



Clinical Forensic Assessment of Victims with Stab Wound

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ARTICLE INFO	ABSTRACT
<p>Keywords: Assault, Chest, Scoring system, Stab Wound, Wound Classification</p> <p>Submitted: May 24th 2024 Reviewed: May 29th 2024 Accepted: June 28th 2024</p>	<p>Introduction: Violent crimes using sharp objects are a common problem in Indonesia because sharp weapons can be easily accessed. When evaluating sharp-force injuries, the correct interpretation of the morphology of individual wounds, as well as the overall pattern of findings, is of paramount importance in the reconstruction aspect of the crime. Any knowledge of the occurrence and distribution of sharp force injuries in knife attack victims and perpetrators can help to verify statements or expose defensive lies.</p> <p>Case: We present, a patient from another hospital came to the emergency room at Doctor Soetomo Hospital with a stab wound to the right chest. The 35-year-old male victim, with the initials SPJ, admitted that he was stabbed by his brother. The victim's vital signs were stable when examined. On the right chest, an open wound with flat edges and sharp and blunt angles was found, measuring three centimeters long and five centimeters wide. The victim underwent radiological and laboratory examinations, installed water-sealed drainage, and was administered anti-pain and antibiotics.</p> <p>Discussion: The qualification for this patient's wound based on the Indonesian Criminal Code and the scoring carried out is a moderate wound.</p> <p>Conclusions: Based on the law and the scoring carried out by the author, the wounds on the patient's body are injuries resulting from a criminal act and are included in the category of moderate abuse, which means that the injuries that occurred to the victim did not cause death or cause permanent disability but caused temporary obstacles in carrying out work.</p>

Introduction

Trauma to the chest is associated with the highest mortality rate (Adal et al., 2024). Sharp or blunt objects can cause chest trauma. Although blunt trauma is more common, trauma from sharp objects can be acutely life-threatening (Ludwig and Koryllos, 2017). Law enforcement officers

may send the injured victim for routine treatment and, of course, for a medicolegal report on the case. Examination methods, legal aspects, and psychopathology are part of forensic procedures (Barek and Haque, 2013). A forensic examination report in the form of a postmortem et repertum is required to prove violence.

For the period January to November 2023, crimes involving sharp weapons occurred more frequently in Indonesia than crimes involving firearms. There were 3601 cases of crimes involving sharp weapons, with a total of 553 victims and 4,107 reported persons (Pusiknas Bareskrim National Police, 2024).

Case

On April 2, 2024, at 22.15 WIB (GMT +7), a man with a stab wound came to the emergency room at Dr. RSUD. Soetomo Surabaya was accompanied by his family. The victim was a referral patient from a different hospital. According to the victim, he had an argument with his brother, and he was hit until he fell. When he was about to get up, the victim's brother took a knife from his jacket pocket, stabbed the victim in the right chest, and pulled the knife back. The victim held his chest in pain, then ran outside to seek help from local residents. Residents took the victim to the hospital closest to the incident location.

The general examination revealed that the patient, a 35-year-old male, measured 165 centimeters (cm) in height, weighed 70 kilograms (kg), had dark skin, and had a good nutritional status. The victim was fully conscious, exhibiting a blood pressure of 126/70 millimeters of mercury (mmHg), a pulse rate of 76 times per minute, a

respiratory frequency of 20 times per minute, and an oxygen saturation of 98 percent. The victim's armpit temperature was measured at 36 degrees Celsius (oC). Pain scale 4 (somewhat interferes with activities), with the frequency of pain coming and going and the quality of the pain being dull and radiating. Karnofsky's 70 results.

Physical examination revealed no anemic or icteric conjunctiva, symmetrical chest movement, and no retraction. There is a slight decrease in the right vesicular lung sounds compared to the left, and no rales or wheezing are present. The right hemithorax is duller to percussion than the left. There were no abnormalities in the heart sounds. The abdominal examination revealed no abnormalities. Upon examination, we found no edema, the extremities felt warm, and the capillary refill time (CRT) was less than 2 minutes (Figure 1a).

Examining the wound on the chest, 3 cm to the right of the mid-front line, 5 cm below the nipple, and 120 cm above the heel, revealed an open wound that measured 3 cm x 0.5 cm and was elliptical in shape with flat edges, sharp-blunt angles, a tissue wound base, and no tissue bridge (Figure 1b).

A complete blood count revealed a decreased hematocrit level of 38.9%, a high pO₂ of 108 mmHg, and hypokalemia of 3.1 mmol/L. Upon radiological examination,

no visible infiltrates were found in the lungs. A homogeneous covering appeared in the right lower hemithorax, the middle lateral covering of the right phrenicocostal sinus, and the right hemidiaphragm (Figure 2).

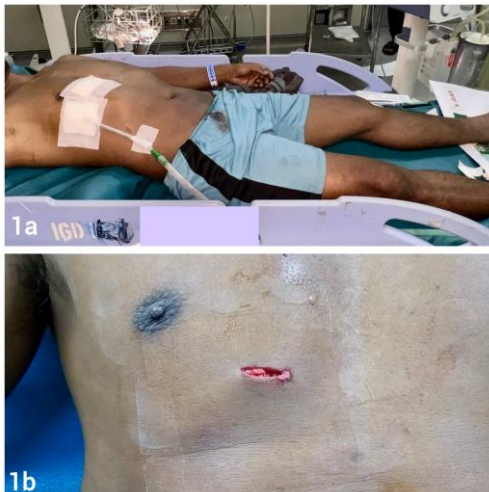


Figure 1. Patient Examination. General condition inspection (a); Wound examination (b)

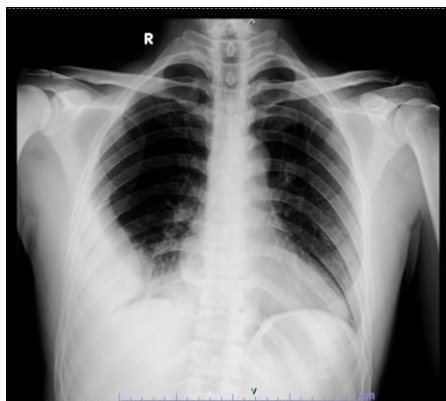


Figure 2. Chest Radiological Examination. A homogeneous lesion was found in the lower right hemithorax

We administered intravenous fluid drops (IVFD), analgesic nasal oxygen, antibiotics, bronchodilators, expectorants, and installed a water-sealed drainage (WSD) with a 28-fr

chest tube in the patient's ICS 6-7 right thorax. Next, we placed the patient in a semi-fowler position and conducted an evaluation. Continue assessing the patient's breathing patterns, breath sounds, sputum and blood, and pain levels. The patient improved on the third day of treatment.

Discussion

Forensic examination of trauma injuries is a concept of trauma examination from a medicolegal perspective in certain jurisdictions. Wounds caused by physical trauma can be immediately evaluated clinically in an outpatient or hospital emergency department. Based on the mechanism of injury, direct physical trauma can be classified into blunt force trauma, sharp force (penetration), and deceleration (Dumovich, 2022). In clinical practice, trauma cases are categorized as minor or major based on a series of treatment triage criteria. Therefore, in forensics, medical practitioners need to classify trauma in a way that is appropriate, can be understood by the justice system, and can provide clues to the cause (Hoffman, 2014).

Sharp trauma is a type of trauma that is a division of mechanical trauma. A sharp trauma is an abnormality in the body caused by the contact of an object with a surface that is capable of cutting or penetrating so that tissue continuity is lost. Usually caused

by swords, scissors, razors, axes, and others. Injuries resulting from sharp trauma can include cuts, slash wounds, and stab wounds (Yudianto, 2020).

A stab wound is a penetrating wound that is deeper than it is wide. Objects that cause this type of injury have sharp and pointed edges, usually in the form of daggers, ordinary knives, scissors, screwdrivers, bayonets, ice picks, etc. (Hakkenbrak et al., 2022). The common denominator of these tools is the presence of a sharp, pointed tip that can penetrate tissue with varying degrees of force. Even the slightest force can cause severe puncture injuries and damage to vital structures in the body (Carabellese et al., 2018).

In this case, the open wound on the patient was the result of a sharp weapon in the form of a stab wound because the wound was larger than the length of the wound (Yudianto, 2020). The stab wound to the chest, which is a vital area, shows that the perpetrator aimed to fatally injure the victim. The stab wound was single and on the right side, which means the perpetrator was facing the victim and used his right hand, so this matches the victim's statement that when the victim was about to get up, the victim was stabbed by the perpetrator (Sauko and Knight, 2016). The angle of the wound in this case is sharp on one side and blunt on the other, or a sharp, single-edged

weapon, which is generally a knife. The depth of the stab wound was not determined, while the length of the stab wound was 3 cm and the width of the wound was 0.5 cm. This indicates that the dimensions of the weapon used were a knife with a maximum width of 3 cm (Sitepu, 2022) (Figure 3). As a result of this wound, the patient had to undergo 10 days of treatment, including receiving a WSD for hemothorax, treating and suturing the wound, and administering medication. The wound does not cause a life-threatening condition, but it creates obstacles to carrying out work or daily activities for a while.



Figure 3. The perpetrator's weapon

To determine injury qualifications, we conduct an assessment based on three assessments: the applicable Indonesian criminal law, the injury scoring system, and the Barthel index. In the law-based assessment, we consider the role of daily activities. Although considered, the system remains subjective in nature. The injury scoring system solely assesses location,

without considering function. On the other hand, the Barthel index serves as an assessment tool, measuring functional independence in terms of self-care and mobility, using a scoring system based on a person's ability to carry out life activities independently. Combining these three, we can determine the qualifications of the injuries in this case.

According to Criminal Code Chapter XX, Article 351 Paragraph 2, and Article 353 Paragraph 1, the perpetrator had a pre-existing problem or grudge and planned to abuse the victim by preparing a sharp weapon, which he carried in his jacket pocket. The punishment is a maximum imprisonment of two years and eight months, or a maximum fine of four thousand five hundred rupiah. This injury qualifies as a moderate injury due to its ability to induce illness or temporarily impede the victim's work (Moeljatno, 2006).

Based on the scoring carried out with the Injury Severity Score (ISS), there are six locations assessed, namely: head and neck, face, chest, abdomen, extremities, and skin. From these locations, the three with the highest values were selected, then each value was squared and then added up. The ISS interpretation is as follows: 1–8 = mild injury; 9–15 = moderate injury; 16–24 = severe injury; >24 = very severe injury

(Garcia et al., 2024). The patient received an ISS result of 9, indicating a moderate injury. Based on the scoring carried out with the Revised Trauma Score (RTS), there are two parameters assessed, namely consciousness, respiratory rate, and systolic blood pressure. The RTS interpretation indicates a value below the established threshold of 4, necessitating immediate treatment at a trauma center. The higher the RTS, the higher the chance of survival (Mohammed et al., 2022). The patient obtained an RTS result of 7.5500 or greater than 4, so he did not require treatment at a trauma center. Based on the scoring carried out by the Trauma and Injury Severity Score (TRISS), a combination of assessments from the ISS and RTS and age are used as calculations in the formula (Indurkar et al., 2023). In this patient, the TRISS score was obtained with penetrating trauma, with a recovery rate of 98.76%. Based on the Barthel index scoring, there are three points assessed: activity, hygiene, and mobility (Knauf et al., 2019). In this patient, a Barthel score of 65 was obtained, which states that the patient is still minimally dependent on carrying out daily activities due to the injury. Of all the scoring carried out on this patient, it excluded minor injuries and supported the assessment of the degree of injury

determined based on the Criminal Code, namely moderate injuries.

Conclusion

A forensic report prepared by a doctor must be able to assist law enforcement by providing conclusions that are in line with medical science and law enforcement requirements.

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