# Indications Of Tracheostomy And Complications In Adults Teaching Hospital Among Patients Attending Baqubah

**Supervisor**:

**Assistant Professor Dr. Qais Jafar Khalaf**

**By:**

**Aeshah Mahmoud Oleiwi**

## Abstract

### Background:

In the current situation, tracheostomy is one of the surgeries that is most commonly done at the patient's bedside, in intensive care units, and in emergency departments.

### Aim of our study:

is to list the common indications for analyzing different tracheostomy issues in the province of Diyala.

### Methods:

This retrospective analysis was carried out from November 1, 2023, to February 10, 2024, in the ENT, ICU, and RCU departments of the BAAQUBAH Teaching Hospital in Jammu. The ENT department, our institution's intensive care unit, and the rehabilitation unit all had cases

that were documented. In this group, we included all tracheostomies—emergency, elective, and preventive.

**Results**:

The ratio of male to female patients, out of the fifty patients in our study, was 1.5:1.
Forty-one (82%) of the patients belonged to the 50–70 age range. It was 65 years old on average. For patients with upper airway obstruction, 28 (56%) underwent tracheostomies, while 22 (44%) underwent artificial ventilation. The most common indication, found in 16 (32%) patients, was cancer, followed by respiratory failure in 14 (28%) individuals. Pneumothorax occurred in 4 (8%) tracheostomies, whereas hemorrhage occurred in 6 (12%), making it the most prevalent consequence.

**Conclusions**:
Although tracheostomy has a few side effects, it is nevertheless a life-saving surgical technique for managing an airway if done promptly.

**Keywords**: Adult, Tracheostomy, Complication, Indication.

## Introduction

A tracheostomy is a technique that creates a permanent opening in the trachea to improve airway function. Brasovala performed the first successful tracheostomy in AD 1546. Armand Trousseau had to improvise the method to treat dyspnea in diphtheria patients. Initially, the most common reason to perform a tracheostomy was to remove an upper airway obstruction. The indications have gradually changed, and its use as a transient airway access procedure—particularly for anesthesia and artificial ventilation—is growing.

Similarly, there are more and more circumstances when a long-term or permanent tracheostomy is indicated, such as in cases of terminal malignant tumor, sleep apnea syndrome, and severe respiratory distress. Despite being a straightforward procedure, tracheostomy carries some risk. The mortality rate from complications associated to procedures is roughly 0.6%. Numerous tracheostomy technique advancements have decreased tracheostomy-related problems and mortality.

The quality of life for tracheostomy patients can be enhanced by the utilization of multidisciplinary teams and protocols for tracheostomy care.4 Our study aims to provide an analysis of the many indications and difficulties that our institution's tracheostomized patients faced.

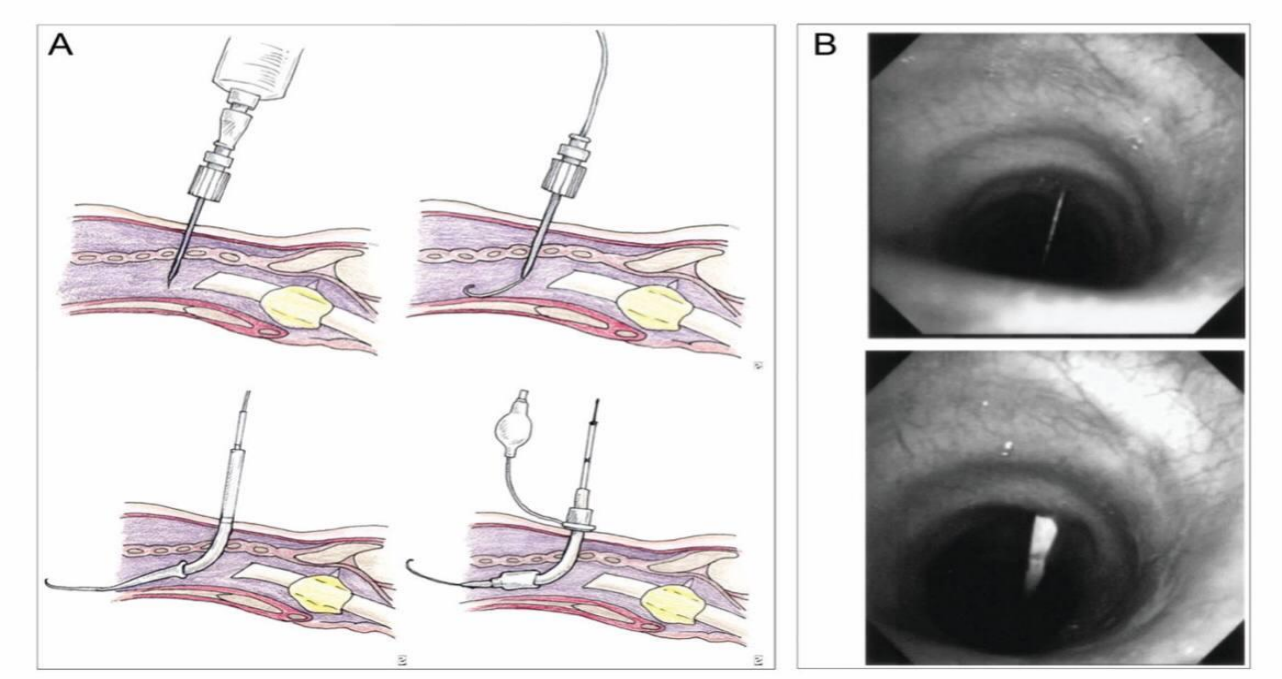
## Terminology and definition

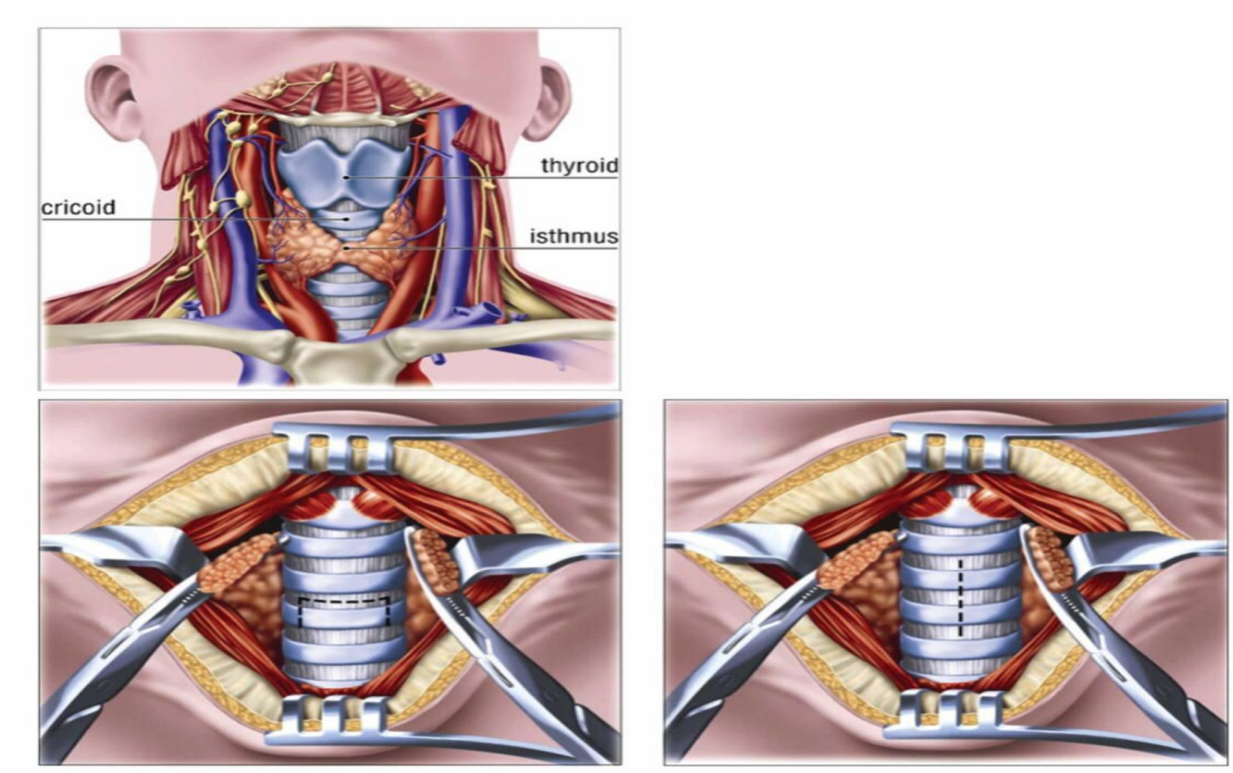
The terms and definitions listed below are used. A tracheal opening that is affixed to the skin will be referred to as a "tracheostomy" in this review. A tracheotomy is a procedure in which the trachea is momentarily opened. By joining the trachea to the neck's skin, a procedure known as tracheostomy creates a permanent fistula or opening. A permanent opening created through the neck into the trachea is called a tracheostoma; the term can also describe the opening left behind after a permanent laryngectomy.

## Tracheostomy Technique

In some cases, tracheostomy is accomplished by open surgical tracheostomy (Fig. 1) or percutaneous tracheostomy (Fig. 2). When a patient's anatomy or other conditions make percutaneous tracheostomy impossible, certain people may need open surgical tracheostomy. Any

patient who needs tracheostomy should have all possible problems evaluated in order to decide whether open surgical or percutaneous tracheostomy is the best course of action. Few studies directly comparing surgical and percutaneous tracheostomy address the important topic of patient selection when deciding whether to perform a percutaneous or surgical tracheostomy.
This is not addressed in many of the research that directly compare percutaneous and surgical tracheostomy.






# Methods

In the consulting clinic of Baqubah Teaching Hospital, a cross-sectional study design was carried out between November 1, 2023, and February 10, 2024.

Patients with tracheostomies who visited the Baqubah Teaching Hospital's ENT (Ears, Nose, and Throat) consulting clinic as well as ICU and RCU residents made up the study population. Every patient received an invitation to participate, and those who agreed to be part of the convenience sample were included in the current investigation.

There were fifty patients in the sample.

## Statistical analyses

The statistical program SPSS-27 (Statistical Packages for Social Sciences, version 27) was used to analyze the data. A descriptive statistical method was used to analyze the data (frequency, percentage, mean, tables, pies, and bar charts).

## Results

Table 1 shows the data obtained from 50 patients who had tracheotomies. The sample mean age was 50–70 years. Of these patients, 3(6%) belonged to the age group of less than 20 years, 1(2%) to 20–30 years, 5(10%) to 30–50 years, and 41(82%) to 50–70 years.

Table 1: Age group distribution within the sample

| | | Frequancy | Percent |
|---|---|---|---|
| Valid | less than 20 years | 3 | 6.0 |
| | 20-30 years | 1 | 2.0 |
| | 30-50 | 5 | 10.0 |
| | 50-70 years | 41 | 82.0 |
| | Total | 50 | 100.0 |

Regarding gender, table 2 displays a male to female ratio of 1.5_1. Of the sample, 31 (62%) were male and 19 (38%) were female.

Table 2: gender distribution in the sample that was included.

| | | Frequency | Percent |
|---|---|---|---|
| Valid | Male | 31 | 62.0 |
| | Females | 19 | 38.0 |
| | Total | 50 | 100.0 |

# Indications

Upper airway obstruction (56%) was the most common reason for tracheotomy in adults. This included head and neck cancer (32%) which was the most common cause of airway obstruction. Laryngotracheal stenosis (12%), bilateral vocal fold paralysis (8%), and craniofacial anomaly (4%), were the next most common indications. Table 3 indicates that extended intubation (44%) involving respiratory failure (28%) and neuromuscular disease (6%), as well as the post-operative period (4%), was the second most prevalent cause of tracheostomy.

The indications of tracheotomy in the adult groups are displayed in TableIII:

| Indications | | Frequency | Percent |
|---|---|---|---|
| Valid | Upper airway obstruction: | 28 | 56% |
| | Craniofacial anomaly | 2 | 4% |
| | Head and neck malignancy | 16 | 32% |
| | Laryngotracheal stenosis | 6 | 12% |
| | Vocal fold paralysis | 4 | 8% |
| | Prolonged intubation: | 22 | 44% |
| | Neuromuscular disease | 3 | 6% |
| | Postoperative period following major surgery | 2 | 4% |
| | Infection/sepsis-related disease | 3 | 6% |
| | Respiratory failure | 14 | 28% |
| | Total | 50 | 100% |

## Complicatins of tracheostomy:

Early and late complication rates were 24% and 12%, respectively, in the adult group. The most frequent early consequence in the adult group was postoperative hemorrhage from the surgical wound (12%), followed by pneumothorax (8%). The most frequent late consequence was found to be tracheocutaneous fistula, which affected 4 adult patients (4.8%). We did observe a decline in the rates of both early and late complications in the adult group, though. The

precise kinds and frequencies of these postoperative problems are shown in Table II.

Table 4: Distribution of the Complications' Onset

| | | Frequency | Percent |
|---|---|---|---|
| Valid | None | 32 | 64.0 |
| | Early | 12 | 24.0 |
| | Late | 6 | 12.0 |
| | Total | 50 | 100.0 |

Table(5) : the complications we encountered in our study

| | | Frequency | Percent |
|---|---|---|---|
| Valid | None | 32 | 64.0 |
| | Pneumothorax | 4 | 8.0 |
| | Suprasternal granulation | 3 | 6.0 |
| | Decannulation | 1 | 2.0 |

| | | | |
|---|---|---|---|
| | Hemorrhage | 6 | 12.0 |
| | Tracheocutanous fistula | 3 | 6.0 |
| | Tube/Ventilation problem | 1 | 2.0 |
| | Total | 50 | 100.0 |

# DISCUSSION

According to our research, men had a higher tracheotomy rate than women (62% vs 38% for women).
The age group of 50–70 years has the largest incidence of tracheostomy (41%), followed by that of 30–50 years (10%), < 20 years (6%) and 20–30 years (2%) in order of decreasing age.
We discovered that there were numerous adult tracheostomy reasons, including upper airway obstruction (56%) and extended intubation (44%).
Lastly, we discovered that there were both early and late complications. The most frequent early complications were pneumothorax (8%), which was followed by hemorrhage (12%), and respiratory failure (14%), which was followed by tracheocutanous fistula (6%). For ages, people have utilized tracheostomies to avoid upper airway blockage, and the treatment can truly save lives in many cases. In the past, it was linked to a high death rate and a high risk of complications. Over time, this treatment underwent significant modification while maintaining its core idea. Retrospective examination of the surgical technique was conducted, and the patients' long-term care was monitored.There is significant variation in the reported rates of complications among adult tracheostomy patients. Most people agree that following an emergency tracheostomy for airway blockage, complications are more common. Nonetheless, there aren't many studies that compare adult tracheostomies performed as emergencies vs elective procedures. According to our research, bleeding tracheostomy is among the most

frequent and early post-operative problems. This is consistent with research by Prowse S, Kelly G10, and Shahabi et al7. In our study, the most frequent bleeding location was from the skin's margins, followed by the peritracheal fascia, even though the bleeding site differed in other investigations. Kelly G and Prowse S suggested floseal in this example, but in all of our cases, the bleeding stopped on its own when we applied little pressure on the skin's margins. The tracheostomy site exhibits a susceptibility to various degrees of wound infection, much like any other wound. The stomal infection rate of 4% reported by Shahabi et al.7in his series is significantly greater than the 2% reported by us. Given that the grade of illness under consideration is defined, this notable disparity might be justified. In our investigation, an overall 2% infection rate was noted; however, only one patient developed moderate-to-severe infections. One patient (2%) experienced unintentional tracheostomy decannulation issues. This rate is far less than the 6% decannulation rate reported in the series by Waldron et al. Our observation and the 2% decannulation rate reported by Shahabi et al.7 in another study were identical. All patients were able to have the tube quickly replaced, and none experienced a serious hypoxic crisis. The issue of tracheostomy tube displacement emphasizes how important it is for nurses skilled in tracheostomy care to closely monitor these patients. It also highlights the issue of properly fastening the tracheostomy tube. Pneumothorax is a visually striking consequence. Our observation of 8% was much higher than the 4% rate reported by Shahabi et al7. The tracheobroncheal tree's mucosa is severely irritated by tracheostomy tubes, which increases mucus production. If not frequently cared to by suction, this could result in occlusion of the tube. A 2% rate of total tube blockage resulting in a potentially fatal situation was noted. In his study, Shahabi et al.7 found that this problem occurred 4% of the time. Regretfully, one of our patients passed away before the blockage could be cleared, despite our quick response. It should be mentioned that the rate of problems varies greatly according on the type of study, patient follow-up, and how the various complications are defined. Several studies show that ICU patients

in emergency scenarios had higher rates of complications and fatality.The literature on percutaneous tracheosomy has increased recently, however because to the high cost and scarcity of the necessary equipment, the procedure is not typical in our setup. Moreover, intensivists do this technique primarily in the ICU setup.

## CONCLUSION

Even after more than a century of using the present tracheostomy technique, problems can still arise, albeit they are seldom fatal. It's critical that trained personnel exercise caution to prevent these kinds of incidents. Nurses must provide aggressive care in order to avoid catastrophic consequences.