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Case Series

# Cut throat injury pattern: suicidal– Illustration of case series

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## Abstract

Cut-throat injuries are incised injuries over the neck inflicted by any sharp object. It is most commonly seen in Homicidalcases followed by suicidal cases. Accidental cut throat wounds are extremely rare. In such cases, the circumstantial evidence and features like hesitation cut marks, defence wounds, retrieval of weapon from the death scene, state of clothing, history of mental illness, etc. gives an approach to a conclusion about the manner of death. This case series presented is about cut-throat injury. We are presenting these cases to discuss about the patterns and peculiarities of Suicidal cut throat wound and salient features in order to draw the opinion at the end.

**Keywords:** Self-inflicted wound, Cut throat injury, Stab wound, Hesitation cut, Suicide, Pattern.

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## 1. Introduction

Suicide is a significant public health concern in India. According to the National crime records bureau (NCRB), India reported 133,623 suicides in 2020 with a suicide rate of 10.4 per 100,000 population. There was an increase observed in this data in 2021 which is 1,64,033 and 1,70,924 suicides in 2022. Each year the data is recorded to be exponentially increasing. The majority of suicides occur among young adults of age group 18 to 45 years old. Males account for a higher number of suicides (74.4% in 2020) compared to females. The overall male to female ratio of suicide victims up to this latest data of 2022 was 71.8:28.2.[1] Hanging, poisoning, drowning, railway track suicides are the most common methods used in suicide. Few methods that are uncommon include, electrocution, self inflicted stab or cut throat, chemical or gas inhalation, intentional snake bites, etc.

Ruling out cut throat injuries as homicide or suicide have been a challenging task for autopsy surgeons. However, members of the medico-legal profession have accumulated experience in this area throughout the years. Fewer authors have also contrasted the two categories.[2,3]

## 2. Case Series

We are discussing three cases with suicidal cut throat injuries and their pattern.

### *2.1. Case 1*

A 26 year old male was brought to the casualty with a cut throat injury associated with a stab wound on chest. He underwent emergency treatment and surgical intervention and died after about an hour. The body was then shifted to the mortuary for further autopsy procedures. As per history given by friends and relatives, he was in conflict with his family for personal issues and there was no history of depression or suicide attempt in the past.

During death scene investigation, we noted that there was no suicide note, alleged weapon was retrieved from the scene, no forced entry or any housebreaking indications and bloodstain marks was found on the floor and wall of the kitchen. Apart from evidence of tracheostomy over front of neck done during surgical intervention, there were multiple injuries examined during autopsy both over neck and left side of chest.

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*2.1.1. Over neck*

There was a surgically stitched wound present on neck placed slightly obliquely downwards from left to right in direction. After removing sutures from skin and underlying superficial neck muscles,more sutures were present on deeper structures, over the Trachea (just below the level of thyroid cartilage) and Right Internal Jugular Vein. Extravasation of blood was present in the surrounding tissues. **Figure 1** shows that left side of neck injury is superficial with no tailing present as compared to the right side as shown in **Figure 2**.

**Figure 1:**

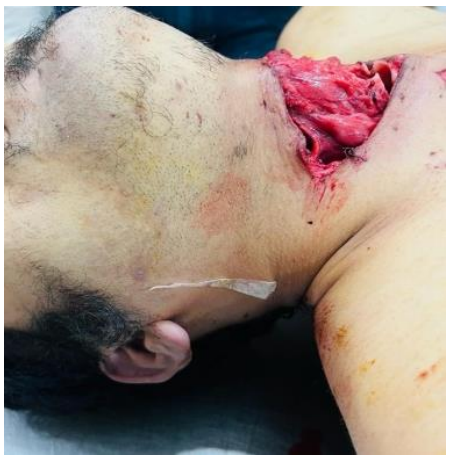

**Figure 2:**

*2.1.2. Over chest*

A surgically sutured wound was present on the left side of chest as well, almost horizontal just over the left nipple (**Figure 3**). Further exploration of the injury revealed that there was stab wound on the muscles of the 5$^{th}$ Intercostal Space (**Figure 5**). The wound was pleural cavity deep. This was inferred that weapon must have entered the cavity and pierced the left lung as there was a cut on the left lower lobe. About 1000 ml of blood was present in the left Pleural Cavity. Additionally a cut was also present over the clothes corresponding to the above mentioned stab on chest (**Figure 4**). There were no old or fresh healed hesitation cut marks anywhere else on his body.

**Figure 3**:

**Figure 4**:

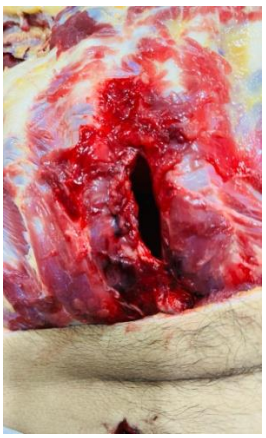

**Figure 5**:

*2.2. Case 2*

A 29 year old woman was presented in the casualty with history of self-inflicted cut throat injury. There was history of depression following the diagnosis of Breast Cancer with metastasis since the past 6 years. She was given the necessary treatment in emergency but succumbed to her injuries on the next day. The body was then sent to autopsy for further procedures.

There were three injuries on neck that were surgically sutured when body was received for autopsy examination. There was a drainage pipe in the front of neck along with a

tracheostomy wound done during surgical intervention. After removing the sutures, the wounds were superficial injuring the superficial neck muscles only. There was no significant damage to the vital vascular structures of the neck. The Jugular Vein was enlarged and intact as shown in **Figure 7**.

**Figure 6:**

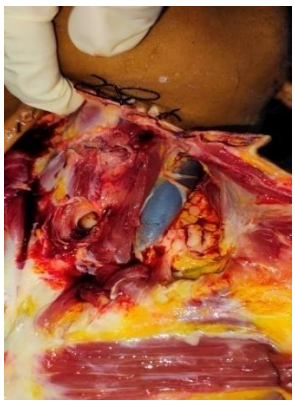

**Figure 7**:

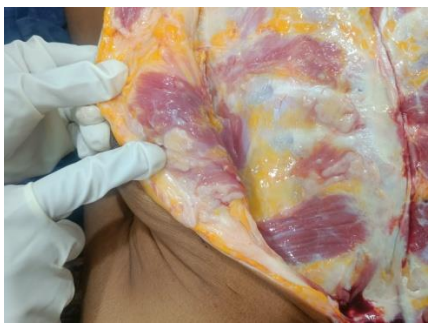

**Figure 8**:

Multiple linear old healed hypopigmented scars were seen on the flexor aspect of left forearm suggesting that she had previous suicidal tendencies. There was a hard nodular swelling over the upper inner quadrant of the left breast; underneath a whitish yellowish fungating mass with irregular borders was seen which corresponds to the history of breast cancer (**Figure 8**).

Internal organs were pale and in liver, lungs and spleen in there were multiple white, roughly circular, hard to touch and fibrotic tissue lesions grossly suggestive of metastatic lesions (**Figure 9**-**Figure 11**). This corresponds to the history given. Pleural effusion and Ascitic fluid was appreciated in the pleural and peritoneal cavities respectively. Grossly there were features of infections in both lungs on cut section. Both lungs were densely adhered to anterior chest wall with few multiple patchy consolidated areas. Multiple cavitary lesion and whitish caseous, cheesy material from the lesions was seen exuding out from the cut surfaces. Cause of death was inferred as shock and Sepsis as a result of bilateral Pneumonitis, which could be a complication of Ca Breast and its associated sequalae in lungs.

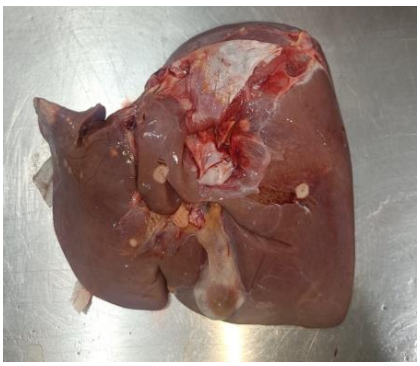

**Figure 9**:

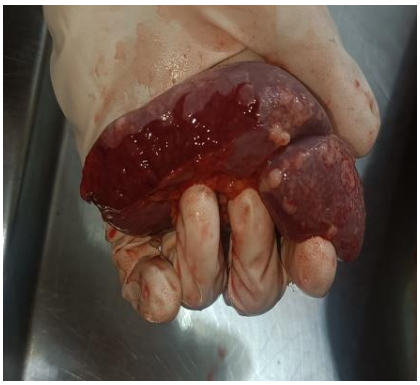

**Figure 10**:

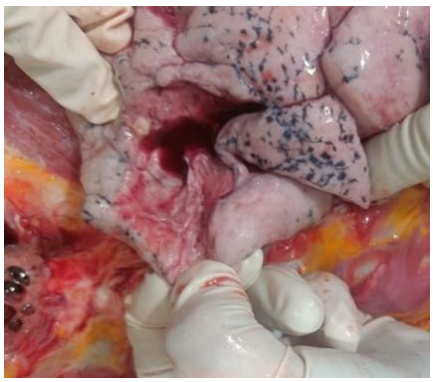

**Figure 11**:

The fungating mass on breast and suspected metastatic lesions were however later confirmed to be cancer and metastasis by histological examination.

Pale internal organs were due to long time ailment leading to features of associated Anemia.

*2.3. Case 3*

A 32 year old man was brought to the casualty with multiple injuries where he was declared brought dead. As per history by family, he was under treatment for psychiatric illness since 3 years. He was found alone in his room over a pool of blood. The room was locked from inside.

On receiving the body in mortuary, all clothes were stained with blood stains at places and left forearm was wrapped with a white cotton cloth. Underneath the cloth, there was an incised wound which was bone deep on flexor fold of the left wrist joint severing the ulnar artery. Underlying tendon and ulna bone were visible and tentative cuts were seen at the beginning of the wound on left end as well above the upper margin along the wrist fold (**Figure 13**). Two incised wounds were seen on front of the neck, one was slightly oblique and the other one was transverse. Both were muscle deep (**Figure 12**). No vascular structure was cut on the neck. Tailing is seen on the left end of the upper wound and on the right end on the lower wound suggesting direction of upper wound is from right to left and that of lower wound is from left to right. The subject was right handed which was confirmed by his family members at the time of autopsy. The cut on the left wrist is however justified by the well known dominant handedness concept. All wounds were relatively deeper on the right end. There were also multiple old healed scar marks on both neck and left wrist adjacent to the fresh injuries suggesting previous attempts of suicide. This correlates with the history of past mental illness.

Body was found on a pool of blood suggesting exsanguinations. All the internal organs were pale. Cause of death was concluded as shock and hemorrhage due to cut on Ulnar Artery.

Chemical analysis report of blood, viscera and urine in all the cases were negative, suggesting there was no alcohol or drugs taken prior to death. Cause of death in all the cases are different as mentioned above.

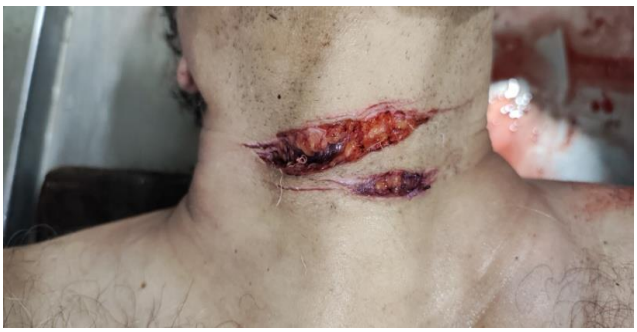

**Figure 12:**

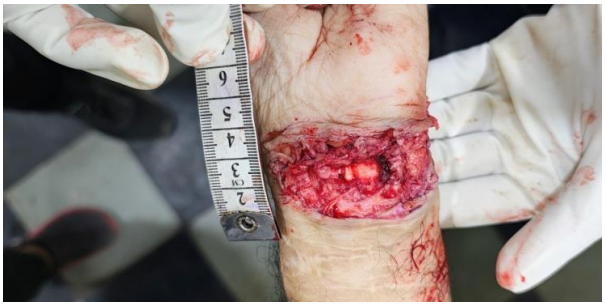

**Figure 13**:

## 3. Discussion

Cut throat injuries are most commonly seen in homicidal followed by suicidal cases. Accidental cut throat wounds are extremely rare. A classical suicidal cut throat incision is starting high on left side of the neck and directed to the right side obliquely with deeper on left side and shallower towards the right end of the wound, provided the person is right handed; the obliquity being reversed in a left-handed person. According to Knight this gives a clue regarding direction of the slit and the handedness of the victim.[4] However in our cases (1 and 3) the incised wound was superficial on the left side in case 1. And in case 3 both the wounds on neck suggested different directions considering their depths and tailings separately and both the individuals were right handed. Thus, our observation in these 2 cases does not mandatorily showcase the concept of dominant handedness of the individual in self inflicting a suicidal cut throat wound. However, in homicidal cut throat wounds, the depth of the wound is usually deeper through out. In Case 2, the length of the cut throat wound is oblique, lesser and very superficial without fatally injuring her. Cause of death was due to long standing ailment causing pneumonitis.

Forensic medicine practitioners frequently examine fatal self-inflicted injuries that are multiple in number associated with some form of preliminary hesitation cuts/incised marks, both old and fresh with earlier psychiatric history since they are relatively common anywhere on the body like in case 2 and 3. Multiple injuries with hesitation marks (both old and new) were seen both in case 2 and 3. Traditionally, suicidal incised neck wounds are multiple and are distinguished by a series of incisions at the starting point of the wound called as tentative cuts or hesitation marks. These suggests self-infliction, meaning that multiple attempts at cutting were halted due to discomfort or hesitation before eventually piercing through the skin and vital structures and cause death.[5-7] Multiple incised wounds over throat and forearms along with hesitation cuts were found in a deceased from Delhi.[8] However, a case study has been mentioned where tentative cuts were not present but a single cut throat injury over anterior aspect of neck, slightly obliquely placed at the level of laryngeal prominence in midline, extending deep up to the vertebrae was found. But it was a suicidal cut throat injury based on the circumstantial evidence including weapon retrieved from the crime scene, absence of any

defence wounds on the body, presence of psychiatric illness and old healed linear scars over anterior aspect of left forearm.[9] The fact of absence of hesitation cut (both old and fresh) or multiple cuts is similar to that in our observation in Case 1 and contrasting findings were seen in Case 2 and 3. Previous case reports of suicidal cut throats were published mentioning the absence of fresh hesitation cuts.[10,11]

Any form of previous known history psychiatric illness e.g., Depression, Schizophrenia, PTSD, Substance abuse, etc or any previous history of attempt to harm oneself are somehow associated in suicidal cut throat injury. In both case 2 and 3, there is known history of psychiatric illness and previous attempts of self harm. But in case 1, family and acquaintances didn't give such history, but that doesn't exclude the possibility that one can never inflict such a fatal injury to oneself without such history. In a study by Sharma K et al, majority of the patients were young male with underlying psychiatric illness.[12] A 39 y male in Bahrain committed suicide in a similar way like that in Case 1 but with a history of past prolonged mental depression.[13] However, earlier in a case report of an atypical suicidal cut throat injury in Karnataka, India, a detailed psychological autopsy was conducted with the deceased family members revealed no history of psychiatric disease or previous episodes of depression.[10]

Coming to suicidal stab injuries in chest, these are usually seen over the left side of chest, as it is a general knowledge about the presence of heart on left side amongst the laymen. The same concept is applied in Case 1. According to a study of Suicide by self-stabbing in Sheffield University, UK, 51% of the total cases has shown left sided chest self stabbed injuries.[14] A 30 y male in Rome was found dead with cut throat and rare suicidal stab wounds over the right transverse process of 7$^{th}$ cervical vertebra.[8] In the great majority of suicide cases by stabbing, the stabbed areas are more commonly unclothed.[15,16] Clothing does not show any kind of damage which is rather commonly observed in homicidal fatalities.[17] But in our case, our opinion stands on the belief that the deceased did not expose the skin because he did not view the thin kurta as a barrier to self-harm in that particular heat of the moment. In a similar case of multiple self stab, the subject had his clothes on.[18] In a study by Karlsson et al., they reported that the clothing was damaged in only 4 of 89 suicides by sharp injury.[19] In a study by S Fukube et al., clothing damage was observed in 11 (39%) of 28 cases where fatal injuries were located on the trunk covered with clothing. Collectively, clothing damage does not always indicate homicide.[20]

Weapon is usually retrieved from the death scene in suicidal cases which is another bonus point in all the three cases that directed towards suicide. Weapon was retrieved on the spot in all the 3 cases we discussed.

There were absence of defence wound anywhere else on the body along with the other findings in all the cases which excludes any kind of homicidal suspicion.

Unemployment can act as a stressful life event leading to suicide[21] with studies suggesting an increase in the par suicide and suicide rates among unemployed individuals than in the general population.[22] The link between unemployment and mental illness is however bidirectional as individuals with mental illness are less likely to be employed than those without mental illness.[23]

## 4. Conclusion

Throat-cutting is not a common method for suicide. The most important task for forensic experts is to distinguish between suicidal and homicidal cut-throat injuries. We as forensic medicine experts should consider all the aspects such as examination of details of death scene, examination of clothing, minute external injuries, pattern of the different types of injury all over the body, history of mental illness and other corroborative factors to conclude cause, manner and mode of death in such cases.

## 5. Source of Funding

None.

## 6. Conflict of Interest

None.

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