed that most of the incident took place at fields 13(36.1%) followed by own residence 11(30.1%) followed by locked room and unknown place 6(16.7%).(FIGURE VII).

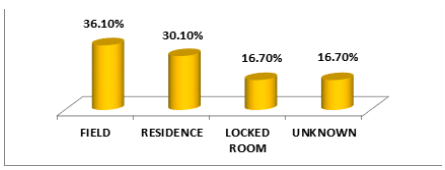

Figure VII- Place of incident

Majority of the patients 27(75%) had injury in zone II while 9 patients (25%) in zone I; none had zone III neck injury. (FIGURE VIII) .

There were many other injuries on the body along with cut throat such as chop,stab and laceration, among which laceration was present in 10(27.8%) cases followed by stab and chop 4(11.1%) 3(8.3%).(FIGURE IX)

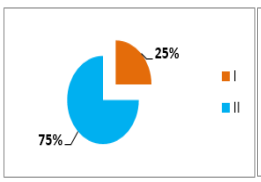

Figure VIII-Zone of injury

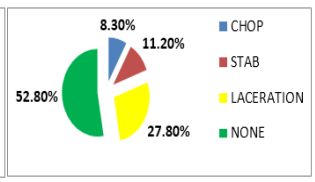

Figure IX-Other injuries

Figure X indicates the motivating factors contributing to cut throat injuries. Majority of the cut throat injuries were as a result of gang related violence 11 (30.6%), followed closely due to close relatives quarrel 10(27.8%) followed by relationship related (homosexual and heterosexual)

contributing to 8 (22.2%). The least contributing factor is cut throat injury as a result of financial issues or domestic voilence.

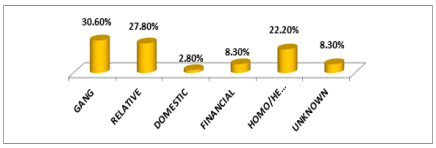

Figure X-Contributing factors

In majority of the cut throat patients weapon used was knife 29(80.6%) followed by axe 6(16.7%) and only one cut throat was accidental which was because of buffalo horn.(FIGURE XI)

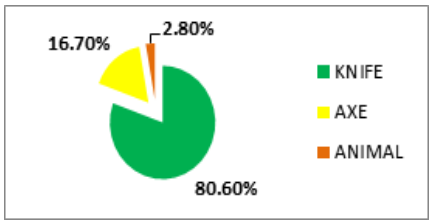

Figure XI-Weapons used

Majority of patients presented with injury to skin,soft tissues, platysma and small vessels. 36(100%) patients presented with injury involving skin and subcutaneous tissue layer. 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.

Trachea was exposed and injured in 7(19.4%) (PICTURE II). 10(27.7%) patients were having laryngeal injury.3(8.3%) patients were having active uncontrolled bleeding due to injury to major vessels including jugular veins.

Cases where airway was compromised,thracheostomy was done and airway was secured. After maintenance of 100% oxygen saturation on air with normal vocal cord mobility, they were given temporary tracheostomy closure followed by permanent closure.

Table 1: Structures injured in the neck

Structures	Number	Percentage %
Skin, platysma, soft tissue, fascia(superficial & deep), small vessels	36	100%
Larynx	10	27.7%
Hypophaynx	3	8.3%
Trachea	7	19.4%
Internal jugular vein(IJV)	3	8.3%

Treatment provided at our hospital was assessed and was noticed that Simple wound closure was done in 13(36.1%) cases (PICTURE III).

Laryngeal and hypopharyngeal repair was done in 10(27.7%) and 3(8,3%) respectively.

Tracheostomy was done in 7 (19.4%) cases (PICTURE IV).Wherever IJV was involved fingure pressure was applied to stop bleeding. Blood transfusion was done in 3 (8.3%) cases. Psychiatric consultation was required in 6(16.6%) cases.videolarygoscopy and endoscopy was done in each patients after repair of internal structures . Patients were followed up after 20-25 days with X ray and Ct scan.Other than tracheostomy cases (dysphonia/dysphagia), none of them showed any complication .

DISCUSSION

According to World Health Organization, every year over 5 million people around the world die as a result of injury[6]

In our study of cut throat injuries in a tertiary care hospital, 36 cases of cut throat injuries were included. Male to female ratio was (13:5). Cut throat injury was more common in males who came from rural area.The age group ranged from 5-80 years. Most 22(61.1%) of them were young between the ages of 20-40 years. Our results were similar to other previously done studies.

Kumar Rajesh et al studied 60 cut throat cases, 41 were males and 19 were females, The majority of victims were young adults (60%) between age 16-30 years . 43(71.6%) were from rural community.[7].

In our study, on the basis of religion, cut throat injuries were common in Hindu 33 (91.7%) religion followed by Muslims 3(8.3%). This is because Hindus are more common in our region followed by Muslims and Most of them were from class iii (11) 30.6% and class iv (15)41.7% socio-economic group according to modified BG Prasad classification.

Results of our study correlated with previously done study by Acharya Souvagini et al, 16 patients out of 24 ranged in age from 20-30years with males predominating (23 males, 1 females) .Around 22 (92%) were from low socio-econoimic status.[8] .Hindu patients outnumbered the patients from other religions in a study done by Chappidi AK, Chilukuri A [1].

The most common cause of cut throat injury in our study was homicidal 29 (80.6%) followed by suicidal 6 (16.7%) and accidental 1(2.8%). The motive behind the injury include gang disputes, close relative issues ,financial issues and sexual offences among which highest was gang issues (30.6%) followed by close relative disputes (27.8%) and followed by heterosexual issues (22.2%) Results correlated well with previous study done by dinesh rao on 74 patients showing majority were homicidal cases 97% and majority motive behind the injury was gang issues and close relative issue 39.1% and 32.4% respectively. [9]

Suicidal cut throat are less in contrast, cut throat injuries by suicide attempts are found majority of cases in western countries. But in developing countries, homicide is the most common cause of cut throat injury. Since, India is a developing country; homicide is the most common cause of cut throat injury as noticed in present study.

Dr Anand Navnath Tuljapure mentioned in his study, the injuries around neck were divided in to three anatomic zone for the purpose of case of assessment.out of all 41 cases around 70.7% cases were in zone II followed by zone III(17.03%) and followed by zone I (12.13%).[10]

In our study that 27 (75%) patients had cut throat in anatomical Zone II, 9 (25%) patients had an injury in Zone I, while none of the patients have injuries in Zone III. In a study by Dr.Sritama De and Dr Mridul Kr. Sarma, out of 165 cases,the most common zone in penetrating neck trauma was Zone II (89.09%) [11].

In our study most of the patients presented with deep wounds 23 (63.8 %) while only 13(36.2%)cases were superficial ,As our hospital is a tertiary care hospital, so majority of deep cut throat injuries were reported , while it was just opposite in a study done by Dr.Sritama De and Dr Mridul Kr. Sarma.[11]

Our results were similar to a study conducted at Madhurai Medical College which reported more of deep injuries and less patient with superficial injury .Regarding the involvement

of deep structures of neck in the same study on 51 cases ,following was noticed , larynx 12 (23.5%), hypopharynx 4 (7.84%) and trachea 1 (1.96%) were the common organs involved.[12] Which was almost similar to the findings in present study .

In our study Simple wound closure was done in 13(36.1%%) cases. Laryngeal and hypopharyngeal repair was done in 10(27.7%) and 3(8,3%) respectively, Tracheostomy was done in 7 (19.4%) cases. Psychiatric consultation was required in 6(16.6%) cases.None of them showed any complication other than dysphonia or dysphagia, that too only in tracheostomy cases.similar to a previously done study in Madhurai which reported simple wound closure in 68% cases ,laryngeal repair in 23.5% cases,tracheostomy done in (31.3%) cases and blood transfusion in (9.8%) cases .psychiatric consultation was required (25.4%) cases.[12]

In our study all cut throat injury patients were subjected to videolaryngoscopy and endoscopy after repair to detect any associated injury to the vocal cord or any undetected aerodigestive tract injury.

Patients were followed up after 20-25 days with X ray and Ct scan .

CONCLUSION

Incidence of cut throat injuries and associated morbidities & mortalities are not a new thing even in present day life. The aim and objective of our study is to analyze the socio demographic pattern, causes or motives of the cut throat and its outcomes. The socio demographic data, motives of trauma, structures injured, treatment given at our hospital, complications and mortalities were analyzed. In conclusion according to our study homicide is the commonest cause of cut throat injury, in this part of India. Rural male of low socioeconomic class are mostly affected.we can conclude that poor socio-economic status is always proportional to low literacy and unemployment we can lead to such incidents Addressing the root causes of violence will reduce the incidence of cut throat injuries in our society. 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 the incidence eventually

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

PICTURE I-Accidental cut throat

PICTURE II-Tracheal injury

PICTURE III-Simple wound closure

PICTURE IV-Tracheostomy

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