Forensic Examination in a Homicide Case Due to Suffocation: A Case Report

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Abstract

Background: Smothering is a form of death due to asphyxia which is caused by obstruction of air flow from the mouth and nose which can be caused by various things such as hands, air-tight paper or textiles. Homicide smothering often occurs in infants, children, vulnerable adults and individuals with limited mobility. Smothering will cause a person to die from suffocation.

Case Description: The body of a 4 year 9 months old female was found smothered. On external examination, bruises resembling grips were found on both left and right upper arms, bruises resembling grips were also found on both left and right thighs. There were blackish purple bruises on the back. On internal examination, petechial bleeding was found in the heart.

Discussion: Smothering is a form of asphyxia caused by obstruction of the external respiratory opening, either by hand or by other means. Apart from that, it can also be caused by blockage of the nasal and oral cavities due to the entry of foreign objects. Based on the facts obtained from the examination, injuries were found due to blunt force in the form of bruises on the upper and lower lips, back area, upper and lower arms. So it can be concluded that the victim died from suffocation due to the closure of the respiratory tract.

Conclusions: External examination and autopsy of the body are very important things to do, especially in crucial cases where there is done to help seek justice for the victim.

Introduction

Asphyxia is a condition in which the body experiences a lack of oxygen caused by the disruption of supply and transportation between the environment and the organs. Death due to asphyxia can occur as a result of homicide, accidents, or suicide.[1] Mechanically, death from asphyxia occurs in two ways. First, it can be caused by pressure applied to the neck, chest, or other parts of the body that halts respiratory activity. Second, it can result from certain positions that make breathing difficult. The first mechanism is commonly used to kill someone, while the second is often associated with suicide.[2]

Smothering is one form of death due to asphyxia caused by the obstruction of airflow from the mouth and nose, which may be caused by various means such as hands, airtight paper, or textiles. Smothering as a result of homicide often occurs in infants, children, vulnerable adults, and individuals with limited mobility. Smothering leads to death by suffocation.[3]

Asphyxia ranks third in forensic medicine cases after traffic accidents and mechanical trauma.[4] The most common cause of death by asphyxia in forensic medicine is mechanical asphyxia. Several causes of asphyxia include suffocation, smothering, strangulation, and choking. A study by Siskha Sabilla et al. (2022) reported 44 cases (7%) of deaths due to asphyxia out of 575 cases documented at Dr. Moewardi General Hospital from 2010 to 2020.[4] The latest data from the Centers for Disease Control (CDC) from 1999–2004 reported 20,000 cases of various types of death caused by asphyxia, including drowning, hanging, ligature strangulation, and smothering. Additionally, in 2012 in India, 343 autopsy cases were reported at Citradurga General Hospital, with 36 cases of death caused by asphyxia (10.50%).[5] In this case, a 4-year-9-month-old female was found smothered.

Case Description

A postmortem examination was conducted on the remains of a female child estimated to be approximately 4 years and 9 months of age. The body was discovered wrapped in a black plastic body bag labeled “BASARNAS” (National Search and Rescue Agency) and a batik-patterned sarong with an orange base color and floral motifs in white, black, and brown. The sarong was observed to be damp and exhibited a tear on its lower portion. A second piece of clothing, a long batik fabric with a brown background and abstract pattern in light brown and black, was also present.

The child was wearing a short-sleeved cotton T-shirt in turquoise green, bearing an image of Donald Duck and the text "little point" printed beneath, in size M. The garment appeared saturated with decomposition fluid. Additionally, a pair of light blue cotton underwear was found; it was moist and stained with fecal matter. Jewelry included a silver ring shaped like Mickey Mouse on the middle finger of the right hand and a pair of silver earrings, each adorned with two pearls, on both ears.

External examination revealed no foreign objects in proximity to the body. Due to advanced decomposition, neither rigor mortis nor livor mortis could be assessed. The deceased was identified as ethnically Indonesian of Mongoloid descent. Her body length measured 103 cm. Assessment of skin condition and nutritional status was not feasible due to decomposition.

Ocular findings included partial opening of the right eye (approximately 0.5

cm), with redness observed in the sclera, while the left eye remained closed. The conjunctiva of the left eye measured 0.4 in transparency. The left iris was brown, and the right iris was reddened. Pale conjunctiva was noted on the left eyelid, while reddish bubbles were visible on the right. The face from the nasal bridge to the chin was obscured by black adhesive tape. Upon removal, a flattened nasal profile and oval-shaped auricles were evident.

The oral cavity was partially open (approximately 2 cm), with protrusion of the tongue and evidence of biting injury measuring 1.5 cm in length. Clear fluid was noted emanating from the vaginal opening, and brownish fecal matter was observed exiting the anal region.

Multiple contusions were documented across various anatomical regions. On the anterior aspect of the right thigh extending to the knee, a bruise measuring 18 × 12 cm was identified. This lesion exhibited irregular borders and a curved imprint at its inferior margin consistent with fingerprint-like markings, suggestive of manual compression or gripping (see Image 1).

A comparable contusion was observed on the left thigh, extending from the lateral to medial aspect toward the knee, measuring 22 × 14 cm. It similarly displayed a curvilinear contour at the lower edge, indicative of possible contact with human digits (Figure 1). A widespread bruise extended from the upper right arm to the forearm, measuring 22 × 20 cm in dimension. Two distinct circular bruises were noted within this area, exhibiting morphology consistent with digital pressure marks (Figure 2).

On the left upper extremity, from the upper arm to the forearm, a longitudinal contusion measuring 24 × 15 cm was recorded on the anterior surface. This bruise contained two round impressions resembling fingertip impressions, further supporting the possibility of manual force application (Figure 3).

Facial injuries included dark blackish discoloration affecting both the upper and lower lips (Figure 4). Additionally, a 10 × 5 cm bruise of purple-black hue was identified on the dorsal region. This lesion was irregular in shape, with no palpable fractures detected upon bony assessment (Figure 5).

The body was subsequently transported to Bhayangkara Hospital under the jurisdiction of the Serang City Police Department for full autopsy in order to determine the precise cause and manner of death. Histopathological and toxicological analyses are recommended to complement macroscopic findings and support a comprehensive forensic evaluation.

Figure 1. Bruising pattern on both thighs resembling hand-grip impressions.

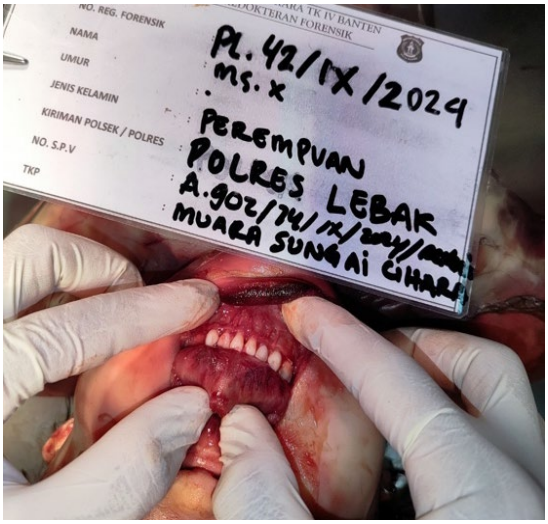

Figure 4. Dark blackish bruising observed on both upper and lower lips.

Figure 2. Bruising on the right arm consistent with manual compression.

Figure 5. Purple-black contusion located on the dorsal region, irregular in shape.

Figure 3. Contusion on the left arm exhibiting fingerprint-like markings suggestive of gripping force.

During internal examination, subcutaneous adipose tissue was noted to be yellow in color, measuring 2 cm in thickness over the thoracic region and 1 cm in the abdominal area. Skeletal musculature appeared uniformly red throughout. The diaphragm on the right side was located at the level of the fifth intercostal space, while the left hemidiaphragm was also situated at the same level. The sternum was intact, with no

rib fractures identified. Both pleural cavities contained decomposition fluid.

The pericardial sac was located one fingerbreadth between the lungs and was empty. Subcutaneous connective tissue and musculature of the neck were reddish in appearance. The parietal peritoneum exhibited a yellowish hue, while the abdominal wall musculature remained red. Decomposition fluid was also present within the abdominal cavity.

The tongue was brown in color with a light brown cross-section. The hyoid bone was intact. Thyroid and cricoid cartilages were preserved without damage. The thyroid gland appeared reddish, with elastic consistency upon palpation and a brown-colored cut surface. No abnormalities were detected in the submandibular glands. The esophagus was empty, with a reddish-brown mucosal lining. The trachea was empty as well, with similar reddish-brown mucosa observed internally.

The heart measured approximately the size of the subject's clenched right fist, weighing 100 grams. It exhibited a reddish-brown color and elastic texture. The circumference of the right atrioventricular valve measured 4 cm, the left 4 cm, the pulmonary artery 3 cm, and the aorta 4.3 cm. The thickness of the right ventricular wall was 0.7 cm and the left ventricular wall was 0.9 cm. The interventricular septum showed no abnormalities. Hemorrhagic spots were visible on the epicardium, indicating early stages of decomposition.

The right lung consisted of two lobes (congenital variation), was reddish in color, elastic on palpation, and displayed a dark red cross-section. Squeezing of the tissue yielded dark fluid. The weight of the right lung was 150 grams. The left lung also had two lobes, appearing darker with a blackish-red hue, elastic consistency, and dark red cut surface. Expression of the tissue similarly released dark fluid, and the organ weighed 120 grams. The left lung was larger than the right. Both lungs exhibited petechial hemorrhages.

The spleen appeared blackish in color, with a smooth surface and soft consistency. The cut surface revealed a brown hue, consistent with postmortem autolysis. It weighed 80 grams and exuded black fluid upon incision. The liver was pale brown, with a smooth surface and blunt edges. It was firm on palpation, with a brownish cut surface. Normal anatomical structure was obscured due to decomposition. The organ weighed 600 grams. The gallbladder was empty, with greenish mucosa; no obstruction was found in the bile ducts.

The pancreas was yellow in color, with a lobulated surface and soft texture. The cut surface was yellow, with clear glandular architecture. It weighed 100 grams. The stomach was empty, with a brownish mucosal lining. No pathological findings

were observed in the duodenum, small intestine, or large intestine.

The right adrenal gland was triangular in shape, purplish-brown in color, with a dark brown cut surface. The left adrenal gland was crescent-shaped, similarly purplish-brown with a dark brown cross-section. Both kidneys were easily removable, with smooth surfaces and brown coloring. Cut sections revealed dark brown tissue. Morphological detail was obscured by decomposition, and no urinary tract obstruction was noted. Each kidney weighed approximately 80 grams. The bladder was empty, with a yellowish-brown mucosal lining.

No signs of blood infiltration were observed in the skin. The skull was intact, with an undisturbed dura mater. The cerebrum, cerebellum, and brainstem exhibited liquefactive changes with a reddish-brown appearance. Ventricular structures could not be assessed due to advanced decomposition.

Discussion

Blunt Force Trauma

Trauma represents a leading cause of morbidity and mortality among individuals under 35 years of age and ranks as the sixth most common cause of death globally. Blunt force trauma, in particular, constitutes a significant mechanism of injury and must be considered when specific injury patterns are observed. Impact from blunt objects can result in a wide range of injuries, typically classified into four categories: contusions (bruises), abrasions, lacerations, and fractures. These injuries are frequently encountered in forensic autopsy practice, and accurate interpretation is essential for reliable medicolegal reporting.[6]

In the present case, postmortem examination revealed multiple contusions consistent with blunt force trauma. These included bruises on the upper and lower lips, accompanied by loosening of all lower dental structures. Additional bruising was observed on the back, both upper arms, and both thighs, suggesting that the victim had been physically restrained by hand.

Asphyxia Due to Smothering

Smothering is a form of mechanical asphyxia caused by the obstruction of the external airway, either through manual compression using hands or other means, such as soft or rigid materials. It may also occur due to the introduction of foreign bodies into the nasal or oral cavities. Smothering can occur in various contexts including homicide, accidental suffocation, or suicide. In cases of homicidal smothering, the victim is often vulnerable—such as an intoxicated individual, a frail elderly person, or a child who lacks the capacity to resist.[7]

Autopsy findings suggestive of smothering include bruising around the lips and gums, contusions on the neck or part of it, pressure marks on the posterior neck, upper chest, or arms, scratch marks from fingernails around the face and neck, and the presence of foreign bodies within the nasal passages or trachea. Notably, smothering may occur without leaving visible external signs, and even comprehensive postmortem examinations may fail to detect conclusive evidence.[8]

The obstruction of the mouth and nose—whether by hand, soft or hard materials, or solid objects—can prevent oxygen intake. In many instances, autopsy findings may be minimal or entirely absent. However, in cases of homicidal smothering, particularly involving children, the elderly, or incapacitated individuals, signs such as lacerations and abrasions of the labial, buccal, and gingival mucosa, epistaxis (nosebleeds), nasal bone fractures, facial excoriations, or injuries indicating active resistance may be identified.[9]

Skin lesions on the face or neck may result from direct manual compression or choking. These often manifest as ecchymoses caused by thumb pressure and/or fingernail scratches along free nail edges. Such injuries may not be present if the perpetrator had short nails or wore gloves. Additional skin findings, especially in combined forms of asphyxia involving chest compression, choking, or suffocation, include counter-pressure lesions located on the posterior body surfaces. These arise from mechanisms such as pressure, sliding, or friction against hard surfaces and are more evident when the victim actively interacts with the assailant, presenting as bruises or abraded areas on the back, buttocks, or posterior elbows.

During smothering, the lips may be forcibly pressed against the teeth, resulting in blunt-force injuries to adjacent tissues, which can appear as ecchymosis or lacerations on the inner lip surface. Additionally, fractures of the thyroid cartilage and hyoid bone have been reported in 70–80% of smothering cases. Hemorrhagic infiltration into the anterior and lateral aspects of the larynx may also be observed, with thyroid cartilage fractures being most commonly detected.[10]

Hemorrhage or blood infiltration in the anterior neck musculature and upper chest may occur due to alternating compressive forces exerted by the assailant and the victim's attempts to resist. These findings reflect the dynamics of struggle and defense. The hemorrhages may be more pronounced across various layers of the anterior and lateral neck musculature, with variable intensity depending on the degree of resistance offered by the victim. Petechial hemorrhages may also be observed on the pleural and epicardial serosa during autopsy.[11] These petechiae typically result from acute increases in

venous pressure, which damage small venules. They are most commonly seen externally on the conjunctiva, oral mucosa, and facial skin, and internally on the epicardium and visceral pleura.

Examination of the laryngeal structures should include identification of the hyoid bone with its minor and major cornua, the thyroid cartilage with its superior and inferior horns, the cricoid cartilage, and any separation of the arytenoid cartilages from the cricoid. The presence of "gas bubble signs" within adjacent tissues or bones, fractures, structural deformities, or dislocations of the thyrohyoid membrane or hyoid/thyroid cartilages should also be assessed. In cases of suspected asphyxia, the presence of gas within adjacent laryngeal structures, fractures, and morphological abnormalities or dislocations of the larynx are evaluated.[12]

Conclusion

Forensic examination plays a crucial role in identifying the cause, mechanism, and manner of death. Based on findings from the postmortem investigation, the remains were identified as those of a female child, reported to be four years and nine months of age. Blunt force trauma was observed in the form of bruises on the upper and lower lips, accompanied by loosening of all teeth in the mandible. Bruising was also found on the back, as well as on both upper arms and both thighs, suggesting that the victim had been physically restrained by hand. Signs of suffocation were detected. The cause of death was determined to be asphyxia due to airway obstruction. External examination and autopsy of the body are essential procedures, particularly in critical cases, as they serve to support the pursuit of justice for the victim.

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