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Original Research Article

Our experience of cut throat injury at a tertiary care center during COVID-19 pandemic

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ABSTRACT

Background: Cut throat injury is a least commonly attempted method of suicide or homicide. Neck injury may be suicidal, homicidal or accidental depending upon the etiology. Hesitation mark around the wound is favor of suicidal attempt and without hesitation mark is a rare possibility of suicidal attempt.
Methods: This is a retrospective study carried out over period of one year, between April 2020 to March 2021, in a tertiary care center of north central India, during Covid-19 pandemic before the second wave.
Results: Total 37 cases were attended; incidence was more common in male than female (34:3). Most commonly involved age group was 21 to 30 years, most of the patients belonged to rural background and manual workers. Homicide was the most common cause of injury and mostly under the influence of alcohol.
Conclusions: Young males belonging to lower socioeconomic status and rural background were most common victims of cut throat injury in our study, homicide being the most common causative factor. Life of the patients can be saved with less morbidity and mortality by the means of good triage management and early intervention.

Keywords: Cut throat injury, Suicidal, Homicidal, Neck injury

INTRODUCTION

Anatomy of the neck is very complex, having various vital structures in a narrow space. Any injury to this area is very dangerous and requires immediate management. However, the complication and management of injury is determined by the site of injury in neck. Neck injuries may be suicidal, homicidal, or accidental but suicidal attempt is the leading among them worldwide.[1] Factors triggering suicide are family stress, poverty, unemployment, psychiatric illness and chronic illness. Open, incised or resembling incised wound injuries are inflicted by blade, knife, broken glass or kite string and these may be superficial or penetrating in nature.[2-4] These injuries involve soft tissue, cartilage, bone; and neurovascular bundle or in combination.[5]

Neck injuries can be superficial or deep. Superficial neck injuries are those where there are skin and superficial neck muscles involvement (platysma and sternocleidomastoid muscle). Deep neck injuries may be solely muscular (deep neck muscle involvement up to pretracheal fascia) or with additional tracheal tear.

Roon and Christensen's classified neck injuries into three anatomical zones: Zone 1, extended from sternal notch/clavicle to cricoid cartilage. Zone 2, extended from cricoid cartilage to angle of mandible and Zone 3, Angle of mandible to skull base. Zone 1 and 3 are protected by the bones whereas the vital structures in zone 2 are more vulnerable to injuries.[6]

In cut throat injury there is possibility of severe hemorrhage due to high vascularity in neck, air embolism, airway injuries, leading to shock or death. It needs urgent appropriate intervention to prevent these complications and to save the life of the patients in form of resuscitation and securing the airway by emergency tracheostomy or intubation.[1]

Aim

To study the nature and management of neck injuries during COVID-19 pandemic in a period of one year at tertiary care center (2020-21).

METHODS

This is a retrospective study carried out in a period of one year, between April 2020 to march 2021, in department of ENT, IMS BHU, Varanasi. In our study, total 37 cases who came to trauma center of our institute were included. Cases willing to participate in the study irrespective of age and sex were included. Patients with unclear or unreliable history of trauma, with head injury or those not willing to give consent were excluded from the study.

The evaluation of the patients was done according to Advanced Trauma Life Support (ATLS) which started with primary survey of the patients, which includes; Airway, breathing, circulation, disability; and exposure. Secondary survey begins after primary survey which includes head to foot examination. GCS of the patients was evaluated, reaction of the pupil noted.

Important measures other than primary survey comprise of ECG monitoring, oxygen saturation, blood Pressure, random blood Sugar, hemoglobin, ABG and Chest X-ray.

Patients were managed by layered neck repair under general/local anesthesia preceded by CT scan neck and larynx to assess the extent and severity of injury and medico legal records.

RESULTS

Majority of the victims of cut throat were male outweighing females by nearly 11 times.

Most commonly involved age group was 21 to 30 years.

28 out of 37 (75.67%) patients were from rural area. Homicidal injuries were more common in rural patients.

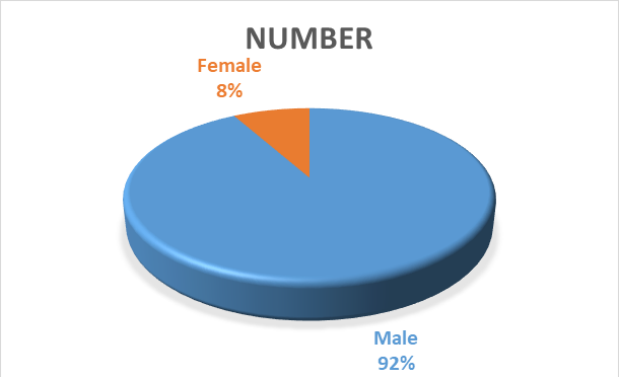

Figure 1: Gender wise distribution.

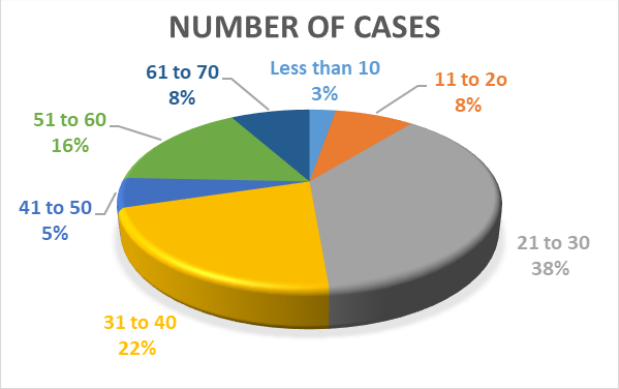

Figure 2: Age wise distribution.

Table 1: Residence of cases and mode of injury.

Residence	No. of cases	Accidental	Homicidal	Suicidal
Rural	28	6	18	4
Urban	9	3	3	3

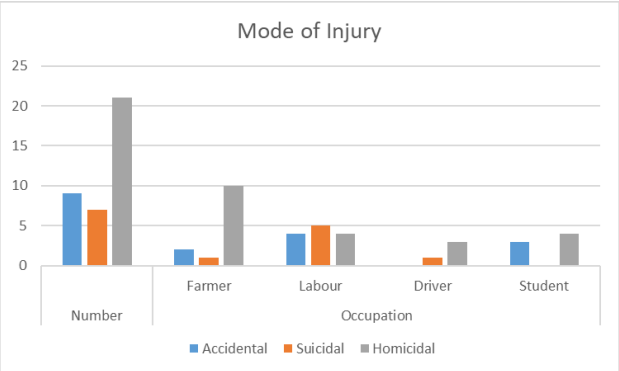

Figure 3: Mode of injury and occupation of patient.

Cut throat injuries were most commonly seen in farmers and laborers (35.14% each). Homicide was the most common mode of injury (56.75%) and farmers were most commonly affected, contributing of 47.62% of all homicidal cases.

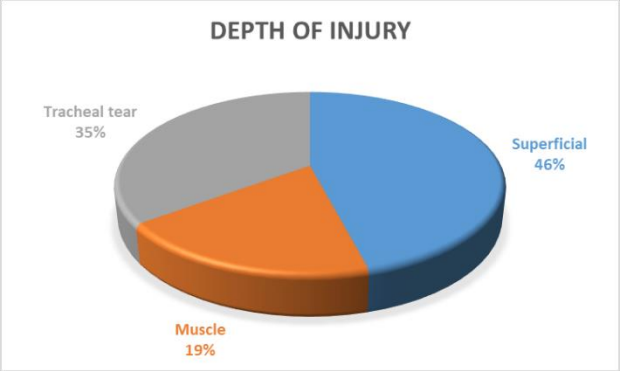

Figure 4: Depth of injury.

Superficial injuries were seen in 17 out of 37 cases (46 %) whereas tracheal tear was seen in 13 out of 37 cases (35%).

Table 2: Mode of injury and depth of injury.

Mode of injury	Superficial	Muscle	Tracheal tear	Total
Accidental	3	2	4	9
Suicidal	4	1	2	7
Homicidal	10	4	7	21
Total	17	7	13	37

Superficial injuries were more common in suicidal and homicidal attempts whereas no definite correlation was seen in accidental injuries.

In 11 out of 13 patients in which tracheal tear present, tracheostomy was done.

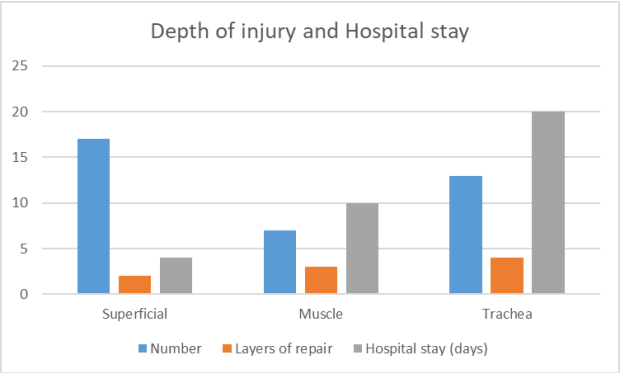

Figure 5: Depth of injury and duration of hospital stay.

Duration of hospital stay was directly proportional to the depth of injury.

Majority of the patients reported late to the health facilities with a mean delay of 12 hours with few exceptions who reported within an hour. This could be attributed by various factors including place of injury and poor socioeconomic status.

Table 3: Management time from injury.

S. No.	Time(hr)	No of cases
1	<1	3
2	1-6	11
3	6-12	12
4	12-18	7
5	18-24	3
6	>24	1

Management was done under general or local anesthesia depending on the extent of injury. 16 cases were managed under general anesthesia (13 with tracheal involvement and repair in 4 layers- tracheal, deep muscle, subcutaneous and skin repair) and 21 were managed under local anesthesia (4 involving muscle layer and 17 superficial).

DISCUSSION

In this study, total 37 cases were included, incidence was more common in male than female (34:3). Aich et al studied 67 cut throat injuries; 47 were males and 20 were females.[7] Chakraborty et al showed in their study that most of the victims of cut throat injury were males.[8] These studies indicate cut throat injuries to be more common in males as compared to females.

Age group of patients in this study ranged from 6 years to 68 years, 37.84% belonged to age group 21 to 30 years. Age incidence of the victims was 10 days to 68 years in the study done by Aich et al.[7] Most of the patients were in the fourth decade of their life in the study performed by Chakraborty et al.[8]

Most of the patients belonged to rural area (75.67%) and farmer or labour by occupation (35.14% each). Poor socioeconomic status and poverty have been associated with a high incidence of cut throat injuries, as studied by Onotai et al.[9]

Figure 6: Superficial cut throat injury by kite string, (a) pre operative picture and (b) post operative picture of the same patient.

Homicide (56.75%) was the leading cause of injury fallowed by accidental (24.32%) and suicide (18.92%) (Figure 1-4). Manilal et al stated homicide to be the commonest cause of cut throat injury, young adults of low socioeconomic class were mostly affected.[10] Modi et al observed that suicidal cut throat injuries are rare in

India.[11] Lesser incidence of accidental cut throat injuries can be attributed to COVID-19 pandemic and strict lockdown measures imposed as a preventive strategy during the pandemic. Accidental cut throat injuries caused by kite string i.e.; "Chinese Manjha" is being commonly reported at our center now-a-days.

Figure 7: Accidental neck injury in a road traffic accident, (a) deep lacerated wound without tracheal involvement & (b) repaired wound in double layers.

Figure 8: Self-inflicted neck injury with breach in thyroid cartilage, (a) at the time of presentation & (b) same patient at day 10 (elective tracheostomy done intra operatively).

Figure 9: Homicidal deep lacerated neck injury.

In 45.96% cases cut was superficial, 18.92% cases muscular plane was breached and in 35.14% cases tracheal tear was also present. Tracheal involvement was more in accidental injuries (44.44%) than homicide (33.33%) or suicide (28.57%).

All the cases were managed by primary neck repair in multiple layers (2 layers in superficial, 3 layers in muscle involvement and 4 layers in the cases with tracheal tear) under local or general anesthesia depending upon requirement, 11 out of 13 patients required tracheostomy in which tracheal involvement was there. The hospital stay was approx 4 days in superficial cut without muscle involvement, 10 days in which muscles were injured and 20 days in which additional tracheal tear was present. One patient with tracheal tear, who underwent tracheostomy and was repaired under general anesthesia expired on post-op day 4 due to complicated chest injury. Kundu et al concluded that early and appropriate measures could save the life of patients, mortality and morbidity depends upon delay in management.[5] Iseh KR et al. suggested that pharyngeal, hypopharyngeal and laryngeal mucosal injury should be ideally repaired early.[12] Onotai et al stated that cut throat injuries require a multidisciplinary approach and could be managed with better prognosis if the patients present early to the hospital and are given prompt attention.[9] Manilal et al concluded that young adults of low socioeconomic class are mostly affected and laryngeal stenosis was the worst complications.[10] Chandrakant et al concluded that there may be various etiology, extent and depth in cut throat injuries; prompt meticulous layer by layer surgical repair within 24 hours of the injury and stepwise post-operative management with nasogastric tube feeding in selected cases is advocated to avoid long term complication.[13]

All the patients were managed in ward with Proper antibiotics coverage, NSAIDS, regular dressing and tracheostomy care (in which tracheostomy was done), discharged and followed up for six months. No complication was seen in subsequent follow up.

CONCLUSION

Patients with neck injuries need multidisciplinary task in triage by otorhinolaryngologist, anesthetist, psychiatrist and trauma surgery team for better management of patients and favorable outcome. Life of the patients can be saved with less morbidity and mortality by the mean of good triage management and early intervention in hospital. ATLS training for otorhinolaryngology residents needs to be mandatory for efficient management of such patients.

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