

Content available at: <https://www.ipinnovative.com/open-access-journals>

IP Indian Journal of Anatomy and Surgery of Head, Neck and Brain

Journal homepage: <https://www.ijashnb.org/>

## Original Research Article

## Emergency open tracheostomy and emergency percutaneous tracheostomy: A comparative study

Shivesh Kumar<sup>1</sup>, Saurabh Pathak<sup>2</sup>, Rajesh Kunwer<sup>3</sup>, Om Prakash Gupta<sup>2</sup>, Vikas Verma<sup>2,\*</sup>, Anuj Kumar Tripathi<sup>2</sup><sup>1</sup>Dept. of ENT, Career Institute of Medical Science and Hospital, Lucknow, Uttar Pradesh, India<sup>2</sup>Dept. of Surgery, Career Institute of Medical Sciences and Hospital, Lucknow, Uttar Pradesh, India<sup>3</sup>Dept. of Anesthesia, Career Institute of Medical Sciences and Hospital, Lucknow, Uttar Pradesh, India

## ARTICLE INFO

## Article history:

Received 15-06-2021

Accepted 30-06-2021

Available online 09-08-2021

## Keywords:

Tracheostomy

Intensive care unit

Percutaneous

## ABSTRACT

Emergency Tracheostomy is a widely used procedure in intensive care unit in India. This study reveals that emergency percutaneous tracheostomy is better than emergency open tracheostomy. Percutaneous tracheostomy is associated with better outcome, less bleeding, shorter time, less sedation, less damage to the trachea, and low collection of hematoma.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: [reprint@ipinnovative.com](mailto:reprint@ipinnovative.com)

## 1. Introduction

Emergency tracheostomy procedure is full of risks. Immediate complications include severe damage to the trachea, hematoma formation, subcutaneous emphysema, esophageal injury, thyroid gland or nerves injury. A collection of blood (hematoma), which may form in the neck and compress the trachea, causing breathing problems in this study we compared the complication between emergency open and percutaneous tracheostomy.

## 2. Material and Methods

In this retrospective study emergency open tracheostomy was done in 23 cases and emergency percutaneous tracheostomy was done in 52 cases. Immediate complications were compared in both these procedure.

## 3. Observation

The Table 1 shows the complications rate in emergency open and emergency percutaneous tracheostomy.

Table 1:

Complications	Emergency open tracheostomy (23 cases)	Emergency percutaneous tracheostomy (52 cases)
Time taken	7 to 10 minutes	3 to 5 minutes
Severe damage to the trachea	5 (21.7%)	2(3.8%)
Hematoma formation	7 (30.4%)	1(1.9%)
Subcutaneous emphysema	3 (13%)	1(1.9%)
Esophageal injury	1 (4%)	nil
Thyroid gland injury	3 (13%)	nil
Nerves injury	2 (8.6%)	nil

\* Corresponding author.

E-mail address: [dr2010vikas2011@gmail.com](mailto:dr2010vikas2011@gmail.com) (V. Verma).

#### 4. Discussion

Emergency tracheostomy procedure is full of risks. In our study it is clear that emergency percutaneous tracheostomy is far better than emergency open tracheostomy and it is statistically significant. On review of literature we found that percutaneous tracheostomy is generally preferred to surgical tracheostomy (ST) in intensive care patients as it can be performed more readily on the ICU.<sup>1–6</sup> Kevin M. Higgins et al. study also suggested that in their meta-analysis had shown that percutaneous tracheostomies trend toward fewer overall complications than open techniques and appear to be more cost-effective by releasing operating room resources including time and personnel, provide greater feasibility in terms of bedside capability.<sup>7</sup> Thyroid injury seems to complicate both percutaneous and surgical tracheostomy. One may be encouraged by the knowledge that in an autopsy case series many of the percutaneous attempts did in fact skewer the thyroid safely, without incurring any new haemorrhagic complications.<sup>8</sup>

#### 5. Conclusion

Emergency percutaneous tracheostomy is a better option for critically ill patients in comparison to the Emergency Open tracheostomy.

#### 6. Source of Funding

None.

#### 7. Conflict of Interest

The authors declare that there is no conflict of interest.

#### References

1. Batuwitage B, Webber S, Glossop A. Percutaneous tracheostomy Continuing Education in. *Anaesth Crit Care Pain*. 2014;14(6):268–72.
2. Friedman Y, Fildes J, Mizock B, Samuel J, Patel S, Appavu S. Comparison of Percutaneous and Surgical Tracheostomies. *Chest*.

- 1996;110(2):480–5. doi:10.1378/chest.110.2.480.
3. Leyn P, Bedert L, Delcroix M, Depuydt P, Lauwers G, Sokolov Y, et al. Tracheotomy: clinical review and guidelines. *Eur J Cardio-Thorac Surg*. 2007;32(3):412–21. doi:10.1016/j.ejcts.2007.05.018.
4. Antonelli M, Michetti V, Plama A. Percutaneous translaryngeal versus surgical tracheostomy: A randomized trial with 1-yr doubleblind follow-up. *Crit Care Med*. 2005;33:1015–20.
5. Delaney A, Bagshaw SM, Nalos M. Percutaneous dilatational tracheostomy versus surgical tracheostomy in critically ill patients: a systematic review and meta-analysis. *Crit Care*. 2006;10:55.
6. Holdgaard HO, Pedersen J, Jensen RH, Outzen KE, Midtgaard T, Johansen LV, et al. Percutaneous dilatational tracheostomy versus conventional surgical tracheostomy. *Acta Anaesthesiol Scand*. 1998;42(5):545–50. doi:10.1111/j.1399-6576.1998.tb05164.x.
7. The Laryngoscope Lippincott Williams & Wilkins, Inc. © 2007 The American Laryngological, Rhinological and Otolological Society, Inc. Meta-Analysis Comparison of Open Versus Percutaneous Tracheostomy.
8. Toye FJ, Weinstein JD. Clinical Experience with Percutaneous Tracheostomy and Cricothyroidotomy in 100 Patients. *J Trauma*. 1986;26(11):1034–40. doi:10.1097/00005373-198611000-00013.

#### Author biography

**Shivesh Kumar**, Assistant Professor

**Saurabh Pathak**, Professor

**Rajesh Kunwer**, Associate Professor

**Om Prakash Gupta**, Professor

**Vikas Verma**, Junior Resident 1

**Anuj Kumar Tripathi**, Assistant Professor

**Cite this article:** Kumar S, Pathak S, Kunwer R, Gupta OP, Verma V, Tripathi AK. Emergency open tracheostomy and emergency percutaneous tracheostomy: A comparative study. *IP Indian J Anat Surg Head, Neck Brain* 2021;7(2):59–60.