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A Case Of Deep Dissection: Bruise Vs Sepsis

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Abstract:

A hematoma, which is externally visible as a bruise, is characterized by localized bleeding and discoloration of the skin. It occurs due to bleeding from a vascular structure. Similar to other types of bleeding, the cause can be related to bleeding tendencies, anticoagulation, or vessel injury. Vascular injury may result from external abdominal trauma or surgical procedures (iatrogenic). Hematomas represent significant bleeding events within deep soft tissues, often triggered by minimal trauma. Initially, they appear as painful swelling lesions, which can be mistaken for severe infectious conditions like cellulitis or necrotizing fasciitis. Sepsis, also known as septicemia, is the body's extreme response to infection. It occurs when germs (such as bacteria, viruses, or fungi) enter the bloodstream, leading to blood poisoning. Sepsis can cause septic shock and organ failure, with a potentially fatal outcome in up to half of cases. Immediate medical attention is crucial. If left untreated, sepsis can rapidly damage tissues, impair organ function, and result in death. In a unique case encountered in the mortuary, distinguishing between hematoma and sepsis becomes challenging based on the available information.

Keywords: *Hematoma, Bruise, Trauma, Sepsis, Death.*

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Introduction

Mechanical injury is the term used to describe harm to the body resulting from mechanical forces, which can lead to tissue loss and is commonly known as a wound. This type of injury can be categorized into two primary forms: blunt force and sharp force. Additionally, there are injuries caused by non-mechanical forces, including thermal, chemical, electrical, and electromagnetic sources. Blunt-force trauma is a type of injury that occurs without the involvement of cutting instruments and can result from various forces such as impacts, pulling, twisting, or shearing **(Sharma, 2005)** Bruises are skin discolorations that occur when blood leaks into the underlying tissues from injured small blood vessels, typically veins and arterioles. The term 'bruising' is specifically used to describe external marks visible on the skin due to blood leakage into the skin and subcutaneous tissues, whereas 'contusion' refers to blood leakage into tissues within body cavities. A 'hematoma' is a term for a collection of blood under the skin that can be felt. Petechiae are tiny bruises, often described as pin-point hemorrhages, and are typically less than 2 mm in size. The term 'ecchymosis' refers to the accumulation of blood in subcutaneous tissues **(Payne-James *et al.*, 2014).** Wound infection occurs when microorganisms invade and disrupt healthy tissue, triggering an inflammatory response from the host. This interference impedes the healing process. While the inflammatory mechanisms in both acute and chronic wound infections are similar, the key difference lies in the control of the inflammation: in acute wound infections, the host manages the inflammation, whereas in chronic wound infections, the inflammation is driven by the microorganisms **(Hurlow and Bowler, 2022)** If a wound is not properly cleaned and covered, it can become an entry point for bacteria, viruses, or fungi, leading to infection. Sepsis occurs when the body responds to an infection by releasing chemicals into the bloodstream, which can result in organ failure and death. The most effective way to prevent sepsis is by preventing infections in the first place. Sepsis is a condition that can vary in severity from mild symptoms to severe organ dysfunction and shock. The manifestations of sepsis are determined by factors such as the pathogen's virulence, the point of entry into the body, the host's susceptibility and immune response, and the progression of the condition over time **(Lever and Mackenzie, 2007).**

Case Report

It is a case of 48-year-old male laborer who was brought to the mortuary of tertiary care hospital for a postmortem examination. According to the investigating police officer, the incident occurred two days prior while the victim was taking an evening walk on the terrace. He slipped and fell onto an iron rod kept in the corner of the terrace. The victim did not receive any medical treatment for the past two days and remained at home, dying suddenly around 11 a.m. on the second day.

Autopsy Findings

Received a dead body of male individual wrapped in white sheet of cloth. It was wearing: A white color full sleeved shirt with seven buttons in front, all intact, a grey color pajama with white color nada in-situ, intact and tied, a grey color elastic waist underwear, a red color sacred thread was present around right wrist joint. A gauze piece with surgical tape was present over left cubital fossa. On removing it, therapeutic IV puncture mark was present underneath. A gauze piece with surgical tape was present over right front abdominal region. The eyes were partially open and mouth was closed. Physique was well built. Rigor mortis was well developed all over the body. Faint purplish lividity was present over the back and in dependent areas and was fixed. No ligature mark was present around the neck. Pupils were semi dilated and fixed. Conjunctiva was pale.

On examination of external injuries, a reddish-brown abrasion of size 5 cm x 1 cm was present over right front abdominal region underneath the gauze piece described vide supra situated 7 cm lateral to umbilicus and 23.5 cm below the right nipple (Fig. No. 1). A bluish black bruise of size 39 cm x 42 cm was present over front abdominal area, both flanks and right inguinal region situated 9.5 cm below the sternal notch (Fig. No. 2). On dissection, area extending from right hypochondrium till both inguinal areas including underlying tissues and muscles were ecchymosed which was not washable with water. Clotted blood was present in tissues (Fig. No. 3). Underlying bones were intact. On further exploration, the peritoneum was intact and no abnormal fluid was present in peritoneal cavity. The organs of abdominal cavity viz. liver, both kidneys, intestines were pale grossly. Liver, both kidneys were pale on cut sections. Spleen was unremarkable grossly and on cut sections. Stomach contained around 80 cc of yellowish liquid material with no peculiar odor. Gastric mucosa was pale. Pancreas was softened. All other visceral organs were pale. So, cause of death was given as "Hemorrhagic shock consequent upon injuries described. However, viscera had been preserved for chemical analysis and histopathological examination." Injuries mentioned were antemortem in nature and were due to blunt force.

Figure No. 1: A Reddish-Brown abrasion present over right front abdominal region.

Figure No. 2: A Bluish Black Bruise of present over front abdominal area

Figure No. 3: On dissection, area extending from right hypochondrium till both inguinal areas including underlying tissues and muscles were ecchymosed.

Discussion

In the current case, the issue arises after the initial external examination and the information provided by the attendants and investigating officer. The question is whether the bluish-black discoloration on the abdomen is a bruise or a result of an infection leading to sepsis. As the autopsy progressed, there was no evidence of pus discharge; instead, extensive ecchymosis and clotted blood were found over a large area of the abdomen, suggesting complications from hypovolemic shock. Hypovolemic shock occurs due to a significant loss of circulating blood volume, leading to systemic hypoperfusion. If not treated promptly, this can cause ischemic injury to vital organs, resulting in multi-organ failure and death **(Taghavi *et al.*, 2023).** The deceased and their attendants should have recognized the severity of the injury and sought immediate hospital care following the incident to prevent complications. Administering fluids is a crucial intervention to improve tissue perfusion and prevent shock progression, not only in septic shock but also in hypovolemic shock. While the optimal type of fluid remains debated, ample evidence shows that early fluid infusion improves patient outcomes **(Pessoa *et al.*, 2022).** Unfortunately, due to carelessness from the side of deceased himself, the injury worsened over time, ultimately leading his death.

Conclusion

It is recommended to take a detailed history of the incident, conduct a scene visit, and perform a thorough postmortem examination with histological analysis before determining the cause of death. Additionally, it is important to educate the public not to take health issues lightly, as demonstrated in this case report where a simple mechanical injury escalated into a fatal complication.

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