

# Foley's Catheter Technique For Removal Of Endobronchial Fractured Polyvinyl Chloride Tracheostomy Tube In A Difficult Case

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## Abstract

Through out the world Otolaryngologists and the Anesthetists face challenges in dealing with endobronchial foreign bodies from time to time which are often difficult to diagnose but once discovered, they are removed, leading to immediate and dramatic resolution of symptoms. We describe a difficult presentation of a fractured tracheostomy tube removal by an unusual approach in a patient with laryngo-pharyngeal growth with contracted tracheal stoma, fix flexed neck, using 70° rigid endoscope using a 10 FG Foley's catheter (SISCO)® from endobronchial region.

## INTRODUCTION

The symptoms and signs depend upon the nature, size, location and time since dislodgement of the foreign body. The use of flexible fiberoptic and rigid bronchoscopy to extract foreign bodies is well-known<sup>1, 2</sup>. The last resort thoracotomy is generally reserved due to the inherent risks of the procedure. The utilization of a Fogarty balloon catheter, had been reported as early as 1968<sup>3,4</sup> but is employed infrequently, and carries the risk of catheter disruption and introduction of further foreign bodies into the tracheobronchial tree. We describe a new technique for removal of endobronchial foreign body by using 70° rigid endoscope under camera guided monitor system with a 10 FG Foley's catheter.

## CASE REPORT

A 65-year-old man came to emergency department of our institute with respiratory difficulty with history of fracturing the Polyvinyl Chloride Tracheostomy Tube from its flanges seven days back while changing it. The patient was diagnosed as a case of laryngo-pharyngeal carcinoma with secondaries neck 6 months back for which tracheostomy was done to relieve the stridor but the patient became a medical defaulter. There were fungating secondaries in the neck with fix flexed neck and contracted tracheal stoma. The attendants presented with the flang of the fractured tracheostomy tube. The patient was using the accessory muscles of respiration, respiratory rate of 30/min, with heart

rate of 104/min and blood pressure 150/100mm of Hg. A roentogram chest (Fig.1) and lateral soft tissue neck (Fig.2) was taken which revealed a fractured part of the tracheostomy tube with its lower end tilting towards left main bronchus where as soft tissue neck showed a radio opaque mass in supra glottic and glottic region with a lucent tract formed in the soft tissue of neck to the outside without the shadow of the tracheostomy tube respectively. Widening of the tracheostome was done with electric cautery under local infiltration of 1:200,000 xylocaine with adrenaline solution so that no blood trickles into the trachea to avoid, further alarming the situation. Because of the completely blocked upper air way and a fix flexed neck, rigid bronchoscopic intervention either trans-oral or through along the widened tracheostome was not possible and we were more handicapped due to the non availability of the flexible fiberoptic bronchoscope and Fogarty balloon catheter. The case was discussed with anesthetist in view the further management.

**Figure 1**

Figure 1: Fractured part of the tracheostomy tube



**Figure 2**

Figure 2: Lucent tract formed in the soft tissue of neck



## TECHNIQUE

While cardiopulmonary condition was closely monitored the

patient was given intravenous injections of Glycopyrolate 0.2mg, Hydrocortisone 200 mg. and Deriphylline 2 ml. The patient was also nebulized by 4% xylocaine. Since a tight seal was not possible there was some wastage of local anesthetic vapors of xylocaine. To compensate this 3 ml of 4% xylocain solution was instilled through tracheal stoma which would prevent laryngobronchial spasm while instrumentation. After waiting for five minutes a 10 FG Foley's catheter which has a metal malleable stylet to give strength to the soft catheter was introduced into the trachea. While observing the exact direction of the catheter, under camera guided monitor system, with rigid 70° endoscope. The endoscope was kept at the opening of the tracheal stoma throwing the beam of light vertically downwards into the trachea. During the process both the tip of the catheter and the fractured tracheostomy tube was visualized. The proceedings were monitored at each step and the tip of the catheter was introduced through the lumen of the fractured tracheostomy tube. And after passing beyond the bend of the fractured tube the Foley's catheter balloon was inflated with approximate 6ml of air to be tightly fitted in the lumen of the tube and was securely hooked. Then the catheter was pulled up slowly which brought the fractured tracheostomy tube hooked along with it, through the tracheal stoma and was delivered. The equipment (Fig.3) along with the fixed fractured tracheostomy tube (Fig.4) is shown.

**Figure 3**

Figure 3: Equipment



**Figure 4**

Figure 4: Hooked fractured tracheostomy tube with 10 FG Foley's catheter



And a fresh 7.5 mm cuffed Polyvinyl Chloride tracheostomy tube was introduced and secured around the neck with ribbon tapes. Bain circuit was then connected. The bag was immediately inflated and there were normal excursions in the bag. The  $\text{SpO}_2$  picked up to 96-98%. The patient was given 100%  $\text{O}_2$  through T- piece and shifted to PACU (Post Anaesthetic Care Unit). The post operative period was uneventful and patient was referred for palliative treatment.

**DISCUSSION**

The problem of foreign bodies in the air passages has plagued humanity since antiquity. Rigid endoscopes were developed largely in response to the need to remove the foreign bodies. The purpose of this case report is to illustrate a situation where a different technology was used to solve a

problem in which standard rigid bronchial endoscope would not have been helpful because of the closure of glottic region along with fix flexed neck due to the malignancy and a contracted tracheal stoma giving a difficult angulation for the introduction and manipulation of the rigid bronchoscope. Endobronchial foreign body extraction is largely accomplished with the use of a Fogarty balloon catheter. The foreign body is first located and visualized by a flexible fiberoptic bronchoscope. The Fogarty catheter is then deployed through the instrument channel of the bronchoscope and beyond the foreign body. At this point, the balloon tip is inflated and pulled proximally against the object until it is wedged against the bronchoscope. The bronchoscope, foreign body, and Fogarty catheter are then withdrawn as a unit.

**CONCLUSION**

Although we have only one case to illustrate this technique, we believe that it will be able to assist otolaryngologists in their approach to endobronchial extraction of a fractured tracheostomy tube in a case of carcinoma laryngo-pharynx and also in centers where flexible fiberoptic bronchoscopes are not approachable along with the Fogarty catheter.

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