Retrograde-Assisted Fiberoptic Intubation: An Unusual But Useful Use Of Flexible Fiberoptic Endoscope

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Citation

Abstract
The flexible fiberoptic endoscope is invaluable equipment used in the practice of anaesthesiology and intensive care medicine. Its basic use is as an aid to difficult intubation either by the oral or nasotracheal route. A few numbers of cases of Retrograde-Assisted Fiberoptic Intubation have been reported in the literature. We report a similar case.

CASE REPORT
A 42-year-old male patient was scheduled for elective right total hip replacement.

PRE-OPERATIVE ASSESSMENT
PRESENTING COMPLAINT:
• Inability to move right lower limb for the last few years.

PAST MEDICAL HISTORY:
• Known case of ankylosing spondilitis for the last 24 years.
• No history of taking steroids or NSAIDs for the last one year.
• No history of diabetes mellitus, hypertension, COPD or allergies etc.

PAST SURGICAL HISTORY:
• Left total hip replacement done under epidural anaesthesia.
• Perioperative course remained uneventful.

PHYSICAL EXAMINATION:
• The patient was of short stature.
• His height was 156 cm and weight 68 kg.
• There was no pallor, cyanosis, jaundice or edema.

AIRWAY ASSESSMENT:
• Short neck
• Mouth opening 3.4 cms.
• Thyromental distance 4.5 cms.
• All teeth present with good oral hygiene
• Unable to flex, extend or rotate his neck on either side at all.
• Unable to protrude his lower incisors in front of upper incisors.
• Mallampatti Class III

X-RAY CERVICAL SPINE:
• He was lying on the bed with two big pillows under the head.
• Respiration was abdominal and chest movements were seemed to be restricted on either side.
• The examination of all other systems was unremarkable.
PREMEDICATION:
- Tablet Lorazepam 2 mg po 2 hours before operation
- Tablet ranitidine 150 mg po 2 hours before operation
- Tablet Metoclopramide 10 mg po 2 hours before operation

AIRWAY MANAGEMENT:
After failed epidural block and awake intubation with the conventional method of endotracheal tube insertion under topical anaesthesia by the use of a flexible fiberoptic bronchoscope (Olympus BF 3c 10), a retrograde assisted fiberoptic intubation was considered. The cricothyroid...
membrane was identified and 5.0 ml of Xylocaine 2% was  
given through this route. A 16 G intravenous canula was  
successfully passed into the trachea at the injection site.  
Stainless steel safety guide wire with a fixed core straight  
flexible tip (0.97mm x 100cm) was passed through the  
intravenous canula and retrieved from the oral cavity. A  
well-lubricated 8 mm ID cuffed endotracheal tube was  
passed over the endoscope. The oral end of the guide wire  
was passed through the suction port of endoscope in  
retrograde direction while the other end was clamped with  
artery forceps at cricothyroid membrane. The bronchoscope  
was introduced into trachea as shown in the Figure 3.  

**Figure 3**  
Figure 3: The guide is passed in the trachea via the  
cricothyroid membrane. The distal end is held with artery  
forceps at the cricothyroid membrane and the proximal end  
after retrieving from mouth or nose is passed through the  
suction port of the fibroscope. The fibroscope already  
mounted with endotracheal tube is passed through the vocal  
cord into the trachea.

Tracheal rings were identified, the guide wire removed and  
the endotracheal tube rail-roaded over the bronchoscope and  
then the bronchoscope was removed. Correct placement of  
endotracheal tube was confirmed with the use of an Et CO₂  
detector device.

**DISCUSSION**

In 1960, Butler and Cirilo, first described passing the guide  
wire via a tracheotomy stoma. This was given the name of  
retrograde intubation. Waters, who passed the epidural  
catheter with the help of Thoughy needle via the  
cricothyroid membrane to assist tracheal intubation  
presented the concept of percutaneous guide wire insertion  
in 1963. We do not know exactly who first described the  
Retrograde Fiberoptic Assisted Intubation. Tobias et al  
described the method of Retrograde Fiberoptic Assisted  
Intubation with guide wire but they passed the bronchoscope  
along side of the guide wire. Audenaert et al 4 and Bissinger  
et al 5 reported cases of retrograde fiberscope assisted  
intubation through the working channel of a flexible  
fibroscope. S. Rao Mallampati, has suggested the use of  
suction port of fiberscope for retrograde intubation.

**ACKNOWLEDGEMENTS**

We are very thankful to our anaesthesia technicians for  
assisting with this procedure.

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