

# FOREIGN BODY (TOOTH) RETRIEVAL IN POLYTRAUMA PATIENT, USING SINGLE USE BRONCHOSCOPY AND RETRIEVAL BASKET, A CASE REPORT.

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## ABSTRACT

Foreign body aspiration can be a life-threatening emergency and it is uncommon entity in adults. For foreign body extraction, rigid bronchoscopy is superior to flexible bronchoscopy for operative manipulation. However, in view of maxillofacial trauma, rigid bronchoscopy is a risk for patient. Herein we describe our successful experience using single use flexible bronchoscopy with retrieval basket in removal of huge foreign body aspiration in a polytrauma patient.

**Keywords:** Foreign body, Endotracheal tube, Single use, Retrieve basket, Bronchoscopy.

## INTRODUCTION

Foreign body (FB) aspiration can be a life-threatening emergency and it is uncommon entity in adults. Serious complications such as granulation tissue formation, recurrent pneumonia, atelectasis and endobronchial stenotic scarring can occur in cases of delayed diagnosis and removal. (1)The use of flexible bronchoscopy for the extraction of airway foreign bodies in intubated patient has been hampered by the small calibre of the endotracheal tube (ETT). There are few reports comparing flexible and rigid bronchoscopy in adult foreign body aspiration. Previous study found rigid bronchoscopy was superior than flexible bronchoscopy in removal of FB in the airway.(2) However, in view of maxillofacial trauma, rigid bronchoscopy is a risk for patient. Little is known about the use of single use flexible bronchoscopy in the retrieval of foreign body in intubated patient. Herein we describe our successful experience using single use flexible bronchoscopy with retrieval

basket in removal of huge foreign body aspiration in a polytrauma, intubated patient.

## CASE REPORT

A 37-year-old man with underlying bipolar disorder, had a polytrauma following an impact full history of fall. He sustained fracture of the left lower limb, multiple facial soft tissue injury, fracture of facial bone, split palate and dental trauma. He also had orbital wall fracture, periorbital hematoma with subconjunctival haemorrhage. Patient was intubated for airway protection, using endotracheal tube size 7.5. Chest radiograph was performed and noted foreign body at the right bronchus (Figure A).

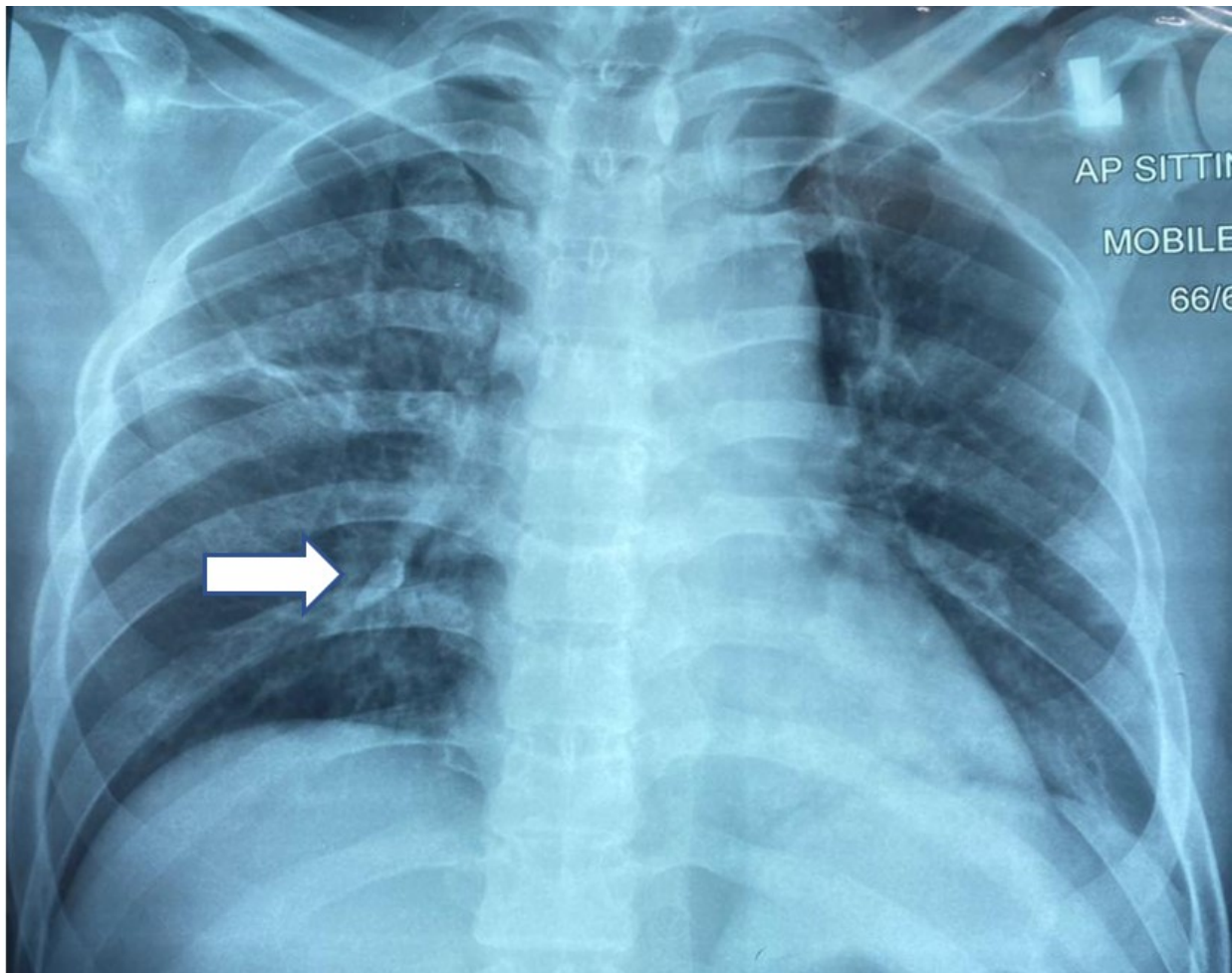
Urgent flexible bedside bronchoscopy was performed at ICU. The entire procedure took about 30 minutes. Bronchoscopy was done through the T tube which was connected to the ventilator tubing. The initial bronchoscopy was performed using flexible bronchoscopy with inner diameter of 2.0mm. We were able to visualize the aspirated

tooth; with 1 broken piece of the teeth at the right lower lobe segment(B10). We attempt to grasp with aligator forcep; size 1.8mm however not successful as it was smooth and hard surface. With the suction from the bronchoscopy, we are able to take out the small teeth piece leaving one solid tooth in the subsegment.

We decided to use our single use flexible bronchoscopy, with outer diameter of 5.2mm and with working channel size 2.8mm. We use retrieve basket 2.3mm and manage to pull out the tooth. There were few points where the ETT was

narrowed and causing total obstruction of the airway which was at the ETT tied and at the proximal end of ETT. This was managed by cutting the ETT ties and then we cut the proximal end of ETT. This patient had a difficult intubation in view of laryngeal edema therefore we have to keep the ETT in situ.

Patient had few episodes of desaturation for few second which make us to perform the manipulation quickly. Post procedure, patient was stable and no major complication.



**Figure A:** Chest radiograph show foreign body at the right lower zone



**Figure B:** Bronchoscopy finding; foreign body at right lower lobe segment (B10)



**Figure C:** Foreign body; tooth (30mmx10mm)

## DISCUSSION

This case was referred to us from other hospital. In our centre, rigid bronchoscopy was considered as the first-line modality for airway FB removal in patients who had a need for airway protection or impacted FB identified on chest imaging. However, in this case, the maxillofacial trauma did not permit us to proceed with rigid bronchoscopy. Therefore, we proceeded with urgent, bedside bronchoscopy in ICU.

There were many challenges that we faced. The flexible bronchoscopy that available has smaller working channel which not fit our therapeutic forceps. The single use bronchoscopy has shown its benefit. It was immediately available and can be set up in seconds. It was always sterile and improves patient safety. The larger working channel gives wide range of airway procedures. It is recommended for pulmonologist to have few of this bronchoscopy for emergency use. This is our first experienced using this single use bronchoscopy in foreign body retrieval.

For complicated case like this, the operator has to be an experienced pulmonologist. There

were few sides of obstruction during the procedure. The manipulation should be very careful to prevent form fall of the retrieved object but at the same time must be very fast in view of the obstruction of ETT causing the patient to be desaturated.

We extracted foreign bodies in the airway using retrieval baskets. The retrieval basket is uniquely designed for foreign body removal in the airway. It is composed of three or four strands to stably grasp objects. It is small enough to pass the channel and can unfold sufficiently to wrap around the objects in the airway. These properties may enable successful removal of foreign bodies and may also minimize accidental dislodgement.

## CONCLUSION

In conclusion, retrieval foreign body using single use bronchoscopy is safe, reliable, and effective instrument for extracting airway foreign bodies together with the retrieval basket in an urgent situation. We hope that more studies in the future can aid to bridge the current gaps in knowledge regarding single use bronchoscopy for more pulmonary intervention management.

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