INTRODUCTION

While some patients experience short-term relief from endoscopic procedures, many suffer from re-stenosis and are candidates for open resection of the stenotic segment with cricotracheal resection (CTR). Pearson's original series of 28 patients from 1986 describes the selective use of post-operative tracheostomy, stenting with Montgomery T-tube, or no tracheostomy in individual patients with CTR.\(^1\) Several other series since that time also report using an individualized decision for tracheostomy or orotracheal extubation in the operating room or later in the post-operative period following CTR.\(^2-3\) To date there is no published analysis of the outcomes from CTR as they relate to post-operative airway management. This retrospective chart review describes the practicalities of post-operative management of the airway after CTR and outcomes associated with an individualized method of airway management during CTR in adults.

METHODS AND MATERIALS

A retrospective chart review was performed for 52 adult patients undergoing CTR over a twelve-year period from October of 2000 to October of 2011. The following data was collected for each patient: age, tracheotomy or post-operative endotracheal tube, stent placement, duration of post-operative intubation, time to decannulation, need for subsequent bronchoscopy or reinsertion of tracheostomy, length of stay (LOS) in intensive care unit (ICU), LOS of hospitalization, post-operative vocal fold mobility, length of stenosis, and distance from inferior border of true vocal folds to beginning of stenosis. Mean values were calculated and student paired t test was performed.

RESULTS

52 adult patients who underwent CTR over a twelve-year period were identified. Average patient age is 50.6 years old. There were no mortalities. Those with stenosis near the undersurface of the vocal folds had a tracheotomy placed below the suture line, while the rest were managed without a tracheotomy. There were 9 patients without a post-operative tracheotomy; 5 of these were extubated in the operating room. None of these patients subsequently required a tracheotomy.

In patients with a post-operative tracheotomy the average number of days to first tracheotomy change was 4.4 days. The average time until decannulation was 16 days. This ranged from 4 to 59 days. If the patients with stents are excluded from this analysis, the average time to decannulation was 14 days. All patients were eventually decannulated.

Four patients with a post-operative tracheotomy had a laryngeal stent placed. Patients who underwent CTR earlier in the series were more likely to have a laryngeal stent, and no laryngeal stents were placed in this series after 2005. Montgomery stents were used in all four cases. One patient with a stent had post-intubation laryngotracheal stenosis and three had idiopathic laryngotracheal stenosis. None of these patients required re-insertion of tracheostomy after decannulation, but 50% required bronchoscopy for excision of granulation tissue.

CONCLUSIONS

Airway management after CTR should be individualized. Most patients do not require subsequent procedures and heal well after CTR. The single-stage CTR is used for those with stenosis further below the vocal folds. While the airway after this procedure has historically been managed with stenting, recent outcomes show selected patients do well without placement of a laryngeal stent or a surgical airway.

GUIDELINES

• A tracheostomy tube (usually #7 SCT) can be placed below the CTR suture line to manage airway peripheratively when the stenosis is close to the undersurface of the vocal folds. It is changed to a #4 CFS tube on POD 4 or 5.
• 63% of patients will be decannulated before discharge and 85% within 30 days.
• 17% of patients may need “cleanup” bronchoscopy to clear granulation tissue at the suture line.
• Decannulation from tracheostomy is based on flexible laryngoscopy showing resolution of subglottic edema and granulation.

REFERENCES