The hybrid tracheoesophageal puncture procedure (HTEPP) in stapler-assisted total laryngectomy

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Abstract

OBJECTIVES To demonstrate the utility of the hybrid tracheoesophageal puncture procedure (HTEPP) in stapler-assisted laryngectomy (SAL) with concurrent cricopharyngeal myotomy. METHODS: Study design: Retrospective case review. Years/months study conducted: January 2009 to July 2013. Disease/Condition studied: Malignant neoplasms of the larynx/pharynx. Subjects studied: Thirty-four patients who underwent total laryngectomy and HTEPP were reviewed. Of these, 7 patients were identified who underwent concurrent SAL. Results: This study was conducted with the approval of the Stanford University Medical Center Institutional Review Board. The charts of 34 patients who underwent total laryngectomy and HTEPP were reviewed. Thirty patients underwent concurrent HTEPP and SAL. The procedure was successfully attempted and accomplished in all patients. All patients achieved voice. There were no complications from the procedures themselves. The mean time to first valve change was 126.8 days +/- 96.6 days (range: 14-367 days). This is comparable to similar reports evaluating valve life expectancy. The most common reasons for valve change was leakage through the prosthesis, followed by downsizing of the length of the prosthesis, and occlusion.

Results

The concept of applying a linear stapler for pharyngeal closure after total laryngectomy was introduced over 30 years ago. Stapler-assisted total laryngectomy affords concurrent laryngectomy with pharyngeal closure, shortening and simplifying the procedure with fistulization rates equivalent or superior to conventional closure. Furthermore, sealing the pharynx prior to laryngectomy resection eliminates the risk of salivary wound contamination and theoretically reduces the risk of tumor seeding. Due to the closed nature of the resection, however, placement of TEP in this technique can be challenging. Blind techniques and visualization via flexible esophagoscopy have been utilized previously. Using the inflated cuff of an endotracheal tube placed into the pharynx when performing cricopharyngeal myotomy was first described in 1975. The maneuver decreases cricopharyngeal hypertonicity which can complicate fluid voicing post-TEP. Maniglia first reported the endotracheal tube technique with a flexible fiberoptic endoscope in 1982 and Cannon reported a modification of the Maniglia’s endotracheal tube technique in 2000. The tip of the endotracheal tube can be seen readily as a dimple on the posterior tracheal wall, and using the hybrid device and technique described here, fistula creation with simultaneous valve placement is straightforward.

Discussion

HTEPP is a simple and reliable method of performing TEP with simultaneous placement of a voice prosthesis. The technique is readily applicable for use in stapler-assisted total laryngectomy through insertion of an endotracheal tube into the sealed pharynx. This maneuver not only assists puncture and valve placement, but affords concomitant myotomy. The stapled line is more robust to permit the passage of the tube. Combining HTEPP and SAL are maneuvers that may help to simplify and optimize the techniques of total laryngectomy and primary TEP.

Conclusions

References