



A Clinical Study on Tracheostomy and Its Indications amongst Patients Admitted At Tertiary Care Hospital, Srikakulam, Andhra Pradesh

¹Dr Boni Tata Rao, India, ²Dr Sai Lakshmi Kudupudi, ³Dr Bhyri Sateesh

¹Professor & HOD of Department of ENT, Great Eastern Medical School and Hospital, Srikakulam, Andhrapradesh,

²Postgraduate, Department of ENT, Great Eastern Medical School and Hospital, Srikakulam, Andhrapradesh, India

³Assitt. Professor, Department of ENT, Great Eastern Medical School and Hospital, Srikakulam, Andhrapradesh, India

Citation of this Article: Dr Boni Tata Rao, India, Dr Sai Lakshmi Kudupudi, Dr Bhyri Sateesh

, “A Clinical Study on Tracheostomy and Its Indications amongst Patients Admitted At Tertiary Care Hospital, Srikakulam, Andhra Pradesh,” IJMSAR – February – 2023, Vol. – 6, Issue - 1, Page No. 119-125.

Copyright: © 2023, Dr Sai Lakshmi Kudupudi, et al. This is an open access journal and article distributed under the terms of the creative common attribution noncommercial License. This 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.

Corresponding Author: Dr Sai Lakshmi Kudupudi, Postgraduate, Department of ENT, Great Eastern Medical School and Hospital, Srikakulam, Andhrapradesh, India

Type of Publication: Original Research Article

Conflicts of Interest: Nil

ABSTRACT

Background

Tracheostomy is one of the oldest life-saving procedures, and it is frequently performed for a variety of indications and age groups. The aim of the study was to review the indications for tracheostomy and the age group most commonly involved in the ENT Department at GEMS HOSPITAL in Srikakulam, Andhra Pradesh.

Methods

The study of 75 tracheostomised patients carried out from July 2021 to December 2022, at Department of ENT of Great Eastern Medical School and Hospital, Srikakulam, Andhra Pradesh. Data was entered in MS Excel sheet and were analysed in the form of

percentage and proportions whenever necessary.

Results

The most common reason for tracheostomy was upper airway obstruction. Tumor, trauma, and infection can all cause airway obstruction. Tracheostomy for prolonged ventilation was the second most common indication, with the age group 21-40 years being the most common. Trauma, snake bite, systemic diseases such as cerebrovascular accident, infection, and organophosphorus poisoning all contributed to it.

Conclusion

Upper airway obstruction caused by cancer, trauma,

prolonged ventilation, and infections were the most common indications for tracheostomy.

Keywords

Tracheostomy, Upper airway obstruction, laryngeal malignancy

INTRODUCTION

Trachea is a Greek word that originally meant rough. Tracheotomy refers to the surgical creation of a surgical opening into the trachea. When a formal opening or stoma is created, the term tracheostomy is used^[1]. The tracheostomy was invented by Galen and Aretaeus. Galen gave his approval to the operation and successfully opened a goat's wind pipe. In 1934, E.W. Good all discovered only twenty-eight successful tracheostomy cases up to the time of Bretonneau^[2]. The most common indications were acute pharyngeal and laryngeal inflammations, as well as the removal of foreign bodies ^[3]. The Rigveda, a sacred Hindu book published around 2000 BC, contains the earliest known references to tracheostomy. According to Johannes Scultetus (1595-1645) in his book "Armamentarium Chirurgicum," tracheostomy is a life-saving procedure when performed with the proper indication and surgical technique. ^[3,4] Although tracheostomy appears to have been performed in ancient times, it was deemed dangerous and was rarely used until the early nineteenth century^[4]. Tracheostomy was previously reserved for severely ill patients with acute respiratory obstruction; however, the indications for tracheostomy have gradually expanded to include tracheobronchial toileting, intermittent positive pressure ventilation, protection against foreign body inhalation and reduction of dead space, and anaesthetic indications^[5]. Tracheostomy is considered an important life-saving procedure in many conditions

and has now become a well-established procedure with more specific indications. When a prolonged artificial airway is required, tracheostomy is found to be a safer alternative to intubation⁶. Endotracheal intubation or percutaneous endoscopically guided tracheostomy has been used to treat an increasing number of airway problems in recent years. ⁶ However, in our country, percutaneous endoscopically guided tracheostomy is not yet routinely practised; instead, conventional tracheostomy is used to manage airway problems in the vast majority of cases. A traditional subhyoid tracheostomy is performed. The advancements in critical care in the latter half of the twentieth century have made prolonged mechanical ventilation the leading indication for tracheostomy in the modern era ^[7]. Tracheostomy in children is different from that in adults because the procedure is more difficult and technically demanding in children, and it has a higher morbidity and mortality rate when compared to the adult population. ^[8] Traditional tracheostomy procedures are fraught with complications, which can occur at any time during the operative and postoperative periods. These complications are more common in elective tracheostomies than in emergency traditional tracheostomies. ^[9] In the literature, tracheostomy complications ranged from 6% to 66%, with a 2% mortality rate. Tracheostomy complications and mortality rates are mostly avoidable if the procedure is done carefully and postoperative care is strictly and diligently followed. ^[11] With this context in mind, the current study is being conducted to assess the current indications for age, as well as demographic and pathological causes for age, in our hospital in the current scenario. Hence the present study was carried out to study the common indications of the

tracheostomy among the patients admitted in tertiary care teaching hospital, Srikakulam, Andhra Pradesh.

MATERIALS & METHODS

A prospective study was done in 75 cases of tracheostomies at Department of Otorhinolaryngology (ENT) of Great Eastern Medical School and Hospital, Srikakulam, Andhra Pradesh from the period of July 2021 to December 2022. Tracheostomy was performed on both elective and emergency patients, depending on the indications. Preoperative and postoperative investigations include X-ray soft tissue neck lateral view, X ray chest PA view, routine blood and urine examination, indirect laryngoscopy, video laryngoscopy, direct laryngoscopy, and biopsy, CT Neck Scan with Contrast were done. Inclusion Criteria: Patients of both sexes and all ages with stridor are eligible.

1. All patients with stridor at rest had an emergency tracheostomy.
2. Patients with stridor on exertion were evaluated first, and tracheostomy was performed later.
3. Patients who have been on tracheal intubation for more than 8 days. Exclusion criteria: Patients with Tracheostomy done outside the hospital.

METHODOLOGY

Depending on the indication, all patients underwent standard surgical tracheostomy procedures in the operating room. All of the patients who underwent standard tracheostomy procedures were given intensive care for the first 48 hours after surgery. A cuffed portex tracheostomy tube was used in all cases, and the tube was later changed to a Tracheostomy care was provided in the post-operative ward

•Jacksons tracheostomy tube.. by the surgeon and the attending nurse, with the patient's care giver asked to observe.

Tracheostomy care was provided on the ward twice a day, once in the morning and once in the evening. During the interim period, the patient's carer was taught the same thing. If the patient was to be discharged with a tracheostomy tube in place, the Portex tube was replaced with a Jackson's tube. Patients were followed up on a regular basis as follows:

- Twice a week during the first month.
- Once a week for the next month.
- Twice a month in the third month, and finally, whenever the patient has any problems, he or she is asked to come for follow-up. The tracheostomy tube was inspected, cleaned, and dressed during minor OT follow-up. As needed, advice was provided. When the tracheostomy was no longer needed, the tube was occluded for 24 hours to ensure the laryngeal airway was adequate. After removing the tube, an airtight dressing was applied.

Data was entered into an MS Excel spreadsheet and analysed using percentages and proportions as needed.

RESULTS

As shown in Table 1 that out of 75 study subjects, majority of them are in age of above sixty years and very few are in pediatric age group and two third of study subjects were males and one third being female.

Table 1: Distribution of study subjects according to age and gender

Variable Age group	Frequency (n=75)	Percentage
0-10 yrs	03	4.0
11-20 yrs	02	2.6
21-30 yrs	07	9.3
31-40 yrs	17	22.5
41-50 yrs	11	14.7
51-60 yrs	14	18.7
Above 60 yrs	21	28
Gender		
Male	58	77.3
Female	17	22.7

As Table 2 shows that majority of tracheostomy performed are emergency types done under local anesthesia with Vertical type of incision among the study subjects.

Table 2: Distribution of study subjects according to type of tracheostomy

Variable Type Of Tracheostomy	Frequency (N=75)	Percentage
Emergency	54	78.0
Elective	21	28.0
Type Of Anesthesia		
General	26	34.6
Local	49	65.4
Type Of Incision		
Horizontal	18	24.6
Vertical	57	75.4

In this study, most common indication of tracheostomy is upper airway obstruction, followed by prolonged ventilation (As shown in Table 3).

Table 3: Indications of tracheostomy

Indications	Frequency(N=75)	Percentage
Upper Airway Obstruction	48	63.3
Prolonged Ventilation	19	26.3
Part of Other Surgeries	09	10.4

Among obstruction of upper airway patients, majority of them had presented with tumor mass, followed by trauma and infections (As shown in Table 4)

Table 4: Indications of tracheostomy under obstruction of upper airway

Upper Airway Obstruction	Frequency (N=48)	Percentage
Tumor	28	58.3
Trauma	12	25.0
Infection	08	16.7

DISCUSSION

As stated by Johannes Scultetus (1595-1645) in his book "Armamentarium Chirurgicum," tracheostomy is a life-saving treatment when carried out with the proper cause & surgical expertise [3,4] The sociodemographic profile of our study, in which 75 patients were included, suggests that older age groups, specifically those between the ages of 40 and 60 (51.2%) and those over 60 were predominate, with a greater predilection for men due to high incidence of laryngeal & other head and neck malignancies, which is similar to studies by Chandrika et al.[12], Deepa R.et al.[13], Crysalde WS et al. The vertical skin crease incision was the surgical method used on all of

our patients in the operation theatre. As the vertical incision has the advantage of running along the line of the trachea, and it is simple to execute and less vascular. This is the way that we choose whether it is an emergency or elective tracheostomy. In contrast to Chandrika et al.[12] and Deepa R.et al.[13], a study conducted in Nigeria by B.S. Alabi et al.[15]Obstruction of upper airway was shown to be the most common indication in our study (63.4%), followed by malignancy (78.3%), which is comparable to studies by few other researchers[14,16] It was discovered that the supraglottic mass (42%) was the favoured location for cancer, followed by the

pyiform sinus mass (21.3%) and the glottis mass (9%). This conclusion is consistent with a research by Mahadevan M et al. The higher prevalence of laryngeal carcinoma in our study may also be related to the rise in laryngeal cancer cases in our culture as a result of rising cigarette and alcohol use. This conclusion is consistent with research by numerous other authors [14,17] Oral cavity, postcricoid, and thyroid cancers were discovered in our study's female patients with cancer. While vertical incisions have the advantage of running in the line of the trachea and are simple to perform with minimal bleeding, they were the surgical approach used in the operating room for the majority of our emergency patients. This contradicts other authors' claims that horizontal incisions were more common than vertical ones.[13], [16], [17].

CONCLUSION

In our study, men were more likely than women to have a tracheostomy between the ages of 61 and 70. The most common reason for tracheostomy was upper airway obstruction caused by cancer, trauma, prolonged breathing, and infections, in that order. In our study, emergency tracheostomies were more common than elective ones. A vertical incision and local anaesthesia were typically used for emergency procedures.

REFERENCES

1. Roland D. Eavey, M.D. "The evolution of tracheotomy" chapter 1, Tracheotomy. 1st edition. Churchill living stone 1985. pg 1-12.
2. Thompson JA et al. Posterior tracheal wall perforation during percutaneous dilational tracheostomy. Chest 1999;115:1383- 89.
3. İlçe Z, Celayir S, Tekand GT, Murat NS, Erdoğan E, Yeker D, et al. Tracheostomy in childhood: 20

years experience from a pediatric surgery clinic.

Pediatr Int. 2002;44:306–09.

4. Wood DE. Tracheostomy. Chest Surg Clin N Am. 1996;6:749–64.
5. Me Clelland RMA, Complications of trachesotomy. British Medical Journal. 1965;2:567- 69.
6. Watkinson JC, Gaze MN, Wilson J.A. Treatment options: the principles of surgery. In Stell and Maran's Head and Meek Surgery. Butter worth-Heinemann. Reed educational and professional publishing Ltd. Oxford 2000. Page 49-65.
7. Shannon M Kraft, Joshua Schindler "Tracheotomy" chapter 7, Cummings Otolaryngology Head and Neck Surgery, 6th edition, 2015 by Saunders, an Imprint of Elsevier Inc pp 95- 103
8. Adoga AA, Ma'an ND. Indications and outcome of pediatric tracheostomy: Results from a Nigerian tertiary hospital. BMC Surg. 2010;10:215.
9. Hadi A, Ikram M. Upper airway obstruction: Comparison of tracheostomy and endotracheal intubation. PJLO. 1995;11:25.
10. Asmatullah I, Rasool G, Billah M. Complications of emergency tracheostomy. J Postgrad Med Inst. 2004;18:225– 29.
11. Onakoya PA, Nwaorgu OG, Adebusoye LA. Complications of classical tracheostomy and management. Trop Doct. 2003;33:148–50.
12. Chandrika A, Somaraj S, Karat A. A descriptive study on complications of tracheostomy. J.Evid. Based Med.Healthc 2016; 3 (99), 5451-57
13. Ashwin Menon M, Deepa R, Balakrishnan E, Aswin Mukundan, Anupama Anisseril. Tracheostomy: A hospital based descriptive study.

MedPulse International Journal of ENT.

2017;1(2):31-39.

14. Crysalde WS, Fieldman RI, Natio K. Tracheostomies: a 10 year experience in 319 children Ann Otol RhinoLaryngology 1988: 97: 439-443
15. B.S. Alabi et al. Indications and outcome of tracheostomy in Ilorin, North Central Nigeria: 10 years review, Ann Afr Med. 2018;17(1):1-6.
16. Amusa Yb, Akinpelu VO, Fadiora SO, Agbabakwuru EA. Tracheostomy in surgical practice: experience in a Nigerian tertiary hospital. West Afr J Med. 2004;23(1):32-4.
17. Mahadevan M Barber C, Salkeld L. et al Paediatric Tracheostomy 17 year review. Int J Paediatr Otorhinolaryngol 2007;71(12):1829-35.