



# Surgeon performed intubation using an anterior commissure scope and bougie:

## A retrospective case series

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### Abstract

**Objective:** This study examines the outcomes of surgeon performed intubations using a direct rigid laryngoscope and bougie in adults who have a difficult airway.

**Study design:** Retrospective case series

**Methods:** This study identified adult subjects who underwent surgeon performed intubation at a tertiary care center over a 10 year period. A search of electronic medical records was performed to identify operative reports coded as CPT 31500- intubation by surgeon. The outcomes and complications of patients who underwent surgeon performed direct laryngoscopic using bougie intubation are analyzed.

**Results:** 49 intubations by five surgeons were reviewed. Successful direct rigid laryngoscopic intubation by the surgeon occurred in 47 of the cases (96%). The majority of patients had a head and neck cancer involving the airway or trismus related to prior treatment for head and neck cancer. Over half of the subjects had one or more failed intubation attempts (including by others) prior to surgeon performed direct laryngoscopy. Only one patient required an urgent tracheostomy due to failed intubation.

**Conclusion:** In properly selected adults with unfavorable anatomy or pathologic obstruction who need an urgent, secure airway, surgeon performed direct laryngoscopic intubation using a bougie should be considered as a reliable and safe procedure that may preclude the need for an urgent awake tracheostomy.

### Introduction/Discussion

The majority of awake tracheostomies are well tolerated, but risks include patient movement throughout the procedure with an inability to administer sedatives or analgesics depending on patient condition, significant pain, or a technically difficult tracheostomy because of previous neck trauma or cancers which would make an awake tracheostomy more complicated. These adverse outcomes may be avoided in properly selected patients who can tolerate awake intubation with a anterior commissure laryngoscope and a bougie so a general anaesthetic can be administered from the outset. This study examines the outcome of subjects who underwent surgeon performed direct laryngoscopic intubation and describes the ideal patient who may benefit from this procedure.

The ideal candidate for surgeon-performed should tolerate a preoperative transnasal flexible laryngoscopy in order visualize the anatomy to develop an approach. The patient must also be able to calmly maintain a supine or semi supine position for the short duration of the procedure. Finally, in conjunction with anesthesia, the patient must be able to demonstrate sufficient pulmonary function to maintain saturations during the procedure. Respiratory depression should be avoided to prevent an respiratory arrest. In these cases, a low dose of dexmedetomidine (Precedex) provides adequate sedation while maintaining spontaneous ventilation. Other sedatives and anxiolytics are avoided.

### Methods and Materials

This is a retrospective study of all surgeon performed intubations coded as CPT code 31500- Intubation by Surgeon. 49 encounters were identified from November 2007 to August 2015 in which a direct laryngoscopic intubation was performed by a surgeon in the operating room. Age, sex, history of previous difficult intubation, and the documented reason for the current difficult intubation were reviewed. The number of failed intubation attempts, and method of failed intubation was recorded. Further analysis determined whether the patient was awake or paralyzed during the attempt and if the difficult airway was anticipated prior to the initial attempt.

### Results

#### Success rates & Outcomes

47 subjects (96%) were successfully intubated via surgeon performed direct laryngoscopy, with only one patient requiring a second attempt to secure the airway with direct laryngoscopy. Of the two unsuccessful attempts, one was intubated subsequently via fiberoptic intubation by anesthesia, while the second subject underwent a successful emergent surgeon performed tracheostomy but ultimately died from cardiac arrest in the operating room.

The average age was 58.8 ± 4.63 years, with a 31:18 M:F distribution. Of the selected patients, 10 (20%) had a documented history of previous difficult intubation during a previous hospitalization. Five surgeons performed the intubations at a tertiary care facility.

#### Documented reason for difficult airway

Total	49
Mass	22
Malignant	20
Primary	15
Recurrent	5
Benign	2
Trismus	11
Infection	4
Edema	3
Other	9

#### Causes of difficult intubation

The two most common causes of difficult airway were obstructive mass (22/49, 43%) and trismus (11/49, 22%).

Other causes included acute infection, neck immobilization, obesity, laryngeal edema, and post-operative bleeding

The causes for difficult intubation cited in the two failed cases were a benign mass and obesity.

#### Previous attempts/ Expected vs Unexpected

Of those successfully intubated with direct laryngoscopy, 29/47 (62%) underwent a previous failed intubation using a different method in the operating room by anesthesia. Most often, the failures involved the Miller or Macintosh blade, Glidescope or transnasal fiberoptic. Of those, 20 were intubated by surgeon performed direct laryngoscopy on the second attempt, while 7 required at least three failed attempts by anesthesia and surgeons before success was achieved with direct laryngoscopy and bougie by the surgeon. 36/49 (73%) of subjects were expected to be a difficult intubation, including the subject who died of respiratory arrest. 9/49 were unexpected but the ORL surgeon was performing the procedure and readily available to intubate. 4/49 were unexpected and the ORL surgeon was called urgently from another location for assistance.

### Conclusion

In properly selected adults with unfavorable anatomy or pathologic obstruction who need an urgent, secure airway, surgeon performed direct laryngoscopic intubation using an anterior commissure scope and a bougie should be considered as a reliable and safe procedure that may preclude the need for an urgent awake tracheostomy. A set containing an anterior commissure scope is now available in the operating room for emergent difficult airways.



### References

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