INTRODUCTION

Tracheostomy is one of the oldest surgical procedure first described by Jackson in 1909 and it is not only life saving procedure but it has become method of choice for patients requiring prolong ventilation. The first tracheostomy was performed at the beginning of 20th century in patient of diphtheria with upper airway obstruction. There is recognized complications which make comparison difficult. There is 2 to 5 fold increase in incidence of complications if emergency tracheostomy is performed.

Number of factors contribute towards post surgical complications which includes accidental decanulation, tube blockade, reactionary or secondary hemorrhage, tracheal stenosis, difficult de canulation and many more. Per operative and post operative complications associated with surgical tracheostomy have been reduced dramatically since it was described. Per operative complications can be seen when there is altered anatomy due to trauma swelling or fibrosis or by an inexperienced surgeon. Early identification and smart management would prevent further or aggravation of complication. Most dangerous and life threatening complication in immediate post operative period is obstruction of tracheostomy tube. It may be due to mucus plug blocking the tube or blood clot causing obstruction. Another life threatening complication is accidental de-canulation of tube. The insertion of loosely attached tracheal tube however can lead to de-canulation and difficult re-insertion and mortality can be as high as up to 30%. Un successful blind tube replacement may suffocate patient due to pressure over trachea. Some surgeons advocate Bjork flap at the time of surgery but it increases chances of tracheal stenosis.

Complications in post operative period are dangerous and life threatening and requires prompt management.
action and well trained staff. Different types and materials of tubes are available each with an aim to reduce morbidity and complications. Silicon tubes, cuffed or non-cuffed, fenestrated or non-fenestrated and tubes with inner canulas help to reduce complications and morbidity.

MATERIALS AND METHODS:

Two hundred and fifty patients will be selected presenting in CMH Peshawar during study period. 195 were males and 55 females. A questionnaire will be completed at insertion and patients then will be reviewed daily and weekly basis and complications will be recorded. Patients will be followed from at the time of insertion of tube up to 6 months. At every follow up complications will be observed and recorded. The inclusion criteria, patients of both gender with age range of 16-70 years who had undergone both emergency and elective tracheostomy. The exclusion criteria, was patients above 70 years of age and less than 16 years, all terminal cases and patients admitted to hospital with tracheostomy from some other setup. Detailed history was taken and examination was done. X-rays chest, blood culture and local swab for C/S, bleeding profile will be taken in cases having complications. Complication’s type, site, severity and underlying cause were noted and analyzed by chi square test. There were no deaths attributable to tracheostomy.

RESULTS

Early complications were hemorrhage 16 (6.4%), apnea 2 (0.8%). Tube dislodgment 3 (1.2%). Intermediate complications seen in our cases were tube obstruction 8 (3.2%), crusts and scab formation 4 (1.6%), surgical emphysema 2 (0.8%) and infection in only 1 case (0.4%). Late complications observed in our cases was only tracheocutaneous fistula seen in only 1 case (0.4%). Of total 250 patients 153 were brought in emergency (61.2%) on which emergency tracheostomy was done (38.8%). All tracheostomies performed tracheostomy 14. Silvester also carried out study on 20 patients and found to have hemorrhage and tube obstruction as major complications of surgically performed tracheostomy13. Stauffer the infection of stoma was as high as 36% 16. Two hundred and fifty patients will be selected presenting in CMH Peshawar during study period. 195 were males and 55 females. A questionnaire will be completed at insertion and patients then will be reviewed daily and weekly basis and complications will be recorded. Patients will be followed from at the time of insertion of tube up to 6 months. At every follow up complications will be observed and recorded. The inclusion criteria, patients of both gender with age range of 16-70 years who had undergone both emergency and elective tracheostomy. The exclusion criteria, was patients above 70 years of age and less than 16 years, all terminal cases and patients admitted to hospital with tracheostomy from some other setup. Detailed history was taken and examination was done. X-rays chest, blood culture and local swab for C/S, bleeding profile will be taken in cases having complications. Complication’s type, site, severity and underlying cause were noted and analyzed by chi square test. There were no deaths attributable to tracheostomy.

DISCUSSION

In our study hemorrhage is found to be the most common complication 6.4%. The hemorrhage which occurred was moderate to severe in intensity and was due to damage to the anterior jugular veins and thyroid isthmus. In one study hemorrhage during the procedure is not very common (5%) but even a minor bleed can be life threatening. Bleeding during the performance of a tracheostomy is most commonly the result of errors in surgical technique11. In several studies there were large number of patients who lost to follow up even up to 75% in one of studies5 but in our study almost all patients were indoor and they were either de-canulated before discharge or they expired because of its primary cause which in our cases were most commonly blast injuries and burns.

Many complications on insertion are labeled as minor complications and now according to a study they fall in category of ‘technical difficulties’6. Another most common complication observed in our study was tube obstruction. It was most probably due to clot in the lumen of tube and it was recognized by sudden choking of patient and dropping oxygen saturation. Tube was removed immediately and new tube was inserted which restored normal breathing and normal oxygen saturation. Newer tubes with inner canulas are recommended by latest guidelines issued by intensive care society12.

In a study performed by Barbetti JK tube blockage was found to be 3.6% and it was more for surgical tracheostomy as compared to percutaneous tracheostomy13. Silvester also carried out study on 20 patients and found to have hemorrhage and tube obstruction as major complications of surgically performed tracheostomy14.

In our study 1.2% had tube dislodgment and it was due to excessive cough or constipation in a post operative period and matter was catered by stitching the tracheostomy tube with a skin for initial period (stitches removed after first tube change). Our study is comparable with the study performed by K. Dingli where rate of tube dislodgment was much more15. Another complication seen was infection though not very common as only one male (0.4%) suffered with this and it was due to poor nutrition and delay in change of tracheostomy tube and was managed successfully with a removal of tube and course of antibiotic after culture and sensitivity report.

Apnea was another complication observed in 0.8% of patients both were males and was identified with sudden drop in oxygen saturation and shallow breathing. This was due to the sudden discharge of retained carbon dioxide from within the lungs when the obstruction was suddenly bypassed by making a hole in the trachea. In another study performed by Stauffer the infection of stoma was as high as 36%16.

The complication of infection is avoidable if the procedure is carefully performed together with strict postoperative management. Surgical emphysema was
seen in 2 patients (0.8%) again both were males and were seen in post operative period with swelling in the neck and emphysema and it could be appreciated in digital radiographs of neck and upper chest. It was self resolving and disappeared in 3-4 days time.

In another study David M labeled the surgical emphysema as a life threatening complication appeared as a result of tear in posterior tracheal wall and must be identified and if extensive must be treated at an early stage. Tracheocutaneous fistula is another long term complication which was seen in one male patient (0.4%) and it occurs due to factors delaying the healing of wound, poor nutrition or anemia. It was surgically closed with a satisfactory healing results.

A study was conducted by David goldenberg where he reported 6 cases of fistula and all were surgically closed with good healing results. Crusts and scab formation was observed in total of 4 cases (1.6%). Crusting is a common phenomenon observed but it requires regular suction of tracheostomy tube and cleaning of tracheostome and removing any scabs formed. Excessive crust in and around the tube can itself block the tube or may contribute to infection and secondary hemorrhage. All the cases were managed by removing the crust and scabs surgically and keeping the wound clean.

CONCLUSION

We can prevent the complications by early identification and prompt management. These complications can be minimized by improving our operative techniques and early identification and expert post operative management.

REFERENCES

15. Dingli K., Nel M., Chilvers G., CM. Gómez, Dislodgement of Tracheostomy Tubes in an Adult ICU: A case series. 1st. Marys Hospital, Adult Intensive Care Unit Imperial College, London, United Kingdom.