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Surgical Management of Non-malignant Cases by Tracheostomy in a Tertiary Care Hospital

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ABSTRACT

Background:*Non-malignant tracheoesophageal is an unusual and difficult problem to manage. The most common reason is a complication of tracheostomy tubes. Most are diagnosed while patients still require mechanical ventilation. Tracheotomy is a frequently performed technique.The different techniques of tracheotomy are defined. The potential advantages and disadvantages of surgical and percutaneous tracheotomy versus endotracheal intubation are discussed.Low-pressure, high-volume cuffs should be used. The cuff pressure should be observed with calibrated devices and recorded at least once every nursing shift and after manipulation of the tracheotomy tube.Regarding the timing of tracheotomy there are not enough well-designed studies to establish clear guidelines. Therefore, the timing of tracheotomy should be individualized.*

Methods:*This is an observational study. This study was carried out on 50 patients the find out about the population including male and female patients in the Department of ENT, Prime Medical College & Hospital, Rangpur, Bangladeshand others private hospital, Rangpur, Bangladesh.The duration of the period from June 2021 to May 2022. The period from Data was entered in MS Excel and Statistical analysis was done using SPSS-24.*

Results:*This study shows that according to age of 50 Patients aged 15 to 44 years, where 5(10%) were 15 to 24 years, 10(20%) were 25 to 34 years, 19(38%) were 35 to 44 years, 7(14%) were 45 to 54 years, 6(12%) were 55 to 64 years and 3(6%) were 65 to 74 years. Most of the patients belong to 35-44 years age group. According to sex 56% were Male and 44% were Female.*

Conclusions:*Postoperative complications are more common after cricotracheal resection with subsequent thyrotracheal anastomosis. Other possible risk factors for permanent tracheostomy are: male gender, supraglottic localization and tracheostomy performed for acute respiratory distress.*

Keywords:*Non-malignant; Tracheotomy; Ventilation; Percutaneous.*

I. INTRODUCTION

Tracheostomy is extensively familiar as one of the surgical methods most feared by means of patients struggling from laryngeal cancer. If necessary, it represents a cumbersome outcome of an obstructive laryngeal tumor and its treatment. In this context, the purpose of airway obstruction is normally a bulky tumor, constant vocal cords or sequelae of laryngeal most cancers treatment. Although inevitable in acute airway compromise, we have to preserve in thought that a tracheostomy has a significant negative effect on patients' quality of life, particularly involving speech and swallowing. [1]

A recent evaluation revealed a usual incidence of tracheostomies in superior laryngeal and hypopharyngeal cancer undergoing chemoradiation (CRT) of 34%. [2] CRT protocols for laryngeal cancer permit the maintenance of the organ with suitable locoregional diseases control. [3] Despite this organ conservation strategy, an excessive range of head and neck cancer patients to be based on feeding tube and tracheostomy. [4] Radiotherapy (RT) motives fibrosis and edema, which might also lead to an impaired laryngeal mobility and airway obstruction, requiring a life-saving tracheostomy. [4] Risk elements for long-term tracheostomy dependency include a pretreatment tracheostomy, subglottic extension of the tumor and salvage

neck dissection. Moreover, patients requiring a tracheostomy prior to CRT are subject to a greater short-term mortality in contrast to those without tracheostomy. [5]

Although quite a few operative methods can be used to deal with this debilitating condition, they can only be utilized in chosen patients owing to each the underlying analysis and the dangers related with such surgery. [6] However, the most vital aspect relates to the underlying oesophageal or airway disease, which determines the state of tissue and its amenability to restore and future surveillance, if required. [7] Patients frequently existing in a physiologically challenged nation owing to the nature of the disease, and many will not be candidates for surgery. However, centered pre-operative intervention and nutritional support may also allow some patients to proceed to surgery. [8, 9] For these reasons, a multi-disciplinary (MDT) method is necessary, and underscores why these patients must be managed in dedicated centralized units.

In significantly sick adult patients requiring extended mechanical ventilation, tracheotomy carried out at an early stage might also shorten the period of artificial ventilation and size of remain in intensive care. Percutaneous dilatational tracheotomy (PDT) appears to be at least as protected as surgical tracheotomy (ST) as measured in phrases of peri-procedural complications. With PDT, much less wound infection is observed. When PDT is in contrast to ST carried out in the running room, PDT is much less expensive, reduces the time between the decision and the overall performance of tracheotomy and has a decrease mortality rate. Different strategies of PDT are discussed.

The majority of obtained nonmalignant tracheoesoph result from issues of mechanical ventilation. Most are recognized while patients are still mechanically ventilated. Because mechanical ventilation after tracheal reconstruction is related with an excessive incidence of anastomotic dehiscence or restenosis, we have used a conservative method till the patient is weaned. [10] The devastating pulmonary problems from tracheoesophageal fistulas can be minimized with the aid of a few easy maneuvers. A new tracheostomp tube ought to be positioned if possible, so that the balloon is beneath the fistula to reduce soiling of the tracheobronchial tree. If this is impossible, the sealing cuff have to be inflated with minimal pressure. The head of the bed is increased and patients are stimulated to suction oral secretions. A draining gastrostomy tube is positioned to minimize gastroesophageal reflux. [11] A separate jejunostomy tube is inserted for nutritional purposes. These measures typically obviate the need for esophageal diversion with ligation of the gastroesophageal junction. Esophageal diversion complicates and lengthens management of these patients. It should be reserved for instances the place soilage of the tracheobronchial tree continues no matter conservative measures or for supracarinal fistulas that can't be managed otherwise. Once the patientsare weaned from mechanical ventilation, single-stage restore can then be undertaken except the risks of postoperative ventilation. [12] Most tracheoesophageal fistulas require tracheal resection due to the fact of circumferential harm to the trachea at the inciting cuff site.

II. METHODS

This is an observational study which wascarried out in the admitted patient's Department of ENT, Prime Medical College & Hospital, Rangpur, Bangladesh, and others private hospital, Rangpur, Bangladesh.The duration of the period of June 2021 to May 2022.This study was carried out on 50 patients the find out about the population including male and female patients from 15 years to 74 years of age. The study was done onoften admits patients withSurgical management of tracheostomy in non-malignant.The data for this study about had been accumulated from patients' medical information and radiographs. Statistical evaluation of the results used to be got via the use of a window-based computer software program devised with Statistical Packages for Social Sciences (SPSS-24).

III. RESULTS

Table 1: Demonstrate and distribution of the study according to age.

Age Distribution	n=50	%
15-24	5	10
25-34	10	20
35-44	19	38
45-54	7	14
55-64	6	12
65-74	3	6

Table 1 shows that age distribution of the population where 5(10%) were 15 to 24 years, 10(20%) were 25 to 34 years, 19(38%) were 35 to 44 years, 7(14%) were 45 to 54 years, 6(12%) were 55 to 64 years and 3(6%) were 65 to 74 years. Most of the patients belong to 35-44 years age group.

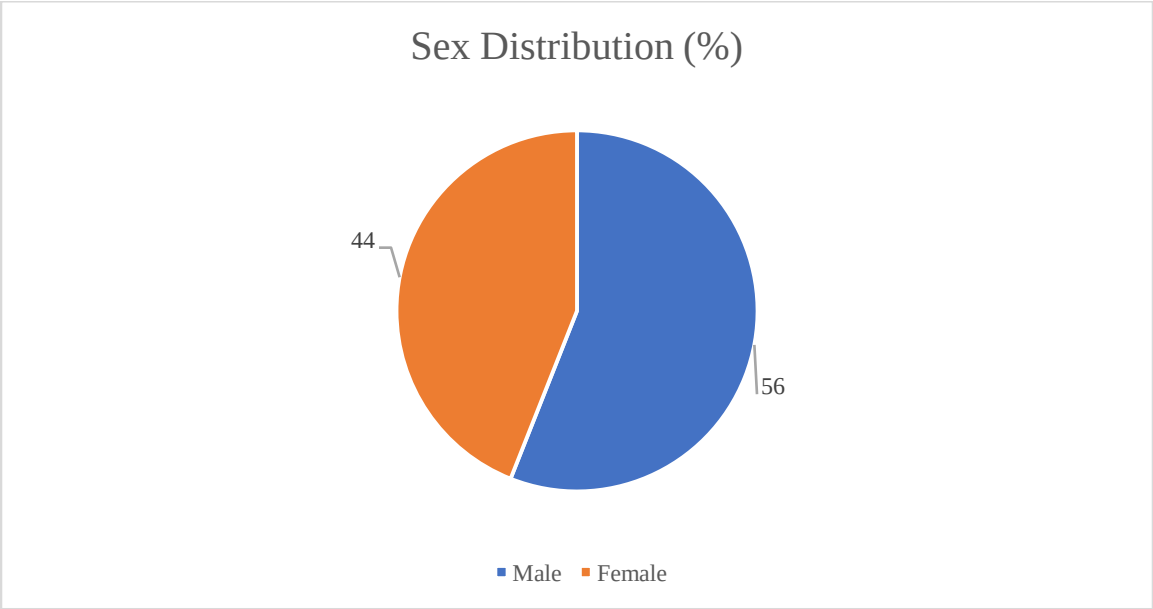

Figure 1: Demonstrate and distribution of the study according to Patient's, treatment and tracheostomy characteristics.

Figure 1 shows distribution of the population according to sex distribution. Here 56% were Male and 44% were Female.

Table 2: Demonstrate and distribution of the study according to Patient's treatment and tracheostomy characteristics.

	n=50	%
Lymphadenopathy		
Infectious	5	10
Inflammatory diseases		
Sarcoidosis	3	6
Wegener's disease	1	2
Vascular		
Rings	0	0
Rings anatomical variants	2	4
granulation tissue	3	6
endotracheal tubes	5	10
tracheostomy tubes	10	20
Airway stents	10	20
Strange bodies	5	10
surgical anastomoses	7	14
Wegener's granulomatosis	1	2
Pseudotumor		
Hamartomas	2	4
Amyloid	3	6
Papillomatosis	4	8
Hyperdynamic		
Tracheobronchomalacia	2	4
Excessive wall collapse	3	6
Membranous	5	10
Idiopathic		
Tuberculosis	30	60
Sarcoidosis	15	30
Other		
Goiter	5	10
mucus plug	3	6

Vocal cord paralysis	25	50
Epiglottitis	6	12
Blood clot	2	4

Table 2 demonstrate and distribution of the study according to Patient's, treatment and tracheostomy characteristics. According to Inflammatory diseases, Sarcoidosis were 3(6%) and Wegener's disease were 1(2%). And according to Vascular, Rings anatomical variants were 2(4%); granulation tissue were 3(6%); endotracheal tubes were 5(10%); Airway stents were 10(20%) and surgical anastomoses were 7(14%).

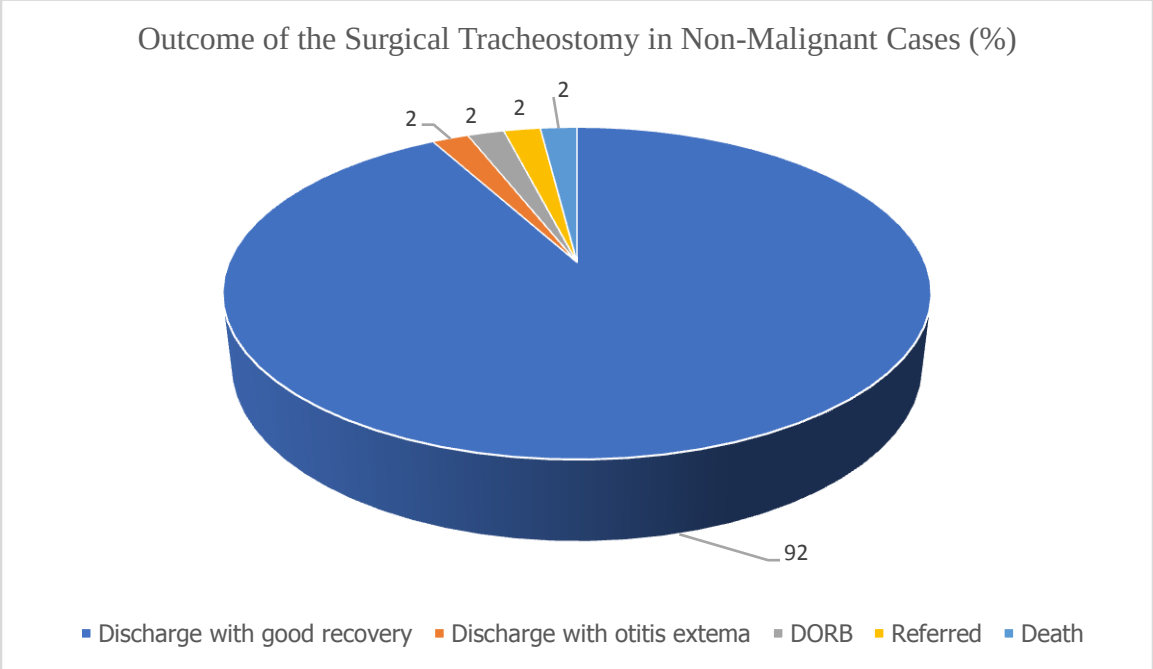

Figure 2: Outcome of the Surgical Management of Non-malignant Cases by Tracheostomy

Figure 2 shows the outcome of the Surgical Management of Tracheostomy in Non-Malignant Cases. Where 94% was discharge with good recovery, 2% were discharge with otitis extema, 2% were DORB, 2% were Referred and 2% were Death.

IV. DISCUSSION

Non-malignant (benign, non-tumoral) etiology and pathogenesis are the standard facets of tracheostomy, traumatic, and idiopathic stenosis involving subglottis and trachea, and consequently issues arising towards surgical management of this pathology are frequently discussed together. Compared to the tracheostomy stenosis, traumatic and idiopathic lesion is a uncommon condition. [13] The incidence rate of stenosis following extended tracheal intubation and/or tracheostomy has significantly decreased after current tubes with low strain and large volume cuffs had been delivered into medical practice. Nevertheless, stenosis of this foundation stays the most frequent indication for laryngotracheal surgery. [14]

Possible risk elements for tracheostomies to continue permanent in patients with predominant curative, organ-preserving treatment for laryngeal carcinoma. A tracheostomy represents a brutal stigmatization as nicely as an extreme reduce into a patient's exceptional of life. [15] Therefore, the prognosis involving a potential decannulation in the future is crucial to patient's counseling and may also even have an influence on further therapeutic decisions.

Our study reports table 1 shows that age distribution of the population where 5(10%) were 15 to 24 years, 10(20%) were 25 to 34 years, 19(38%) were 35 to 44 years, 7(14%) were 45 to 54 years, 6(12%) were 55 to 64 years and 3(6%) were 65 to 74 years. Most of the patients belong to 35-44 years age group. And according to sex distribution, 56% were Male and 44% were Female.

Unexpectedly, the initial tumor and nodal classifications had no influence on the long-term and long-lasting dependency on a tracheostomy in our cohort. The only surrogate factor involving the principal tumor characteristics used to be a greater decannulation rate for supraglottic tumors. Similarly, a recent find out about through Jefferson et al. (2015) recognized subglottic extension as risk element for continual tracheostomy dependency. [16] However, they analyzed laryngeal and hypopharyngeal tumors together in a cohort of

completely CRT treated patients. In fact, the excessive decannulation charges for supraglottic tumors in our cohort may also be defined with the aid of the surgically treated patients. Tumor localization are necessary essential elements concerning indication for essential tracheostomy, mainly in a putting with acute respiratory distress. [17]

In this present study, according to Patient's, treatment and tracheostomy characteristics. According to Inflammatory diseases, Sarcoidosis and Wegener's disease were 3(6%) and 1(2%). And according to Vascular, Rings anatomical variants were 2(4%); granulation tissue were 3(6%); endotracheal tubes were 5(10%); Airway stents were 10(20%) and surgical anastomoses were 7(14%).

The most essential risk component for long-term tracheostomy dependency was main RT. Irradiation associated tissue toxicity leads to an inflammatory response of the larynx and surrounding tissues. The abundant fibrous scarring of the larynx impedes with its mobility and the concomitant mucosal edema leads to in addition airway obstruction. [18] Finally, chondronecrosis may additionally exacerbate the post-therapeutic laryngopharyngeal dysfunction. It has been proposed, that tracheostomy is an adverse prognostic factor for the oncological effect of patients struggling from laryngeal cancer. [19] However, this observation was not tested in instances of locoregionally superior laryngeal cancers.

Our study identifies the outcome of the Surgical Management of Tracheostomy in Non-Malignant Cases. Where 94% was discharge with good recovery, 2% were discharge with otitis extema, 2% were DORB, 1% were Referred and 1% were Death.

Baron and Remacle (2008) showed the advantages of transoral endoscopic laser microsurgery (TLM), including less need for tracheostomy and nasogastric feeding. [20] The work of Silver et al. (2009) established that the resultsof TLM are equivalent to those obtained by conventional conservation surgery, with better postoperative function, less morbidity and usually without the need for tracheostomy. [21] They also pointed out, that with the development of laser surgery, the use of emergency tracheostomy became less necessary. [22]

V. CONCLUSION

The effects of surgical management of tracheostomy in non-malignant depend on the place of the stenosis, which determines the kind of the resection and anastomosis. Postoperative problems are more frequent after cricotracheal resection with subsequent thyrotracheal anastomosis. Other possible risk elements for permanent tracheostomy are: male gender, supraglottic localization and tracheostomy carried out for acute respiratory distress. These consequences may also play a vital role in the improvement of nomograms for tailored treatment techniques for patients at risk to undergo tracheostomy before, during or after larynx cancers therapy.

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