Coiling Of Endotracheal Tube In The Pharyngeal Cavity During Awake Fibreoptic Intubation: An Unusual Complication

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Citation

K Singh, S Mahapatra, S Salgaonkar, B Tendolkar, L Dewoolkar. *Coiling Of Endotracheal Tube In The Pharyngeal Cavity During Awake Fibreoptic Intubation: An Unusual Complication*. The Internet Journal of Anesthesiology. 2006 Volume 13 Number 1.

Abstract

Nasal fibreoptic bronchoscopy is considered one of the methods of choice in cases of difficult airway. Common complications1 associated with nasal fibreoptic bronchoscopy include insertion trauma, hemorrhage, hypoxemia and bronchospasm. We report an unusual complication of coiling of endotracheal tube in pharyngeal cavity in a patient of CA mandible posted for commando operation. Various maneuvers that help in successful endotracheal placement of tube during awake fibreoptic bronchoscopy are also mentioned.

CASE REPORT

A 32 year old male presented with CA mandible, right side and was posted for hemimendibulectomy. The only complaint was bleeding at the tumour site, there was no previous surgical and medical history and all the routine investigations were within normal range. Airway examination showed mouth opening-2 fingers, MPC- IV and neck movements and other distances were within normal range. MRI scan showed tumour parameters as 5 cm x 3.4 cm x 2 cm. Having history of bleeding at tumour site and considering difficult airway, awake fibreoptic intubation was planned.

After giving xylometazoline drops nasally, 10% lignocaine gargles, 4% lignocaine nebulization, bilateral superior laryngeal nerve block and trans-tracheal instillation of 2 cc of 4 % lignocaine, fibreoptic bronchoscope was introduced nasally. Visualizing glottis, tracheal rings and carina properly, 8.0 No. The ETT was railroaded over the bronchoscope. At 22 cm mark of the ETT, little resistance was felt while threading the tube over bronchoscope. We however were able to thread the tube further by applying slight rotatory pressure over it. While withdrawing the bronchoscope, the cuff of the tube was visualized and the scope was removed. $ETCO_2$ monitor and circuit were attached to the tube. $ETCO_2$ constantly showed zero mm Hg CO_2 , however bag movements showed adequate tidal volume. Further, air blast was appreciated well. However considering 0 mm Hg ET CO_2 , we did check direct laryngoscopy and tube was found coiled in the oro-pharyngeal cavity, tip of the tube was not visualized and only tip of epiglottis could be seen. Immediately tube was removed. The 2 nd attempt , however resulted in successful placement of ETT. Little resistance felt while threading the tube at around same mark was overcome by rotation of the tube over bronchoscope and ET CO_2 , bag movements and auscultation all were consistent with tracheal placement of tube. Surgery and anaesthesia went uneventful and patient was put electively on T- piece for 12 hrs. Further course was uneventful and patient got extubated and discharged from anaesthesia care unit after 24 hrs.

DISCUSSION

Review of literature [2] shows impingement of endotracheal tube at glottis and failure of tube to pass over bronchoscope as a known complication. In one study [2] , right arytenoid cartilage has been reported as the most common site of impingement of endotracheal tube during fibreoptic optic intubation. However coiling of endotracheal tube in the pharyngeal cavity as in our case has not been reported till date. Various maneuvers known to help in smooth fibreoptic intubation include counterclockwise 90* rotation of tube over the bronchoscope [3] , tongue protruding [4] , pulling the mandible forward [4] , pulling the tongue forward [4] , or using a

tongue retractor [4] . Application of external pressure to the larynx may also assist in tube advancement [5] .

Attempting to pass a relatively larger tracheal tube over small size scope may result in lower rate of successful intubation [6,7] . Interposing a smaller tracheal tube between fibreoptic and the larger tracheal tube has been reported to help in this context [7,8] .

Another reason cited as failure to thread the tube over bronchoscope is if the tip of the scope protrudes through the Murphy's eye [9] . Advancing the bronchoscope under direct vision identifying both sides of tube can help in tackling this problem.

In our case, we presume that the endotracheal tube got impinged somewhere at the glottis and later, instead of entering the trachea, got coiled in the pharyngeal cavity. Bag movments and good blast can only be explained by the fact the the tip of tube or murphy's eye must have been placed quite close to the glottis, and with patient spontaneously breathing we were able to appreciate the bag movements and the air blast. Later, we were able to successfully intubate the patient with anticlockwise rotation and advancement of the tube.

This incidence also emphasizes the importance of ET CO_2 in confirmation of tracheal placement of endotracheal tube. Other methods indicated in confirmation of tracheal placement of tube include chest X-ray, Sonomatic confirmation of tracheal intubation (SCOTI) and ultrasound. [10]

Other known complications of fibreoptic bronchoscope include overdose of topical anaesthetic, insertion trauma, hemorrhage, upper airway obstruction related to passage of instrument through area of tracheal stenosis, hypoxemia and bronchospasm [1] .

A case report of gastric rupture after awake fibreoptic intubation in a patient with laryngeal carcinoma has been reported [11] .

We conclude such a complication should be kept in mind by any anesthesiologist while practicing fibreoptic intubation in order to detect this complication in time and to prevent any catastrophe later.

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References

1. Paul G. Barash, Bruce F. Cullen, Robert K. Stoelting. Clinical Anaesthesia, fifth edition, 2006: Anaesthesia for thoracic surgery: 838-839
2. A. G. Marfin1, R. Iqbal, F. Mihm, M. T. Popat, S. H. Scott and J. J. Pandit . Determination of the site of tracheal tube impingement during nasotracheal fibreoptic intubation. Anaesthesia Volume 61 Issue 7 Page 646 - July 2006
3. Schwartz D, Johnson C, Roberts J. A maneuver to facilitate flexible fibreoptic intubation. Anaesthesiology 1989; 71:470-471
4. Couture P, Perreault C, Girard D. Fiber optic bronchoscopic intubation after induction of general anaesthesia: another approach. Can J Anaesth 1992; 39:99
5. Bond A. Assisting fibreoptic intubation. Anaesthesia and Intensive care 1992;20: 247-248
6. Hakala P, Randell. Comparisons between two fiberscopes with different diameter insertion cords for fibreoptic intubation. Anaesthesia 1995;50:735-737
7. Marsh NJ. Easier fibreoptic intubations. Anaestesiology 1992; 76:860-861
8. Rosenblatt WH. Overcoming obstruction during bronchoscope-guided obstruction of trachea with double setup endotracheal tube. Anaesth Analg 1996;83:175-177
9. Ovassapian A. Failure to withdraw flexible fibreoptic laryngoscope after nasotracheal intubation. Anaesthesiology 1985;63:124-125
10. Jerry A. Dorsh, Susan E. Dorsh. Understanding anaesthesia equipment. 4th edition: 594-595
11. Ho CM, Yin IW, Tsou KF, Chow LH, Tsai SK. Gastric rupture after awake fibreoptic intubation in a patient with laryngeal carcinoma. Br J Anaesth. 2005 Jun;94(6):856-8. Epub 2005 Mar 11

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