ORIGINAL ARTICLE

Incidence of Complications in Emergency Tracheostomy in Adult Patients

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ABSTRACT

Objective: To determine the frequency of various complications of emergency tracheostomy in adult patients visiting tertiary care facility.
Material and methods: This descriptive study was carried out in the Department of Otolaryngology, Nishtar Hospital, Multan from April 2008 to October 2008. This study included 60 patients in whom emergency tracheostomy was performed.
Results: The complications of emergency tracheostomy were observed among 23 (38.35%) patients. The complications like primary hemorrhage, apnea, cardiac arrest, surgical emphysema, stomal infection, disfiguring scar and tracheal stenosis were seen among 6(10%), 1(1.67%), 1(1.67%), 1(1.67%), 9 (15%), 4(6.67%) and 1(1.67%) patients, respectively.
Conclusions: The incidence of complications of tracheostomy can be high even in tertiary care hospital. Infection is the most common followed by haemorrhage.
Key word: Tracheostomy; complications;

INTRODUCTION

Tracheostomy is the term used to describe the creation of a stoma at skin surface which leads into the trachea[1]. The history of tracheostomy stretches over centuries as one of the oldest of surgical procedures[2]. The procedure was originally used for the emergency management of upper airway obstruction although with limited success. Chevalier Jackson refined the operative techniques in early part of 20th century which reduced the mortality rate from 25% to 2%[3].

Patients with multiple traumas often require mechanical ventilation for prolonged periods because of their inability to protect their airways, persistence of excessive secretions, and inadequacy of spontaneous ventilation. Tracheostomy plays an integral role in the airway management of such patients, but its timing remains subject to considerable practice variation[4].

Tracheostomy may be temporary or permanent. It may be an elective procedure but majority is done on emergency basis. Tracheostomy has been reported to have advantages over translaryngeal intubation, although there is no consensus regarding such advantages. Among them, the following are of note: easier handling of the airways; greater patient comfort and facility of communication, reducing the need for sedation; possibility of oral feeding; improved respiratory mechanics; reduced trauma in the oral cavity; prevention of ventilator-associated pneumonia (VAP); and easier weaning. However, despite being a safe procedure, tracheostomy can be associated with complications such as infection at the incision site, bleeding, subcutaneous emphysema, pneumothorax, tracheomalacia and tracheal stenosis (the last two can also occur in patients submitted to tracheal intubation)[5,6].

Numerous studies show a greater complication rate in emergency situations. Complication may be immediate, intermediate and late. Common complication has been excessive bleeding 6%, infection 4%, cardiac arrest 4%, surgical emphysema 2%, and tracheal stenosis 2% and scar disfuiguration 2%[7]. While complication rate remains low in elective procedure, it goes higher in emergency situations as 2 to 5 times[8].

OBJECTIVE

To determine the frequency of various complications of emergency tracheostomy in adult patients visiting tertiary care facility

RESULTS

In the study, the mean age of the patients was 43.63±12.18 years [range 21–66]. There were 7(11.7%) patients of age range of 20–30 years, 18(30%) patients of age range of 31–40 years, 16(26.7%) patients of age range of 41–50 years, 11(18.3%) patients of age range of 51–60 years and 8(13.3%) patients of age range of 61-65 years (Table-1).

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There were 39(65%) male patients and 21(35%) female patients in the study. The female to female ratio was 1:1.86. (Table 2).

Primary hemorrhage was seen among 6(10%) patients, apnea in 1(1.67%) patients, cardiac arrest in 1(1.67%) patients, surgical emphysema in 1(1.67%) patients, stomal infection in 9(15%) patients, disfiguring scar in 4(6.67%) and tracheal stenosis was seen in 1(1.67%) patient. The overall complications of tracheostomy were seen among 23(38.35%) patients as shown in Table 3.

Table-1: Distribution of patients by age (n=60)

Age (years)	=n	%age
20 – 30	07	11.7
31 – 40	18	30.0
41 – 50	16	26.7
51 – 60	11	18.3
61 – 65	08	13.3

Mean + SD = 43.63±12.18

Table-2: Distribution of patients by sex (n=60)

Sex	=n	%age
Male	39	65.0
Female	21	35.0

Table 3: Frequency of complications (n=60)

Complication	=n	%age
Early		
Primary haemorrhage	06	10.0
Apnea	01	01.7
Cardiac arrest	01	01.7
Intermediate		
Superficial emphysema	01	01.7
Stomal infection	09	15.0
Late		
Disfiguring scar	04	06.7
Tracheal stenosis	01	01.7
Total	23	38.35

DISCUSSION

This study was performed to determine the frequency of complications of tracheostomy including early, intermediate and late complications. The frequency of complication in our study was 38.35%, infection being the most common seen among 15% followed by primary hemorrhage seen in 10%.

The overall frequency of complications of tracheostomy was 38.35% in our study. This observation is very close to that detected by Asmatullah et al i.e., 32%[7]. Hadi and Akram reported an incidence of complications about 45% which is quite higher than our study[8]. Zaidi reported 15.23% complication rate[9] and Manzoor et al reported complication rate of 27.2%[10].

Primary hemorrhage was seen among 10% patients of our study. In a study by Hamid et al[11]. The frequency of primary hemorrhage was also noted to be 6% and this was the highest rate of any complication in their study. In another study, the frequency of primary hemorrhage was 16%. This number is quite higher than our study. We used midline incision among our patients and retracted isthmus of thyroid. However, none of the patients had fatal hemorrhage. Apnea was noticed in 1.67% patients. Apnea was also observed in different studies. In study by Rohil A et al the frequency of apnea was quite higher i.e. 8%[12].

Cardiac arrest was not seen very frequently among our patients. The frequency of cardiac arrest was 2.7% and 4% in other studies[12,13].

Surgical emphysema was noticed in 1.67% patients who were managed by chest intubation. In a study, the frequency of surgical emphysema was 2.7%[12]. However, in another study, surgical emphysema was noticed in 8% patients which was quite a higher number than our study[13].

Infection was the most common complication observed in our series. This was noticed in 15% of the patients. This complication was not seen commonly in study by Asmatullah et al. who observed infection in only 4% patients[7]. Like our study, the rate of infection was 15.3% in a study by Hamid et al[12].

The frequency of disfiguring scar was 6.67% in our study while it was observed in only 2% patients in study by Asmatullah et al[7]. This higher frequency of disfiguring scar may be attributed to the vertical incision chosen in our study.

Tracheal stenosis was seen among 1.67% patients of our study. Its incidence was also low in study by Rohil et al i.e. 2%[13]. The results vary among different authors; however, infection and hemorrhage are still the most common complications.

CONCLUSION

The frequencies of complications are high among patients with tracheostomy. Infection is the most common complication followed by hemorrhage. There is a need to make strategies about technique, preoperative and postoperative care of the procedure to avoid these complications.

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