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Post-Traumatic Tracheal Tear in a Child: Conservative Management of a Case at the Kolda Regional Hospital Center

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Abstract

Closed cervical trauma is rare in children, but its potential severity lies in the risk of airway injury. Closed cervical trauma from direct impact is uncommon because the neck is protected from direct trauma by the head, chest, and shoulders. Post-traumatic tracheal rupture is a diagnostic and therapeutic emergency, often unrecognized due to the subtlety of external signs. Cervicothoracic CT scan remains the key diagnostic test, especially in the absence of endoscopic resources, allowing for precise localization. We report the case of a child with a post-traumatic tracheal rupture from a recreational accident, treated conservatively. The outcome was uncomplicated. This case highlights the therapeutic challenges in our regions and emphasizes the importance of appropriate management. In light of this clinical case and a review of the literature, we propose a review of this condition and its management.

Keywords

Subcutaneous Emphysema, Trauma, Tracheal Breach

1. Introduction

Tracheobronchial injuries associated with chest compression trauma are rare conditions, accounting for less than 1% of compression trauma cases. Their incidence is even lower in children [1].

Injuries to the tracheobronchial region can cause problems ranging from difficulty breathing to respiratory collapse and even death from airway obstruction.

Tracheal injuries resulting from blunt trauma and iatrogenic causes are rare, but due to their severity and sequelae, they should be managed with a more definitive therapeutic approach [2]. The most common signs and symptoms of tracheobronchial injuries are subcutaneous emphysema, respiratory distress, pneumothorax, and pneumomediastinum. Prompt diagnosis and management should be a priority, as mortality can reach 30% in severe cases, half of which occurs within the first hour [3].

While early surgical repair was once considered the cornerstone of treatment, evidence supporting conservative management continues to grow [4].

2. The Aim

Based on our experience and a review of the literature, we propose to clarify the management of tracheal injuries in children by defining the role of computed tomography in the decision-making process.

3. Observation

It involved a 5-year-old boy with no significant medical history, admitted after an accidental fall from his own height onto a metal shovel, impacting the anterior cervical region. On admission, he was hemodynamically stable. On clinical examination, he presented with diffuse crackling sensations (subcutaneous emphysema) in the cervico-facial area, with widespread cervico-facial emphysema affecting the cheeks, eyelids, temporal region, entire neck, and upper part of the thorax, biphasic dyspnoea without any skin breach and without associated respiratory distress (**Figure 1**).

The larynx showed oedematous inflammation of the ventricular bands in nasal endoscopy.

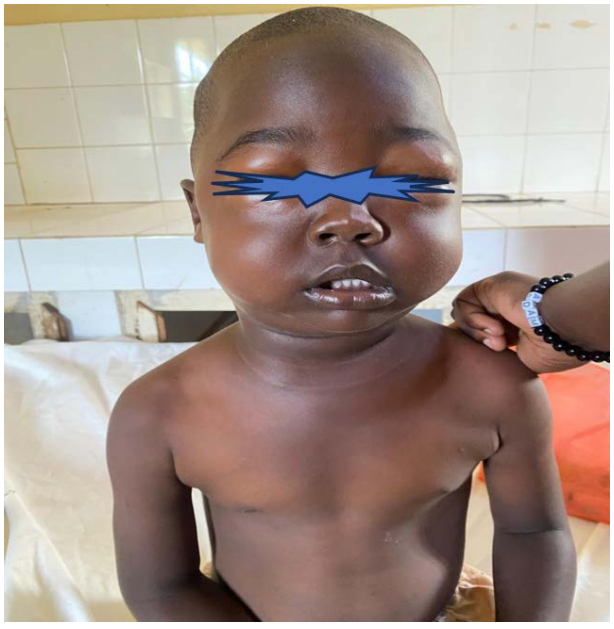

Figure 1. Cervicofacial and diffuse thoracic emphysema.

The cervicothoracic CT scan revealed an anterior tracheal breach of 2 mm at the level of the C5 vertebral body, complicated by diffuse cervicothoracic emphysema, a moderate pneumomediastinum, and a small bilateral pneumothorax, without any cartilage injury or associated fracture (Figure 2).

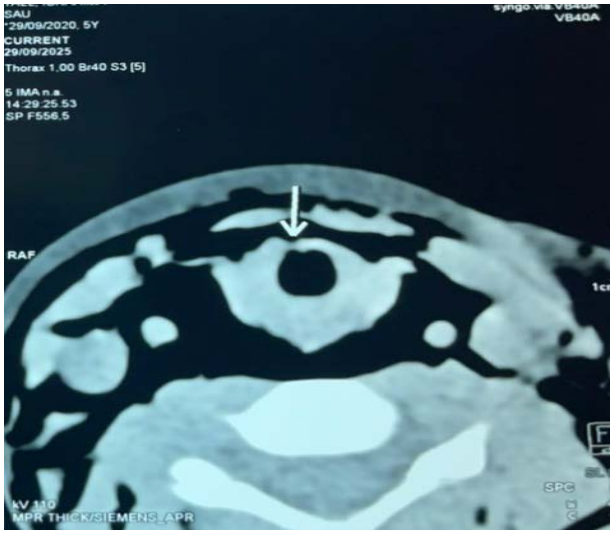

Figure 2. Cervical CT scan showing an anterior tracheal breach of about 2 mm with diffuse cervical emphysema.

Therapeutically, the patient received prophylactic antibiotic therapy with amoxicillin and parenteral corticosteroid therapy, along with rigorous monitoring of vital signs in the intensive care unit.

From a therapeutic perspective, the patient underwent a precautionary tracheotomy under general anesthesia below the site of the injury, combined with puncture procedures for subcutaneous decompression. Tracheo-bronchial fibroscopy revealed a minor anterior tracheal wound. The larynx appeared with good

Figure 3. J10 after decannulation.

mobility. The course was marked by complete regression of the emphysema by day 4 and decannulation by day 7, without any secondary complications (**Figure 3**).

4. Discussion

Tracheal trauma is secondary to compression injuries, penetrating wounds, or iatrogenic causes (traumatic intubation). These are serious conditions that can lead to severe respiratory failure and haemodynamic instability. Diagnosis can sometimes be difficult given the paucisymptomatic presentation that some patients with minor injuries may exhibit [4].

Closed cervical trauma can lead to vascular, laryngotracheal, or esophageal injuries [5]. Post-traumatic tracheal rupture is a rare but serious injury, requiring early recognition and management [6] [7]. The diagnosis can be made in the presence of respiratory distress, subcutaneous emphysema, hemoptysis, persistent drain leakage, or pneumothorax [2]. In our case, the diagnosis was made due to diffuse subcutaneous emphysema in a suggestive clinical context. Emergency paraclinical assessment includes a cervical CT scan, which helps establish the extent of the injuries and clarify the severity of the trauma [8]. In our case, the small size of the rupture, the absence of respiratory distress, and good clinical tolerance allowed for conservative management [9], based on airway diversion via tracheotomy, subcutaneous decompression, and close monitoring [10] [11].

There is no consensus in the treatment of these tracheal wounds. Across the literature, treatment varies from one study to another. Prunet B et al. choose surgical treatment [12]. Conservative management is indicated for partial lesions, small in size (<4 mm), non-circumferential, and without tissue loss or major cartilage involvement [5].

On the other hand, direct surgical repair is recommended for extensive, circumferential breaches, or those associated with tracheal instability, complete transection, or persistent respiratory distress despite diversion [1] [13].

It involves a tracheal suture under endoscopic control or by cervicotomy depending on the extent of the lesion. Our observation illustrates the effectiveness of conservative treatment in minor cases, even in a setting with limited technical resources. Conservative treatment plays a significant role in children. It is reliable and avoids invasive procedures that can cause complications, while offering a good long-term functional prognosis [14].

5. Conclusion

Tracheal injuries are serious situations that require a comprehensive initial assessment. Conservative treatment has a significant role in children; it is reliable and helps avoid potentially complication-inducing invasive procedures, while allowing for a good long-term functional prognosis. Monitoring the breach, especially in children, is an effective alternative to surgical repair in settings where resources are limited. A safety tracheotomy ensures airway patency in situations where the

prognosis may be unfavourable.

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Consent

The patient gave informed consent.

Author Contributions

All authors read and approved the final manuscript. Ethical statement.

Conflicts of Interest

Written informed consent was obtained from the patient for the publication of clinical details and accompanying images.

The authors declare that they have no conflicts of interest regarding the publication of this article.

References

[1] Ducassé, J.L., Jean, R., Caussade, D., Villacèque, E., Decun, J.F. and Rougé, P. (1999) Tracheal Rupture during Chest Trauma: Diagnostic Value of Bronchial Fibroscopy and Helical Computed Tomography. *Emergency Reanimation*, **8**, 697-700. https://doi.org/10.1016/s1164-6756(00)87582-9

[2] Conti, M., Pougeoise, M., Wurtz, A., Porte, H., Fourrier, F., Ramon, P., *et al.* (2006) Management of Postintubation Tracheobronchial Ruptures. *Chest*, **130**, 412-418. https://doi.org/10.1378/chest.130.2.412

[3] Rossbach, M.M., Johnson, S.B., Gomez, M.A., Sako, E.Y., Miller, O.L. and Calhoon, J.H. (1998) Management of Major Tracheobronchial Injuries: A 28-Year Experience. *The Annals of Thoracic Surgery*, **65**, 182-186. https://doi.org/10.1016/s0003-4975(97)01001-1

[4] Marty-Ané, C., Picard, E., Jonquet, O. and Mary, H. (1995) Membranous Tracheal Rupture after Endotracheal Intubation. *The Annals of Thoracic Surgery*, **60**, 1367-1371. https://doi.org/10.1016/0003-4975(95)00643-y

[5] Ait Laabdia, R., Lakhdar, Y. and Elbouderkaoui (2020) Thyroid Hematoma Secondary to Blunt Neck Trauma. *Pamj*, **131**, 212-214.

[6] Cardillo, G., Carbone, L., Carleo, F., Batzella, S., Jacono, R.D., Lucantoni, G., *et al.* (2010) Tracheal Lacerations after Endotracheal Intubation: A Proposed Morphological Classification to Guide Non-Surgical Treatment. *European Journal of Cardio-Thoracic Surgery*, **37**, 581-587. https://doi.org/10.1016/j.ejcts.2009.07.034

[7] Carbognani, P., Bobbio, A., Cattelani, L., Internullo, E., Caporale, D. and Rusca, M. (2004) Management of Postintubation Membranous Tracheal Rupture. *The Annals of Thoracic Surgery*, **77**, 406-409. https://doi.org/10.1016/s0003-4975(03)01344-4

[8] Arana-Garza, S., Juarez-Parra, M., Monterrubio-Rodríguez, J., Cedillo-Alemán, E., Orozco-Agüet, D., Zamudio-Vázquez, Z., *et al.* (2015) Thyroid Gland Rupture after Blunt Neck Trauma: A Case Report and Review of the Literature. *International Journal of Surgery Case Reports*, **12**, 44-47. https://doi.org/10.1016/j.ijscr.2015.04.020

[9] Loi, S.T., Wong, K.C. and Tse, C.F. (2013) Cervical Subcutaneous Emphysema and Pneumomediastinum after Sneezing. *Hong Kong Medical Journal*, **19**, 188.

[10] Gómez-Caro, A., Ausín, P., Moradiellos, F.J., Díaz-Hellín, V., Larrú, E., *et al.* (2006) Role of Conservative Medical Management of Tracheobronchial Injuries. *Journal of Trauma*, **61**, 1426-1434.

[11] Passera, E., Orlandi, R., Calderoni, M., Cassina, E.M., Cioffi, U., Guttadauro, A., *et al.* (2023) Post-Intubation Iatrogenic Tracheobronchial Injuries: The State of Art. *Frontiers in Surgery*, **10**, Article ID: 1125997. https://doi.org/10.3389/fsurg.2023.1125997

[12] Thiam, N.F., *et al.* (2017) Post-Intubation Tracheal Injuries in Cervical Surgery: Report of 3 Cases. *Pan African Medical Journal*, **28**, Article No. 168.

[13] Chen, J., Shanmuganathan, K., Mirvis, S.E., Killeen, K.L. and Dutton, R.P. (2001) Using CT to Diagnose Tracheal Rupture. *American Journal of Roentgenology*, **176**, 1273-1280. https://doi.org/10.2214/ajr.176.5.1761273

[14] Brinas, P., Brehin, C., Breinig, S., *et al.* (2016) Conservative Management of Tracheal Trauma: Clinical Case and Literature Review. *Archive Pediatric*, **23**, 1067-1070.