

Penetrating Cervical Trauma Following a Suicide Attempt in a Young Patient: A Case Report

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Abstract: A 23-year-old previously healthy male patient was admitted following a suicide attempt by strangulation using a metallic wire associated with blunt trauma to the anterior cervical region. Initial examination revealed an extensive laceration-contusion injury in zone II of the neck, with significant active bleeding and exposure of laryngotracheal structures. Surgical exploration identified a grade III laryngeal injury according to the Schaefer-Fuhrman classification, with complete mucosal exposure, as well as a grade IV tracheal injury based on the American Association for the Surgery of Trauma (AAST) classification, involving loss of more than five tracheal rings. No injuries to major cervical vessels or nerves were observed. Tracheostomy, laryngorrhaphy, and hemostasis by ligation of small vessels of the prethyroid musculature associated with electrocautery were performed. The patient remained hospitalized in the intensive care unit for five days, followed by 15 days of inpatient care, receiving multidisciplinary follow-up from general surgery, psychology, and psychiatry teams. During clinical evolution, persistent suicidal behavior was observed, requiring sedation and intensive surveillance. The patient was discharged with outpatient follow-up and antidepressant therapy. This case illustrates the severity of penetrating cervical trauma associated with suicide attempts, highlighting the importance of immediate surgical management and integrated psychiatric care, while also discussing the global and national epidemiology of suicide.

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1. Introduction

Suicide is a global public health problem, responsible for more than 700,000 deaths annually worldwide, according to estimates from the World Health Organization (WHO) [1,2]. Approximately 80% of these deaths occur in low- and middle-income countries, where resources for prevention and treatment are limited. Hanging is one of the most common methods of suicide and frequently results in severe cervical trauma [1]. Lesotho, a country with one of the highest suicide rates in the world (~30 per 100,000 population), has reported medico-legal cases of atypical hanging characterized by deep cervical ligation marks and fractures of the hyoid bone and thyroid cartilage.

Cervical trauma is often fatal; however, survivors with severe laryngeal injuries have been documented. Botswana has a high suicide rate (~20 per 100,000 population), and clinical reports have described cervical injuries resulting from hanging, including laryngeal and tracheal fractures requiring emergency tracheostomy. Hanging is the predominant suicide method, particularly among young men. Cameroon presents an intermediate suicide rate (~16 per 100,000 population), and medico-legal reports have described exten-

sive cervical trauma in suicides by partial suspension, with massive hemorrhage and cervical fractures. Survival cases are rare but have been documented with significant respiratory sequelae. The Central African Republic has a very high suicide rate (~23 per 100,000 population), with reported cases of fatal cervical injuries due to hanging in the context of social instability and violence. Cervical trauma in these cases is almost always lethal, with very few reports of successful hospital intervention [3–5].

In Angola, recent data indicate that suicide has become a growing concern. Between 2021 and 2024, more than 3,000 suicide-related deaths were recorded, predominantly among young men [6,7]. Hanging is reported as the most frequent method, accounting for hundreds of cases annually [8]. Despite this, there is a scarcity of scientific reports describing cervical trauma resulting from suicide attempts in the country, highlighting the importance of publishing clinical cases to expand knowledge and support the development of local management protocols. Traumatic cervical injuries are particularly severe because of the concentration of vital structures within a relatively small anatomical region. The larynx and trachea, in addition to their essential roles in respiration and phonation, are closely associated with major blood vessels and critical neural structures. Any trauma in this area may result in an immediate risk of death due to airway obstruction or massive hemorrhage [9,10].

This report describes a rare and severe case of cervical trauma following a suicide attempt in a young patient, highlighting the clinical findings, surgical management, post-operative course, and discussing both global and national epidemiological aspects.

2. Case Report

A 23-year-old Black male patient from a suburban area, with no relevant personal or family medical history, was admitted to the emergency department following a suicide attempt that had occurred approximately 30 minutes before hospital arrival. According to the initial report, the mechanism of injury involved cervical constriction using a clothes-line wire associated with blunt force trauma. Upon admission, the patient was agitated, hemodynamically unstable, and presented with mildly pale oral and conjunctival mucosae. Physical examination revealed an extensive laceration-contusion injury in the anterior cervical region, characterized by a blowing wound, active high-volume bleeding, and wide exposure of upper airway structures, including the trachea and larynx (Figure 1A and 1B). The severity of the injury indicated major compromise of cervical anatomical integrity, with imminent risk of respiratory failure and hemorrhagic shock.

Figure 1. A. Initial clinical presentation demonstrating an extensive anterior cervical injury with exposure of upper airway structures, associated with active bleeding and loss of tissue continuity. B. Intraoperative findings showing a complex laryngeal and tracheal injury, with extensive loss of tracheal rings during cervical surgical exploration.



Given the severity of the clinical condition and the immediate threat to the airway, the patient was urgently transferred to the operating room for definitive surgical management. During wound exploration, a grade III laryngeal injury was identified, characterized by extensive structural disruption with complete exposure of the laryngeal mucosa, in addition to a grade IV tracheal injury associated with segmental loss of more than five tracheal rings (Figure 2). Extensive surgical exploration of the cervical wound, hemostatic control, emergency tracheostomy, and laryngorrhaphy were performed, aiming to stabilize the airway and achieve initial reconstruction of the affected structures.

In the immediate postoperative period, the patient was admitted to the Intensive Care Unit, where he remained hospitalized for five days under invasive ventilatory support, continuous monitoring, and broad-spectrum antibiotic therapy. He evolved satisfactorily, without signs of additional respiratory instability or significant infectious complications. Clinical follow-up was conducted in a multidisciplinary manner by the general surgery, intensive care, psychology, and psychiatry teams, considering both the high anatomical complexity and the psychiatric context associated with the mechanism of injury. After 15 days of hospitalization, the patient was discharged in stable clinical condition, maintaining specialized outpatient follow-up for functional airway assessment and mental health support (Figure 2).

Figure 2. Postoperative evolution following initial airway reconstruction, demonstrating clinical stabilization and cervical tissue recovery.



3. Discussion

This case highlights the severity of traumatic cervical injuries in the context of a suicide attempt. Exposure of the trachea and larynx, combined with the significant loss of tracheal rings, poses an immediate risk of airway obstruction and fatal hemorrhage. Grade III laryngeal injuries, characterized by mucosal exposure and structural disruption, are associated with high morbidity and mortality rates [7]. The loss of multiple tracheal rings is rare and represents a major surgical challenge, often requiring complex reconstruction or permanent tracheostomy [8]. Initial management should prioritize airway stabilization,

frequently through tracheostomy, followed by surgical repair of the injured structures [11].

From an epidemiological perspective, suicide remains one of the leading causes of death among young adults, both globally and in Angola [1,6,7]. The scarcity of national scientific reports makes it difficult to estimate the true incidence of cervical trauma resulting from suicide attempts; however, official data confirm that hanging is the most frequently used method [8]. This underscores the need for enhanced epidemiological surveillance and the publication of clinical cases to support the development of local protocols.

In addition to physical treatment, psychological and psychiatric care is essential. Survivors of suicide attempts are at a significantly increased risk of recurrence, making specialized follow-up indispensable [12]. The multidisciplinary follow-up provided in this case is consistent with current international recommendations.

4. Conclusion

This report emphasizes the importance of rapid and multidisciplinary management in severe cervical trauma, highlighting the need for integration between surgery, intensive care, and mental health services. The inclusion of both global and national epidemiological data reinforces the relevance of suicide prevention strategies and the importance of local studies to better understand the Angolan reality.

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