

Epidemiology of Various Aetiologies For Emergency Tracheostomy In Tertiary Ent Hospital

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Abstract

Introduction : Tracheotomy was first depicted on Egyptian artefacts in 3600 BC [1]. It was described in the Rigveda, a Sanskrit text, Circa 2000 BC [2]. It is believed that an early tracheotomy was performed by Asclepiades of Bithynia, who lived in Rome around 100 BC; Galen and Aretaeus both of whom lived in Rome in the 2nd century AD, credit Asclepiades as being the first physician to perform a non-emergency tracheotomy [3]. Upper Airway obstruction has been one of the most accepted indication for tracheostomy our study details the various specific causes that required emergency tracheostomy.

Results: In our study carcinoma glottis was the commonest indication for emergency tracheostomy with 31.63%, then carcinoma hypopharynx with 18.36%, carcinoma supraglottis 14.28%, followed by bilateral abductor palsy 10.20%, laryngeal papillomatosis with 3.06%, followed by tracheal stenosis, diphtheria, carcinoma oropharynx 4.08%, subglottic stenosis and neck injury 3.06%, carcinoma buccal mucosa is 1.02%.

Conclusion: Airway obstruction secondary to Laryngeal tumors is the most common indication for adult tracheostomy and laryngeal papilloma and diphtheria being the common indication in paediatric age group in our Centre. Tracheostomy remains a safe method of restoring the airway in case of upper airway obstruction, also gives time to plan & execute further management of underlying cause

Date of Submission: 30-09-2018

Date of acceptance: 15-10-2018

I. Introduction

Tracheotomy was first depicted on Egyptian artifacts in 3600BC [1]. It was described in the Rigveda, a Sanskrit text, Circa 2000BC [2]. It is believed that an early tracheotomy was performed by Asclepiades of Bithynia, who lived in Rome around 100 BC; Galen and Aretaeus both of whom lived in Rome in the 2nd century AD, credit Asclepiades as being the first physician to perform a non-emergency tracheotomy [3]. Only during the past two decades the operation assumed its right place as a safe simple procedure with a wide range of usefulness. In recent years there has been a considerable shift in the indications for tracheostomy with recognition of more physiological and functional indications where in normal respiratory efficiency is impaired because of patient's inability to maintain normal ventilation and control of secretions in addition to those of a strictly obstructive nature. Upper Airway obstruction has been one of the most accepted indication for tracheostomy our study details the various specific causes that required emergency tracheostomy

II. Materials And Methods

Aim: to study various aetiologies for emergency tracheostomy.

Objectives:

1. To study various age groups requiring emergency tracheostomy.
2. To study various aetiologies
3. To study various aetiologies in paediatric age group.

Study Design, Study Area, Study Duration and Sample Size:

Observational study. Government ENT hospital, Koti, Hyderabad. Period of 1 year from September 2017 to September 2018. All cases reported with stridor that required emergency tracheostomy to government ENT hospital, kotu are included in this study.

Exclusion Criteria:

Patients not willing to participate in the study.

Data Analysis

Data was analysed using MS Excel and represented In the form of percentages.

III. Results and analysis

TABLE :1 shows Male to female ratio required emergency tracheostomy is 3:1 with male being the 75.51% of the cases and females being 24.48%.

SNO	SEX	NUMBER	PERCENTAGE
1	MALE	78	75.51 %
2	FEMALE	24	24.48 %

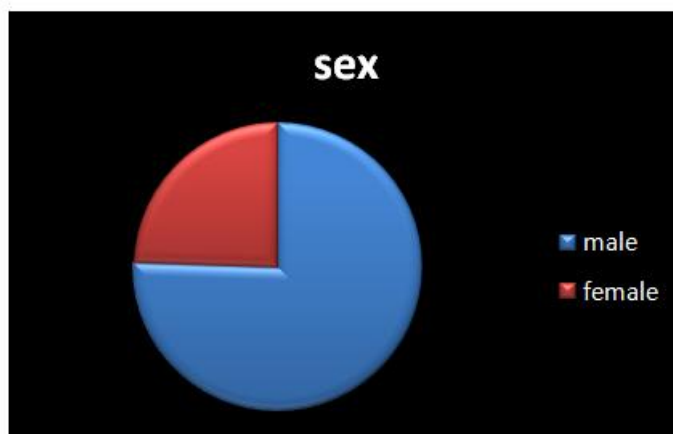


TABLE :2 shows epidemiology of age groups being < 10 years is 8.16%,10-20 years is being 4.08%, 21-40 years is being 22.44%,41-50 years is 22.44%,51-60 years is 11.22%, Maximum percentage of patients are above 60 years of age with 40.81%.

	AGE GROUP	NUMBER	PERCENTAGE
1	<10 years	8	8.16%
2	10-20years	4	4.08%
3	21-40 years	22	22.44%
4	41-50 years	13	13.26%
5	51-60 years	11	11.22%
6	>60 years	40	40.81%

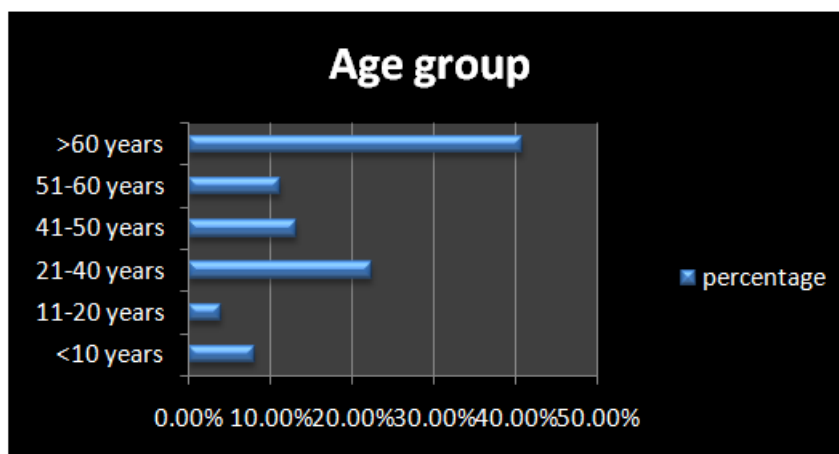
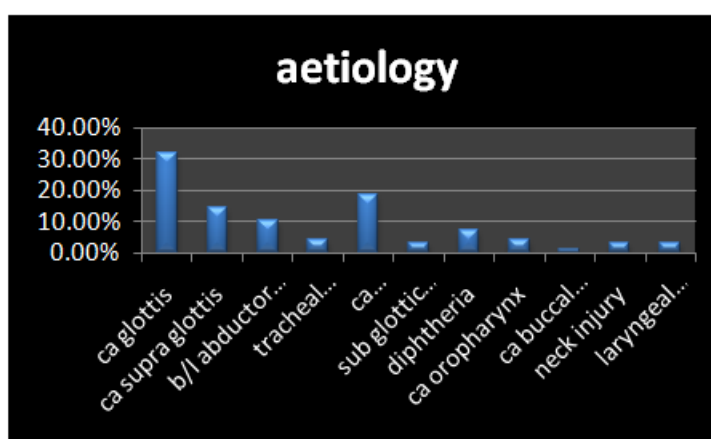


TABLE :3 Aetiology

SNO	aetiology	NUMBER	PERCENTAGE
1	Carcinoma glottis	31	31.63%
2	Carcinoma supraglottis	14	14.28%

3	Bilateral abductor palsy	10	10.20%
4	Tracheal stenosis	4	4.08%
5	Carcinoma hypopharynx	18	18.36%
6	Subglottic stenosis	3	3.06%
7	Laryngeal papillomatosis	3	3.06%
8	Diphtheria	7	7.14%
9	Ca oropharynx	4	4.08%
10	Ca buccal mucosa	1	1.02%
11	Neck injury	3	3.06%



In our study carcinoma glottis was the commonest indication for emergency tracheostomy with 31.63%, then carcinoma hypopharynx with 18.36%, carcinoma supra glottis 14.28%, followed by bilateral abductor palsy 10.20%, laryngeal papillomatosis with 3.06%, followed by tracheal stenosis, diphtheria, carcinoma oropharynx 4.08%, subglottic stenosis and neck injury 3.06%, carcinoma buccal mucosa is 1.02%.

TABLE :4 shows Anaesthesia required
Most patients underwent emergency tracheostomy under local anaesthesia being 83.67% and under general anaesthesia in 16.32%

SNO	ANESTHESIA	NUMBER	PERCENTAGE
1	Local anesthesia	82	83.67%
2	General anesthesia	16	16.32 %

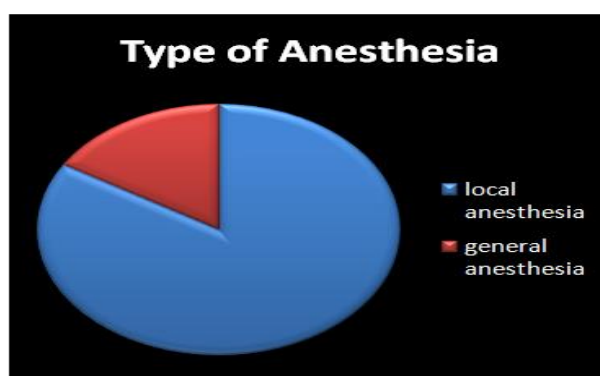
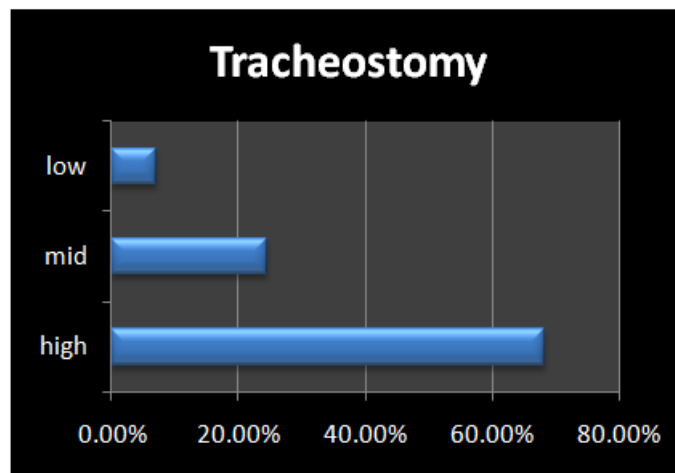


TABLE :5 shows level of tracheostomy

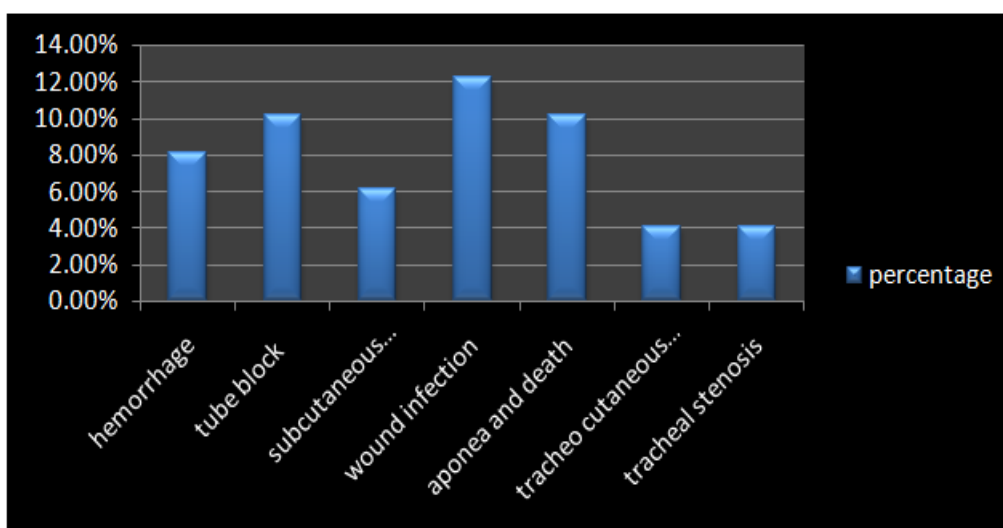
SNO	LEVEL OF TRACHEOSTOMY	NUMBER	PERCENTAGE
1	High	67	68.36%
2	Mid	24	24.48%
3	Low	07	7.14%



68.36% of patients required high tracheostomy and 24.48% of patients required midtracheostomy and only 7.14% of patients required low tracheostomy.

TABLE :6 shows complications:

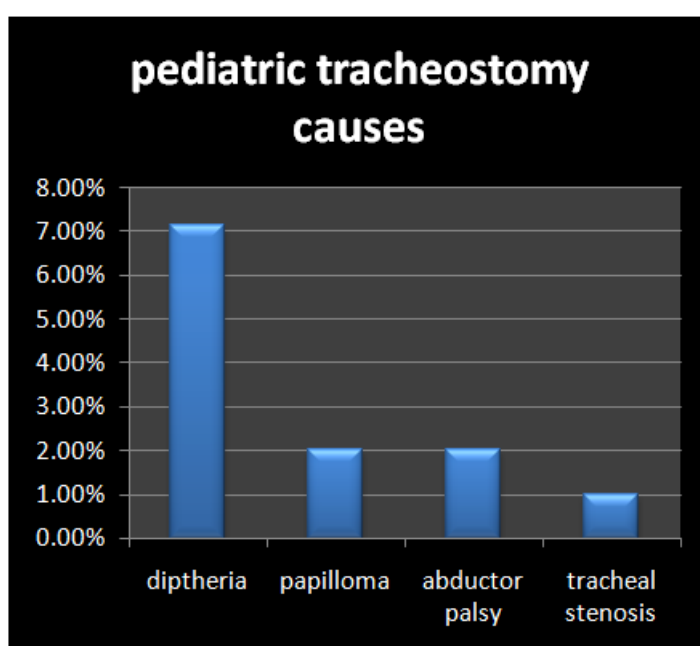
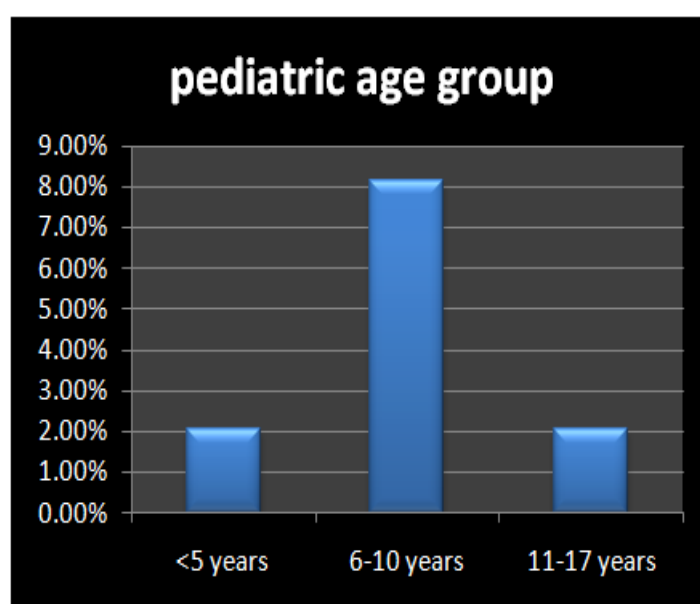
SNO	EARLY (upto one week)	COMPLICATION	Number	PERCENTAGE
1		HEMORRHAGE	8	8.16%
2		TUBE BLOCK	10	10.2%
3		SUBCUTANEOUS EMPHYSEMA	6	6.12%
4		WOUND INFECTION	12	12.24%
5		APONEA AND DEATH	2	2.04%
	LATE(after one week)			
1		TRACHEO CUTANEOUS FISTULA	10	10.2%
2		TRACHEAL STENOSIS	4	4.08%



Wound infection was the commonest early complication (12.24%),then tube obstruction was among 10.2%,subcutaneous emphysema in 6.12%,haemorrhage in 8.16%. apnea was seen in 2.04%,in late complications tracheocutaneous fistula was seen in 10.2% and tracheal stenosis in 4.08%

Table :7, Paediatric age group

SNO	Age group	Number/percentage	aetiology	Number/percentage
1	<5 years	2 (2.04%)	Diphtheria	7(7.14%)
2	6-10 years	8 (8.16%)	Papilloma	2(2.04%)
3	11-15 years	2 (2.04%)	Bilateral Abductor palsy	2(2.04%)
			Tracheal stenosis	1(1.02%)



In the paediatric age group most of the patients were between the age of 6-10 years with 8.16%, diphtheria being the common cause in paediatric age group with 7.14% and papilloma and bilateral abductor palsy with 2.04% each, youngest being 2 years of age with bilateral abductor paralysis.

IV. Discussion

In literature, specific indications for emergency tracheostomy are scattered and are biased, partially comprehensive, not clearly described or not homogeneously gathered [4]. As a matter of fact, the two groups of indications viz.; laryngeal injury and failure to intubate and/or ventilate the patient, are too generic and encompass a broad spectrum of possibilities are not sensitive, specific or accurate.

In our study Male to female ratio required emergency tracheostomy is 3:1 with male being the 75.51% of the cases and females being 24.48% and majority of the patients were in 6th decade according to S. B. Amarnath et al in 100 patients 67 male and 33 female and The majority of patients were in 5th decade (5).

In our study carcinoma glottis was the commonest indication for emergency tracheostomy with 31.63%, then carcinoma hypopharynx with 18.36%, carcinoma supraglottis 14.28%, followed by bilateral abductor palsy 10.20%, diphtheria in 7.14%, followed by tracheal stenosis, carcinoma oropharynx 4.08%, subglottic stenosis, laryngeal papillomatosis and neck injury in 3.06%, carcinoma buccal mucosa is 1.02%. According to S. B. Amarnath et al The commonest indication was malignancy (64%) followed by poisoning (28%), head injury (5%), subglottic stenosis (3%), bilateral abductor palsy (1%) (5).

Most patients underwent emergency tracheostomy under local anaesthesia with 83.67% and under general anaesthesia in 16.32%.

Regarding the level of tracheostomy 68.36% of patients required high tracheostomy and 24.48% of patients required mid tracheostomy and only 7.14% of patients required low tracheostomy, in cases of malignancy of larynx and hypopharynx high tracheostomy was done and in cases of tracheal stenosis based on the level of stenotic segment low tracheostomy was done.

In a study carried out with 122 children from the Starship Pediatric Hospital in New Zealand, between 1987 and 2003 [6], they also reported that the airway obstruction was the main reason for doing a tracheostomy. According to Caroline et al [7] 51.7% of the procedures were carried out in infants for airway obstruction being compatible with other papers, such as the one from Carron et al. [8], with 55%, and Donnelly et al. [9], with 48%. In a study carried out in Lyon (France), involving 46 children from the Edouard Herriot University Hospital, between 1996 and 2001, the airway obstruction 43% of the cases [10]

In our study In the paediatric age group most of the patients were between the age of 6-10 years with 8.16%, diphtheria being the common cause in paediatric age group with 7.14% and papilloma and bilateral abductor palsy with 2.04% each, youngest being 2 years of age with bilateral abductor paralysis.

Regarding the complications in our study stomal infection was the commonest early complication (12.24%), then tube obstruction was among 10.2%, subcutaneous emphysema in 6.12%, haemorrhage in 8.16%. Apnea was seen in 2.04%, in late complications tracheocutaneous fistula was seen in 10.2% and tracheal stenosis in 4.08%.

V. Conclusion

Airway obstruction secondary to Laryngeal tumors is the most common indication for adult tracheostomy and diphtheria being the common indication in paediatric age group in our Centre. Tracheostomy remains a safe method of restoring the airway in case of upper airway obstruction, also gives time to plan & execute further management of underlying cause.

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