



JEMTAC

Journal of Emergency Medicine
Trauma & Acute Care

A PEER REVIEWED JOURNAL

OPEN ACCESS

Journal club critique

Critique of ‘Percutaneous Tracheostomy: To Bronch or not to Bronch—That is the Question’[☆]

Hazim A. Al Hamzawi, Ashok Parachani, Mazin A. Tuma^{*}, Ahmed Zarour

ABSTRACT

Background: Percutaneous tracheostomy is a routine procedure in the intensive care unit (ICU). Some surgeons perform percutaneous tracheostomies using bronchoscopy believing that it increases safety. The purpose of this study was to evaluate percutaneous tracheostomy in the trauma population and to determine whether the use of a bronchoscope decreases the complication rate and improves safety.

Methods: A retrospective review was completed from January 2007 to November 2010. Inclusion criteria were trauma patients undergoing percutaneous tracheostomy. Data collected included age, Abbreviated Injury Score by region, Injury Severity Score, ventilator days, and outcomes. Complications were classified as early (occurring within <24 h) or late (>24 h after the procedure).

Results: During the study period, 9,663 trauma patients were admitted, with 1,587 undergoing intubation and admission to the ICU. Tracheostomies were performed in 266 patients and 243 of these were percutaneous; 78 (32%) were performed with the bronchoscope (Bronch) and 168 (68%) without bronchoscope (No Bronch). There were no differences between the groups in Abbreviated Injury Score by region, Injury Severity Score, probability of survival, ventilator days, and length of ICU or overall hospital stay. There were 16 complications, 5 (Bronch) and 11 (No Bronch). Early complications were primarily bleeding (Bronch 3% vs. No Bronch 4%, not statistically significant). Late complications included tracheomalacia, tracheal granulation tissue, bleeding, and stenosis; Bronch 4% versus No Bronch 3%, (not statistically significant). One major complication occurred, with loss of airway and cardiac arrest, in the bronchoscopy group.

Conclusion: Percutaneous tracheostomy was safely and effectively performed by an experienced surgical team both with and without bronchoscopic guidance with no difference in the complication rates. This study suggests that the use of bronchoscopic guidance during tracheostomy is not routinely required but may be used as an important adjunct in selected patients, such as those with HALO cervical fixation, obesity, or difficult anatomy.

Trauma Surgery Section/Department of Surgery, Hamad Medical Corporation, Doha, Qatar

^{*}Corresponding author. Email: mazin615@yahoo.com

[☆]Critique of: La Scienya M. Jackson, MD et al., Percutaneous Tracheostomy: To Bronch or Not to Bronch—That is the Question, *The Journal of Trauma: Injury, Infection, and Critical Care*. 2011; 71:6

<http://dx.doi.org/10.5339/jemtac.2012.12>

Published: 12 June 2012
© 2012 Hamzawi et al., licensee Bloomsbury Qatar Foundation Journals. This is an open access article distributed under the terms of the Creative Commons Attribution License CC BY 3.0 which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

COMMENTARY

More evidence is accumulating that both percutaneous dilatational tracheostomies (PDT) and surgical tracheostomies can be safely performed at the bedside by experienced, skilled practitioners [1]. In addition, PDT has been shown to reduce the overall incidence of wound infection and may further reduce clinically relevant bleeding and mortality when compared with surgical tracheostomy performed in the operating room (OR) [2].

This retrospective review [3] is the first that has evaluated percutaneous tracheostomy with and without the use of bronchoscopy. Out of the 243 tracheostomies that were performed, 78 cases were done with a bronchoscope (Bronch) and 168 without a bronchoscope (No Bronch). The total complications recorded were 17.6 (8%) in the Bronch group and 11 (7%) in the No Bronch group.

The notable limitation of this study was the small sample size in which no statistically significant conclusion could be drawn between the two groups in regard to the complication rate. The loss of an airway that led to cardiac arrest, a major complication recorded in the Bronch group necessitates further clarification regarding the duration of the airway loss, the anatomy of the airway, details of whether the patient suffered a cervical spine injury and the experience of the operator; knowing that anaesthesia was not involved unless the tracheostomy was done in the OR. The cause of conversion to open surgical technique for two patients, one from each group, should also have been detailed.

The author stated that there was no difference between the Bronch and No Bronch groups in the mean BMI, or in the percentage of patients with a BMI more than 35, however, this data was not made available. Previous studies have suggested that percutaneous tracheostomy can be performed safely in the majority of obese patients [4]. In addition, in a recent study of 50 patients, ultrasound guided PDT was feasible in obese patients with a low complication rate [5]; we think availability of this data is valuable and would have added to the strength of the paper.

The author concluded that PTC was safely and effectively performed by an experienced surgical team both with and without bronchoscopic guidance. However, from the data provided, and in the absence of any evidence to the contrary, we continue to support the position that the collaboration between surgeons and anaesthetists in such cases is of paramount importance.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest

References

- [1] Silvester W. et al. Percutaneous versus surgical tracheostomy: A randomized controlled study with long-term follow-up. *Crit Care Med.* 2006 Aug;34:8, 2145–2152.
- [2] Delaney A. Percutaneous dilatational tracheostomy versus surgical tracheostomy in critically ill patients: a systematic review and meta-analysis. *Crit Care.* 2006;10:2, R55.
- [3] La Scienya M., Jackson M.D. et al. Percutaneous tracheostomy: To Bronch or not to Bronch—that is the question. *The Journal of Trauma: Injury, Infection, and Critical Care.* 2011;71:6.
- [4] Aldawood A.S., Arabi Y.M. and Haddad S. Safety of percutaneous tracheostomy in obese critically ill patients: a prospective cohort study. *Anaesth Intensive Care.* 2008 Jan;36:1, 69–73.
- [5] Guinot P.G. Ultrasound-guided percutaneous tracheostomy in critically ill obese patients. *Crit Care.* 2012 Mar 5;16:2, R40.