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Respiratory Distress Due to Bronchial Migration of a Broken Tracheostomy Tube : A Rare and Critical Complication

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ABSTRACT

Tracheotomy is a widely performed procedure to secure the airway, either temporarily or permanently, but it may lead to rare and serious late complications. We report an exceptional case of tracheotomy cannula fracture with intrabronchial migration in a 90-year-old patient who underwent permanent tracheotomy following surgery for laryngeal cancer. Five years after the procedure, the patient presented with acute respiratory distress and reported breakage of the cannula. Imaging by computed tomography revealed the migrated fragment in the left main bronchus. The patient underwent urgent endoscopic removal of the foreign body, followed by revision tracheotomy, with favorable postoperative outcomes. Cannula fracture is an uncommon but potentially life-threatening complication, often associated with prolonged use, material fatigue, and inadequate maintenance. Although more frequently described with metallic tubes, this case highlights that plastic cannulas are also susceptible. Prevention relies on regular follow-up, proper care of the tracheostomy device, and patient education. Early diagnosis and prompt management are essential to avoid severe respiratory complications and ensure a good prognosis.

KEYWORDS :

Tracheotomy , cannula fracture , cannula migration , bronchoscopy

MAIN ARTICLE

INTRODUCTION

Tracheotomy involves making an incision in the cervical trachea to insert a cannula, thereby bypassing the upper airways and facilitating breathing. The tracheotomy cannula, or Krishaber cannula, was developed in 1850 by Maurice Krishaber. It is a curved tube, made either of metal or plastic. One end of the tube is inserted into the trachea through the incision, while the other end remains external and serves to secure the cannula. When used long-term, tracheotomy can lead to various complications, including granulomas, infections, and stenosis. We present an exceptional and severe case of tracheal migration associated with prolonged use of a tracheotomy cannula.

CASE REPORT:

We report a 90-year-old patient who underwent surgery in 2020 for laryngeal cancer, which required a permanent tracheotomy. Upon discharge, he was fitted with a silicone Krishaber cannula. Five years later, he was readmitted to the emergency department in respiratory distress, holding the external collar of the tracheostomy tube, reporting migration of the internal segment of the tube which had broken (Figure 1).

Figure 1 *: External collar of the tracheostomy tube after fracture of the internal part*

Clinical examination revealed a conscious patient, hemodynamically stable, but with dyspnea and signs of respiratory distress.

A chest X-ray (Figure 2) did not show any foreign body, but a chest CT scan revealed the presence of the cannula in the left mainstem bronchus (Figure 3). The patient was urgently transferred to the operating room, where the cannula was removed under endoscopic guidance, and a new tracheotomy was performed. Postoperative recovery was uncomplicated, with clinical and radiological improvement. The patient was discharged home with a plastic cannula after the patient and his family were educated on the importance of proper care and maintenance of the cannula.

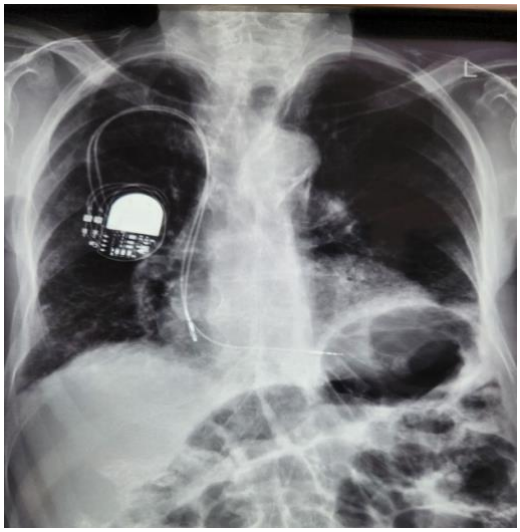

Figure 2 *: Normal chest radiograph with no visible migrated cannula*

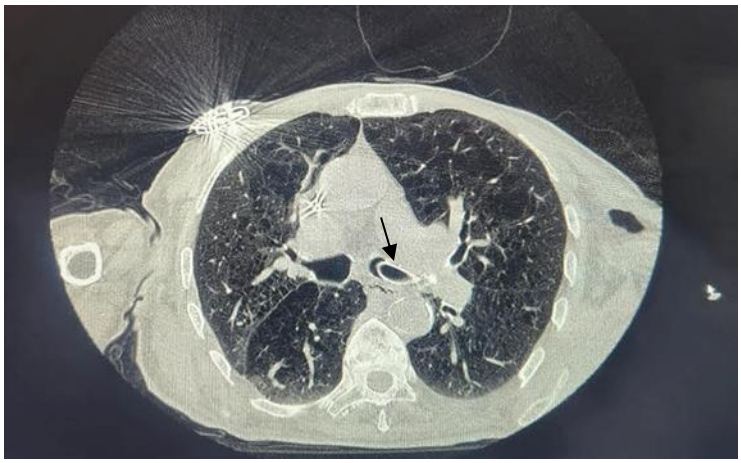

Figure 3 *: Chest CT scan showing the migrated internal segment of the tracheostomy tube in the left main* bronchus

DISCUSSION :

Tracheotomy is the surgical opening of the cervical trachea followed by the insertion of a cannula. It is indicated in various situations, particularly to relieve airway obstruction. In most cases, this procedure is temporary, and the tube is removed once the patient has recovered from the condition that warranted the tracheotomy. However, in some cases, as in this one, the tracheotomy tube must be kept permanently due to the persistence of the underlying pathology [1].

Several late complications can occur, including tube rupture or dislodgement. The first documented case of a fractured tracheotomy tube was reported by HH Bosso in 1960, involving a tube made of silver-nickel alloy [2]. Fractures were more commonly observed with metal tracheotomy tubes [3, 4]. In our case, the fracture occurred with a plastic tube.

There are particular locations where the tracheostomy tube is more likely to fracture. The most common location is the point where the tube connects to the neck plate [3, 4, 5].

It has been suggested that prolonged use, aging of the tubes, and repeated sterilization for economic reasons may increase the risk of a fractured tracheostomy tube [6, 7].

These complications can be prevented through regular care of the tracheostomy stoma and cannula, as well as close monitoring through regular check-ups. It is also crucial to raise awareness among the patient and their relatives about the importance of care, cleaning the cannulas, suctioning, and the steps to take in case of an incident [8].

The management involves placement of an endotracheal tube through the stoma , providing ventilation to the patient to optimize oxygen saturation, and then removing the detached part of the tracheostomy tube using bronchoscopy.

CONCLUSION :

Tracheotomy cannula fracture with migration is a rare but serious complication. Early diagnosis and prompt endoscopic management are essential. Regular follow-up and proper cannula care play a key role in prevention.

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The authors declare that they have no conflicts of interest.

REFERENCES

1. Laccourreye L, Dubin J. Trachéotomie. EMC - Techniques chirurgicales - Tête et cou. 2001;46-430. doi:10.1016/S1635-2505(02)72316-5.
https://doi.org/10.1016/S1635-2505(02)72316-5

2 . Bassoe HH, Boe J. Broken tracheotomy tube as a foreign body. Lancet. 1960;1(7132):1006-1007. doi:10.1016/S0140-6736(60)90890-4.
https://doi.org/10.1016/S0140-6736(60)90890-4

3 . Piromchai P, Lertchanaruengrit P, Vatanasapt P, Thanaviratananich S. Fractured metallic tracheostomy tube in a child: a case report and review of the literature. J Med Case Rep. 2010;4:234. doi:10.1186/1752-1947-4-234.
https://doi.org/10.1186/1752-1947-4-234

4 . Antwi-Kusi A, Osei-Ampofo M, Mohammed DI, et al. Fractured tracheostomy tube - A case of a 3-year-old Ghanaian child. Afr J Emerg Med. 2012;2(3):114-116. doi:10.1016/j.afjem.2012.01.002.
https://doi.org/10.1016/j.afjem.2012.01.002

5. Parida PK, Kalaiarasi R, Gopalakrishnan S, et al. Fractured and migrated tracheostomy tube in the tracheobronchial tree. Int J Pediatr Otorhinolaryngol. 2014;78(9):1472-1475. doi:10.1016/j.ijporl.2014.06.010.
https://doi.org/10.1016/j.ijporl.2014.06.010

6. Gana PN, Takwoingi YM. Fractured tracheostomy tubes in the tracheobronchial tree of a child. Int J Pediatr Otorhinolaryngol.2000;53(1):45-48. doi:10.1016/S0165-5876(00)00305-6.
https://doi.org/10.1016/S0165-5876(00)00291-3

7. Okafor BC. Fracture of tracheostomy tubes. Pathogenesis and prevention. J Laryngol Otol. 1983;97(8):771-774. doi:10.1017/s0022215100094911.
https://doi.org/10.1017/S0022215100094962

8. Gupta SL, Swaminathan S, Ramya R, Parida S. Fractured tracheostomy tube presenting as a foreign body in a paediatric patient. BMJ Case Rep. 2016;2016:bcr2015213963. doi:10.1136/bcr-2015-213963.
https://doi.org/10.1136/bcr-2015-213963