https://dx.doi.org/10.4314/emj.v63 i10



*Ethiopian Medical Journal 2025, 63(10)*
*Open access articles distributed in terms of*
*Creative Commons Attribution Licence [CC by 4.0]*

*ISSN 0014-1755 eISSN 2415-2420*

*Nigatu et al*

## Case report

# Fractured Tracheostomy tube Aspiration: A Case Report - When the Airway Solution Itself Becomes a Dire Emergency Hundred Miles Away from Bronchoscopy Service.

Demmelash Gezahegn Nigatu[1], Abraham Genetu Tiruneh[2]

[1]Assistant Professor of Emergency Medicine and Critical Care, Department of Emergency Medicine and Critical Care, College of Health Sciences, Addis Ababa University, Addis Ababa, PoBox: 9351, Ethiopia
[2]Assistant Professor of Surgery, Department of Surgery, College of Health Sciences, Addis Ababa University, Addis Ababa, Ethiopia

*Corresponding author: demmelash.gezahegn@aau.edu.et

***Abstract***
*A 55-year-old male patient with squamous cell carcinoma of the larynx on metallic tracheostomy for 4 years came with difficult breathing and stridor after he experienced an outer metallic tube fracture and aspiration to the left main bronchus. A rigid bronchoscopy was done and the broken outer metallic tube was removed. The patient was stabilized and discharged home*

***Keywords:*** *Fractured Tracheostomy, Tracheostomy tube aspiration, Broken metallic outer tracheostomy tube, Case Report*
***Citation:*** *Nigatu D, Tiruneh A. Fractured Tracheostomy tube Aspiration: A Case Report - When the airway solution itself becomes a dire emergency hundred miles away from bronchoscopy service. .Ethiop Med J 63 10*
***Submission date :*** *19 July 2024 Accepted: 28 May2025 Published: 30 June 2025*

Tracheostomy is a medical procedure that can save lives in both emergency and elective upper airway obstruction. The earliest case of tracheostomy tube insertion was recorded on Egyptian tablets as early as 3600 B.C. Tracheostomy complications can be divided into immediate, early, and late. One of the rarest late complications of tracheostomy tube is fracture and dislodgment into the lower airway. (1) There is no specific local or international guideline on the maximum duration of metallic tracheostomy use in adults. (1) Our patient was on metallic tracheostomy tube for four years duration. Broken tracheostomy tube is commonly dislodged into the trachea and right main bronchus. The patient in this care report came to Tikur Anbessa Specialized referral hospital with aspiration of broken outer metallic tracheostomy tube in left main bronchus

## Case Report

A 55-year-old male patient was referred to our emergency room from regional general hospital with the diagnosis of fractured tracheostomy tube aspiration. The patient was referred from a hospital that is 172km away, a place where bronchoscopy service was not available. He presented to the emergency department of Tikur Anbessa Specialized Hospital, in Ethiopia with the complaint of difficult breathing and audible breathing of 15 hours duration.

He reported that he was trying to remove the inner metallic tube for cleaning purposes at which time the outer tube got broken and slipped into the trachea. Immediately, he developed difficulty breathing and stridor and went to hospital. Postero-Anterior (AP) view Chest X-ray was done at the regional hospital, and it showed a fractured tracheostomy tube which migrated into left main bronchus. A lateral image was taken to confirm. (Figure1&2)

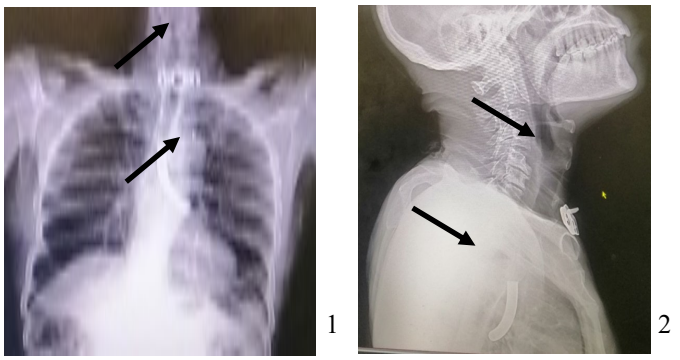

**Figure 1&2:** PA and Lateral Chest X-Ray Showing broken Metallic Tracheostomy Tube aspirated in left main bronchus. The metallic head is also in place.

Since bronchoscopy service was not available in the regional hospital, a plastic tracheostomy tube was inserted in the stoma, and the patient was referred to our hospital by ambulance.

**At presentation**, vital signs were: BP 150/100 PR 95 RR 16 SaO2 99%

On auscultation, there was transmitted sound with inspiratory wheeze over the entire left posterior lung field. The patient was conscious and ambulating. His past medical history revealed the tracheostomy was inserted four years back for indication of upper airway obstruction secondary to squamous cell carcinoma of the larynx. He was treated with radiotherapy and was put on a metallic tracheostomy. He was lost from follow-up since he was living in the countryside. The metallic tube was never changed with a new one. Otherwise, the patient has no past surgical history or other chronic illness. AP and lateral chest X-ray were repeated in our hospital while he is on plastic tracheostomy tube, and it showed tracheostomy tube in the left main bronchus. (Fig 3&4)

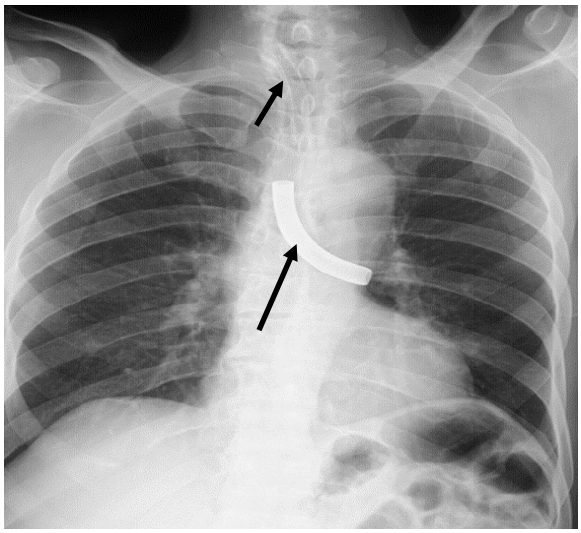

**Figure 3:** PA Chest X-Ray Showing Metallic Tracheostomy Tube in left main bronchus and Plastic Tracheostomy tube in situ.

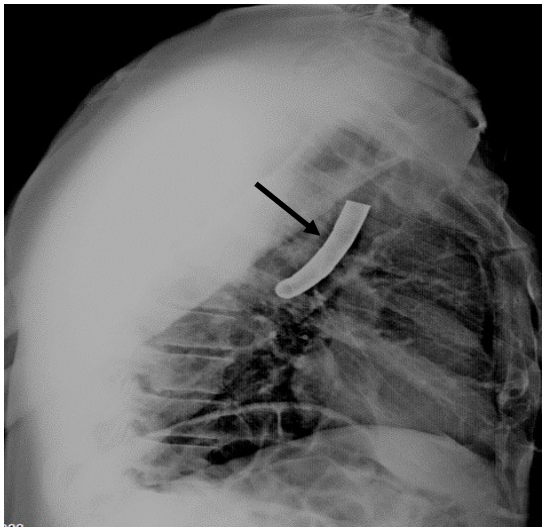

**Figure 4:** Lateral Chest X-Ray Showing Metallic Tracheostomy Tube in left main bronchus.

**Treatment**

The patient was immediately taken for bronchoscopy. Flexible bronchoscopy done by pulmonologist confirmed that the metallic tube passed the carina and got stuck in the upper left main bronchus. It was technically challenging to take the tube out using flexible bronchoscopy. (Fig 5.)

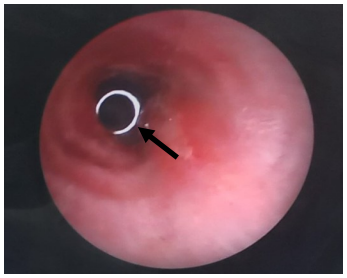

**Figure 5:** Flexible Bronchoscopy view - Part of the metallic tracheostomy in the left main bronchus

Then rigid bronchoscopy was done by a cardiothoracic surgeon. It was done with a 75mm bronchoscope which was introduced via tracheostomy opening.

**Findings:** Part of the dislodged tracheostomy tube was visualized in the left main bronchus, with no edema or active bleeding. The metallic outer tube was removed, and a plastic tracheostomy tube was placed.

**Outcome**

Post-procedure, the patient was satisfied with the outcome and discharged to home in stable condition after two days of ward stay. There was no post-removal complication. Patient was appointed to regular clinic for follow up and decannulation of the tracheostomy tube was performed after one month.

**Discussion**

Metallic tracheostomy tube fracture and aspiration is a very rare late complication of tracheostomy tube.(3) Prolonged use leading to wear and tear is attributed as the major cause of tracheostomy tube fracture. (4) There are no guidelines on how long a tracheostomy tube can be used in adults without exchange but according to The American Thoracic Society recommendation from two decades back, in children that need chronic tracheostomy care, Polyvinyl Chloride (PVC) tracheostomies should be changed every 3 months while a metallic tube can be used indefinitely. (1) Most manufacturers include recommendations to change tracheostomy tubes every 29-30 days. In addition, manufacturers advise any tracheostomy with an inner cannula not to stay for more than 30 days without change. (5) Our patient was using the metallic tube for four years without change, and without follow-up visit was made by a health professional.

Piromchi *et al* reviewed 20 cases of fractured tracheostomy aspiration from 18 published reports; fourteen metallic and three PVC tubes were reported. The most common site of displacement was the trachea and right main bronchus while the most common site of fracture was at the junction between tube and neck plate. (6) This is consistent with our patient's case which was a metallic tube with fracture site at the junction between the tube and neck plate while the site of dislodgment is in the left main bronchus which is different from the usual reports. (Fig 6.)

**Figure 6:** Head and outer metallic tracheostomy after removal

***Rigid bronchoscopy*** is the mainstay of treatment for removing a detached tracheostomy tube that is aspirated into the trachea or bronchus. (7) Removal of fractured PVC tracheostomy tube from right main bronchus using flexible bronchoscopy after failed rigid bronchoscopy was also reported. (8)

Bekele A. reported 32 cases of foreign body removal from the aero-digestive tract throughout two years period (January 2011 to 2012) from Tikur Anbessa Specialized Hospital, Ethiopia, of which fractured tracheostomy tube aspiration accounted for three cases. They were permanent metallic tracheostomies inserted for complicated thyroidectomy, previous cut throat injury, and one for unidentified indication. Since all three tracheostomies were not done at the study hospital, detailed patient information was not available. One of the tubes was lodged in the trachea, while the other two were stuck in the right main bronchus. One of the tubes from the right main bronchus was removed using rigid bronchoscopy, while the other one from the right main bronchus needed thoracotomy and bronchotomy. The one that was stuck in the trachea needed emergency tracheotomy (9). In our patient, the dislodgment site was in left main bronchus unlike the majority of reports and removal of the broken tube didn't need invasive emergency surgery.

**Recommendation**

Although there is a shift in preference for PVC tracheostomy tubes compared to the use of metallic tubes worldwide, there is still a practice of metallic tube insertion for chronic and permanent tracheostomy needs in a resource-limited setup.

- To prevent a dire emergency airway obstruction due to fractured tracheostomy tubes in areas where emergency bronchoscopy is not readily available, it is recommended to check manufacturer sheets for the maximum duration of use.
- Patients should also have regular follow up with health care providers to check for wear and tear of tracheostomy tubes. They should also look for signs of break and corrosion with a backup tracheostomy tube at hand in case fracture and dislodgement happen.

**Conflict of Interest**

The author reports no conflict of interest in the publication of this paper.

**Funding**

No funding sources.

**Consent**

Written informed consent obtained from the patient and his next of kin.

**References**


1. Selection TT, Care TT, Development S, Education C, Procedures D. American Thoracic Society Care of the Child with a Chronic Tracheostomy. 1999;
2. Agha RA, Borrelli MR, Farwana R, Koshy K, Fowler AJ, Orgill DP, *et al*. The SCARE 2018 statement : Updating consensus S urgical CA se RE port ( SCARE ) guidelines. Int J Surg [Internet]. 2018;60 (October):132–6. Available from: https://doi.org/10.1016/j.ijsu.2018.10.028
3. Hmar V, Lanleila M, Karim HM. Removal Of A Fractured Tracheostomy Tube From A Child With Japanese Encephalitis. 2013;32(1):1–5.
4. Pawar VG, Chavan SS, Deshmukh S, Tuljapure A, Kedari A, Babu MS. a Rare Case of Foreign Body (Detached Portex Tracheostomy Tube) in the Bronchus: Case Report. J Evid Based Med Healthc. 2015;2 (40):6843–6.
5. White AC, Kher S, Connor HHO. When to Change a Tracheostomy Tube. 2010;1069–75.
6. C, Piromchai P, Lertchanaruengrit P, Vatanasapt P, Ratanaanekchai T. Fractured metallic tracheostomy tube in a child : a case report and review of the literature. 2010;2–5.
7. H RK, M. J C, Ingale A. A Rare Case of Foreign Body (Detached Portex Tracheostomy Tube) in the Bronchus: Case Report. J Evol Med Dent Sci. 2014;3(4):835–7..
8. Loh TL, Chin R, Flynn P, Jayachandra S. Fracture and aspiration of a tracheostomy tube. BMJ Case Rep. 2014;2013–5.
9. Bekele A. Aerodigestive Foreign Bodies in Adult Ethiopian Patients: A Prospective Study at Tikur Anbessa Hospital, Ethiopia. Int J Otolaryngol. 2014;2014:1–5..