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## Case Report

### **Fatal Tracheal Perforation in Self-Inflicted Stab Injury to Neck with a Pair of Scissors – A Case Report.**

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emphysema.

#### Abstract

**Background:** Self-inflicted sharp force injuries to neck are cut throat and stab wounds. Stab wounds to neck are relatively uncommon than cut throat in suicide. Sharp objects such as knives, razor blades, screw drivers and cutters are commonly used to self-inflict injuries over neck. The preferred site for self-inflicted stab are chest, neck and abdomen. Vascular and aero-digestive tract injuries are common in stab injury neck. The spectrum of injuries depend the handedness of the person, type of weapon, force and the relative position of the weapon to the person. **Case Presentation:** We report a case of self-inflicted stab injury over the neck with a pair of scissors by a young male under the influence of alcohol. The injury was single in nature and no tentative cuts were present. **Conclusion:** Self-inflicted stab injury to the neck with a pair of scissors is uncommon. Combination of thyroid, trachea and jugular vein injuries in self-inflicted stab injury with scissors are rare in forensic literature. Meticulous dissection is to be carried out to assess the tract of the injury to correlated with the weapon used.

#### 1. Introduction

A Self-inflicted sharp force injuries to the neck are generally cut-throat and stab wound. Stab injuries to neck are relatively less than cut injuries. Sharp objects like knives, razor blades, screw drivers and cutters are commonly used for stab injuries to the neck. Self-inflicted stab injuries to the neck are generally in the left side of the neck and mostly depends on the handedness of the

person.<sup>1</sup> A pair of scissors are relatively uncommon sharp object used for self-inflicting stab injury to neck. Aero-digestive and vascular injuries are common in self-inflicted stab injury neck. Thyroid gland and cartilage injuries are more common in blunt trauma than penetrative neck trauma. Thyroid gland perforation are uncommon in penetrative trauma.

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Thyroid gland perforation are uncommon in penetrative trauma. This case report focusses on spectrum of injuries caused by pair of scissors to the neck.

## 2. Case presentation:

A 24-year-old male, an unemployed youth from rural background and was a chronic alcoholic and drug addict. He presented to the emergency department, with self-inflicted stab injury over the left side of the neck. On eliciting the history, he had self-inflicted the injury with a pair of scissors and was under the influence of alcohol. On examination there was continuous bleeding from the wound, suggestive of vascular injury. Swelling of face and neck region was observed, which was due to sub cutaneous emphysema, suggestive of aero-digestive tract injuries. The patient was breathless and found to be having feeble pulse and blood pressure. Bilateral intercostal drainage tube was inserted to relieve the pneumothorax. The patient was posted for emergency neck exploration surgery; however, he expired within one hour of the incident. On autopsy examination, an obliquely placed stab wound of size 2.5cm X 1.5cm was present over the left side of the neck and was placed 5cm below the mastoid process. The margin of the wound was clean and the depth of the wound was up to the tracheal lumen (Fig.1).

**Figure 1:** Stab wound on the left side of neck.



Bloodless neck dissection technique was applied in order to assess the track of the wound. On exploring the layers of neck, the tract was observed to be obliquely passing through the submandibular gland, internal jugular vein, left lobe of the thyroid gland and the left lateral wall of the trachea. However, the carotid artery was surprisingly found to be intact. In addition, the left lobe of thyroid was perforated and haemorrhagic. A distinctive finding of

note in the autopsy was the air collection seen in the sub-capsular plane of the thyroid gland (Fig.2).

**Figure 2:** Air collection in the sub capsular plane of thyroid gland.



**Figure 3:** Tracheal perforation at the left lateral wall.



On separating the thyroid gland, the tracheal perforation of size 0.2 cm in diameter in the left lateral wall was present (**Fig.3**). The air collection in the sub-capsular plane in the thyroid could be explained due to the seeping of the air from the tracheal perforation below. On opening the thoracic cavity, lungs were intact and on cut section, both lungs were congested and oedematous. No aspiration of blood was seen in the tracheo-bronchial tract. Rest of the organs were intact and congested.

### 3. Discussion:

Self-inflicted stab wound were commonly seen in males than females.<sup>2,3,4</sup> The most common sites in self-inflicted stab wound were the chest, neck, abdomen and head.<sup>3,5</sup> A study done by Karger, showed that 63 % of stab injuries were seen in the chest and of which 55% involved the left side of chest.<sup>3</sup> A study by Byard on the clinic-pathological features of fatal self-inflicted stab injuries showed neck was the preferred site in 40% of males and 25% of females.<sup>6</sup> The number of self-inflicted stab injuries may be single or multiple i.e. two or more sites.<sup>3,5,7</sup> A 10-year study by Karlsson on suicidal sharp force injuries showed that there were only two cases of single stab injury to neck out of 105 cases.<sup>8</sup>

The sharp object's used for self-infliction of injuries were mostly knives, razor blades, cutters, and others.<sup>3,5,8</sup> Sharp object such a pair of scissors are not commonly used for self-infliction. Studies by Karger B, Karlsson and Fukube et al have documented minimal cases in which scissors were used for self-inflicting injuries to the neck. However, the type of injury i.e., cut-throat or stab inflicted by scissors was not documented. Generally, cut throat injuries are common with scissors than stab injuries. Study by Vanezis on tentative injuries in self-stabbing showed that there were only two cases of self-inflicted stab neck and of which only one had tentative cuts on the skin.<sup>9</sup> Self-inflicted stab injuries to neck are common, however self-inflicting stab injuries with a pair of scissors is rare in forensic literature.

The most common zone of neck in penetrating neck trauma due to stabbing is zone II and the injury in this case was in Zone –II consistent with literature.<sup>4</sup> Vascular and aero-digestive tract damages are commonly seen in sharp force injuries to neck. Jugular vein followed by carotid artery were the commonly injured vascular structures. Pharynx, trachea, larynx, oesophagus, submandibular gland, floor of the mouth and thoracic duct injuries were

common in stab injuries.<sup>10</sup> Study by Shama on tracheal and oesophageal injuries following cervical stab wound has shown 13 cases of oesophageal injuries and 11 cases tracheal injuries. Trachea is commonly injured while oesophagus is least injured because it is positioned safely behind the trachea.<sup>11</sup> As per the Schafer-Fuhrman classification, this case falls under Group-3 of laryngotracheal trauma.<sup>12</sup>

Neck crepitation and pneumothorax are the signs of tracheal injuries. A study by Goudy showed 37% of tracheal injury were associated with cervical emphysema.<sup>13</sup> The subcutaneous emphysema, in this case, falls under Grade IV (chest wall and all of the neck area).<sup>14</sup> Injuries to thyroid gland rupture are common in blunt trauma neck than in penetrating trauma neck. Penetrating injuries include gun-shot, stab and cut injuries.<sup>15</sup> Thyroid gland haemorrhage in this case was very minimal and concealed. However, the sub capsular air collection in the thyroid gland is very uncommon and rarely reported in literature.

### 4. Conclusion

Cut throat injuries are common than stab injury in suicidal cases. Stab injury neck is more common in homicide than in suicidal deaths. Self-inflicted stab injury to neck with a pair of scissors is uncommon in forensic literature. Injuries to the neck structures and vascular bundle depend upon the following factors such as type of weapon used, angle of the infliction, force of infliction and dexterity/handedness of the person.

The internal jugular vein and the tracheal injury were consistent with self-inflicted sharp force injuries to neck. Thyroid gland injuries are more often common in blunt force impact on neck rather than sharp force injuries [cut throat and stab]. In this case report thyroid gland perforation associated with air collection in subscapular plane of the thyroid gland is a unique finding in stab neck injuries literature. Meticulous dissection of neck by forensic surgeons will be helpful to clearly assess the injuries and track of the wound in such cases.

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