VOLUME-6 | ISSUE-2 | FEBRUARY-2017 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 78.46

INCIDENCE OF COMPLICATIONS OF TRACHEOSTOMY IN A TERTIARY CARE CENTRE

ENT

KEYWORDS: Bleeding, Complications, Tracheostomy

Muddazir Ali Ibrahim — Asst.Professor, Dept of ENT, MES Medical College, Perithalmanna,Malappuram District, Kerala, Pin-679338

E.Muhammed Afsal — Asst Professor, Dept of ENT, Govt Medical College Manjeri, Malappuram(Dist), Kerala -676121

ABSTRACT

Objective: To study incidence of various complications of tracheostomy in a tertiary care centre.
Study design: Retrospective analysis.
Study setting: ENT Department in a tertiary care centre
Materials and Methods: Retrospective analysis of data of 66 patients who underwent tracheostomy over a one year period. Complications of tracheostomy was divided into intraoperative [those present at the termination of operation], immediate postoperative/early postoperative [those present after 24 hrs up to 7 days] and late post operative [include those present after 7 days] .
Results: Fourteen patients developed intraoperative complications [21.2%] out of which most common was intraoperative bleeding[9 patients-13.63%].Out of 37 patients[56.04%] who developed immediate post operative complication most common was wound infection[13 patients-19.69%].Out 6 patients who developed late postoperative complications [9.08%] ,granuloma formation was most common[5 patients-7.57%]
Conclusion: Incidence of various complications in this study was similar to various other studies mentioned in literature

INTRODUCTION:-

The Nomenclature Tracheostomy derived from two Greek words meaning "I cut the trachea" has probably been known for about 3,500 years. It is one of the oldest life saving procedures known in the history. Tracheostomy is defined as "Making an opening in the anterior wall of the trachea for purpose of establishing an airway". The first reported successful tracheostomy was performed in 1546 by Antonio Muso Brasovolo, an Italian physician, who performed the procedure to relieve a pharyngeal or laryngeal abscess when the barber- surgeon attending the patient refused to undertake the operations. During early 19th century, Bretonnear and Troussear demonstrated that tracheostomy could be successfully used to relieve distress due to obstruction of the trachea caused by diphtheria. The four basic indications for tracheostomy are to bypass upper airway obstruction, to assist respiration over prolonged periods of time, to assist with the clearance of lower respiratory tract secretions, to prevent aspiration of oral or gastric secretions.

Tracheostomy can be done as elective or as an emergency procedure[1,2].Tracheostomy is preferred over prolonged intubation because later results in mucosa ulceration, fibrosis and later on stenosis.Intubation granuloma will develop in patients with prolonged endotracheal intubation[3]

Over all incidence of complication of tracheostomy ranges from 5-40%.Most common being haemorrhage, tube obstruction or tube displacement. Other complications are scabs and crust formation, dysphagia, difficulty with decanulation of tracheostomy tube and tracheal stenosis [4,5]

Average incidence of death following tracheostomy is 0.5% to 1.6% and is usually due to haemorrhage or tube displacement. Emergency tracheostomy is associated with more complication than elective tracheostomy[6,7]

Depending upon the time of onset of complications they can be divided into Intraoperative [those *present at the termination of the operation*], early postoperative/ immediate postoperative [*those present after 24 hours up to 7 days*], late postoperative [those present after 7 days]

MATERIALS AND METHOD:-

Study design: Retrospective analysis.
Study setting: Dept of ENT in a tertiary care centre
Study subject: Patients who underwent tracheostomy in ENT dept of a tertiary care centre from Dec 2014 to dec 2015 for various indications.

Inclusion Criteria
Age: All patients who had undergone tracheostomy irrespective of age were included in the study.
Sex: Patients belonging to both sexes were selected.
Type of Tracheostomy : Both elective and emergency tracheostomies were included.
Exclusion Criteria: Patients with past history of tracheostomy were excluded from the study
Classification of Complications: Complications were classified as Intraoperative, Immediate postoperative/Early postoperative, and Late postoperative in accordance with standard textbooks
Sample size: 66 cases
Procedure: Data of patients who underwent tracheostomy in the above mentioned period collected and analysed for development of various intraoperative, early postoperative/ immediate postoperative, late postoperative complications.
Statistical analysis: Incidence of complications calculated in percentage.
Ethical Clearance: Study started after getting ethical clearance from IEC

RESULTS:-

This study included 66 patients who underwent tracheostomy for various indications. Maximum number of patients were from the age group of 61-70 yrs [30.30%] .Out of 66 patients 59 [89.39%] were males and 7[10.60%] were females.

Table 1
Age wise distribution of patients [n=66]

Age in Years	No. of Cases	Percentage
0-10	1	1.5%
11-20	2	3.03%
21-30	9	13.63%
31-40	6	9.09%
41-50	15	22.72%
51-60	10	15.15%
61-70	20	30.30%
71-80	**3**	**4.54%**

Table 2
Sex distribution of patients [n=66]

Sex	No. of Cases	Percentage
Male	59	89.39%

Female	7	10.60%

Out of 66 cases 27[40.9%] was elective tracheostomy and 39[59.09%] was emergency tracheostomy.14 patients developed intraoperative complications [21.2%] out of which most common was bleeding, 9 patients [13.63%]

Table 3
Intraoperative complications [n=14]

Complication	No. of Cases	Percentage
Apnoea	2	3.03%
Bleeding	**9**	**13.63%**
Stridor	3	4.54%

Out of 37[56.04%] patients who developed immediate post operative complications most common was wound infections, 13 patients [19.69%].

Table 4
Immediate post operative complications [n=37]

Complication	No. of Cases	Percentage
Wound Infection	**13**	**19.69%**
Subcutaneous Emphysema	12	18.18%
Tube Obstruction	6	9.09%
Swallowing Problems	5	7.57%
Hemorrhage	1	1.51%

6 [9.08%] patients developed late postoperative complications; most common was granuloma formation, 5 patients [7.57%]

Table 5
Late post operative complications [n=6]

Complication	No. of Cases	Percentage
Granuloma Formation	5	7.57%
Narrowing of Stoma	1	1.51%

Highest complication observed in this study was wound infection = 13 cases (19.69%) followed by Subcutaneous Emphysema, 12cases (18.18%) and Bleeding 9 cases (13.63%).

DISCUSSION:-

Tracheostomy is one of the most commonly performed operations in the surgical armamentarium [8,9,10]. In this study a total of 66 cases were evaluated. This section is an attempt to discuss some of the important results and observations based on the aims of the study.

In this study majority of the patients were found to be in the age group of 61-70 years (30.30 %), followed by the age group of 41-50 years (22.72 %). Hence between the age group of 41-70 years the incidence of tracheostomy was 68.18%. It has been found the malignancies of the oral cavity, head and neck and larynx are highest between the age of 40-70 years. 89.39% of the patients in this study were males and 10.60% were females with a male: female ratio of 8.4: 1. It is well known that malignancies of the oral cavity, head and neck and larynx are common in males, which explains the higher incidence in the present study.

Of the total number of tracheostomies performed, 59.09% were emergency and 40.90% were elective, with a ratio of 3.8: 1. It has been reported in literatures that the complication rate after emergency tracheostomy is two to five times greater than after elective procedure (Davis and Kretcher, 1953, Eiseman and Spencer, 1963, Polaschi and Lynn, 1965 and Rogers 1969)[4]. Therefore it has been recommended to do emergency tracheostomy whenever possible in an operating room with adequate light, suction and an assistant[11].However, the emergency tracheostomy still has its role and has by no means been replaced by the elective procedure.

The most common complication encountered in this study was wound infection and Subcutaneous Emphysema (19.69% & 18.18%). Ralph J. Lewis states that more than 50% of all patients with tracheostomy develop a nosocomial infection. Patients with tracheostomy develop more serious infection such as Pseudomonas and enteric gram-negative bacilli[12]. Because tracheal mucociliary clearance is depressed following tracheostomy, these bacteria bind more tightly to the tracheal mucosa[13]. In a study by Vijay S. Dayal of 50 patients 12% had tracheal stomal wound infection[14]. In this study immediate post operative complications were high (56.06%) followed by Intra Operative complications (21.21%). Some of the other complications encountered in the present study correlates with the incidence in other studies. Skaggs and Cogbill et al reported the incidence of Bleeding to be 17%, which correlates with this study which found the incidence to be 16.45%.

The incidence of subcutaneous emphysema in this study was high (19.69%) compared with the study by Skaggs and Cogbill et al which was only 0 to 14%. The incidence was high in this study probably due to the tight suturing of the wound.

In the present study there was no mortality due to tracheostomy. A review by Pemberton in 1972 suggested that morbidity and mortality rate for tracheostomy increased during the first half of this century, but steadily declined during more recent decades[15]. He reviewed 17 studies published between 1934 and 1969 and found that the mortality rate directly attributable to tracheostomy decreased from 40% to 3.7%. In a review of 8 studies Zeitouni and Kost reported that this mortality rate had further declined to 0.3% in 1970's and 1980's[16].

CONCLUSION:-

Eventhough complications of tracheostomy are not rare, most are minor complications and easily treatable. Meticulous operative technique controlled operating condition and proper postoperative care will minimize incidence of complications.

DISCLOSURE:-

[a] Competing interest/Interests of conflicts-NIL
[b] Sponsorship-None
[c] Funding-None
[d] Written consent of patient-Not applicable
[e] Animal rights-Not applicable

REFERENCES:-

1. Crosher R,Baldie C,Mitche R.Selective use of tracheostomy in surgery for head and neck cancer.Br J Oral Maxillofacial Surg 1997:35:43-5
2. Frosh A,Joyca R,Hern J Almeyda J.Emergency tracheostomy.Int JClin Pract 1997;51:487-8
3. Al-Dousary S.Vocal process granuloma.Ear Nose Throat J 1997;76:382-86
4. Miller JD, Knapp JP. Complications of tracheostomies in neurosurgical patients.Surg neorol 1984;22:18608
5. Asmatullah, Inatullah, Rasool GM, Billah M. Complication of emergency tracheostomy.J postgrad Med Institute 2004;18:225-9.
6. Wright CD.Tracheoinnominate fistula: diagnosis and management. Chest SurgClin N am. 2003;13:331-41
7. Manzoor T,Rashid D, Anwar –Ul-Haq.Complications of tracheostomy.Pak Armed Forces Med J 2000;50:17-9
8. Atkins JP: Current utilization of tracheotomy as a therapeutic measure: A review of the literature and an analysis of 526 cases. Laryngoscope 70: 1672, 1960.
9. Head JM, Tracheostomy in the management of Respiratory Problems. N Engl J Med 264: 587, 1961
10. RaoIvatury, John H. Siegel, William M. Stahl, et al: PercutaneousTracheostomy after' Trauma and Critical Illness. The Journal of Trauma Vol. 32, NO.2: 133-140, 1992.
11. Kato, K. Uesugi, M. Kikuchichara, el al: Tracheostomy- The horizontal incision. The J of Laryngol and Otol. April 1990, Vol. 104, pg. 322-325.
12. Neidennan MS, Ferranate RD, Zeigler A, et al: Respiratory Infection complicating long term tracheostomy .The implication of persistant gram-negative tracheobronchial colonization. Chest 85: 39, 1984.
13. Price DG: Techniques of Tracheostomy for intensive care unit patients. Anaesthesia 38: 902, 1983.
14. Vijay S. Dayal, William EL Masri. Tracheosotomy in Intensive care setting. Laryngoscope 96. January 1986; 58-60.
15. Pemberton LA. A comprehensive view of Tracheosotomy- Am Surg: t 972, 38: 251¬-256.
16. Zeitonni AG and Kost KM. Tracheostomy a retrospective study of 28 teases. J Otolaryngol, 1994, 23: 61-66.