SECONDARY TRACHEOESOPHAGEAL PUNCTURE AND MYOTOMY—A NOVEL OUTPATIENT TECHNIQUE

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Abstract: Background. The purpose of this study was to show a novel technique for secondary tracheoesophageal puncture (TEP) and myotomy in patients who previously underwent total laryngectomy.

Methods. Fifteen patients underwent secondary TEP and 3 patients underwent myotomy. In 1 patient, both myotomy and TEP were done concurrently. A Foley catheter is nasally inserted into the esophagus with the patient under local anesthesia and the catheter balloon is inflated at the site of the planned procedure. The myotomy is performed over the inflated balloon for esophageal posterior wall protection and a voice prosthesis is inserted in a small incision made by the physician. When only myotomy is performed, the muscles over the mucosa are incised. A voice test is performed immediately.

Results. All patients exhibited good voice rehabilitation. One patient who had a myotomy had a penetration of the pharyngeal mucosa with immediate closure and no sequelae.

Conclusion. Outpatient Foley catheter–guided myotomy and secondary TEP are simple, safe, time saving, and cost-effective procedures.

PATIENTS AND METHODS

Patients that undergo total laryngectomy in our department usually have primary TEP. Secondary TEP and myotomy are used in our department only for patients that were referred from other institutions or for patients that underwent the total laryngectomy in our institute and the prosthesis accidently or intentionally was removed.

Our study group consisted of 18 male patients with a mean age of 57 years old (range, 32–73 years old). Eleven patients referred from other institutions had secondary TEP and 3 patients who previously received irradiation underwent myotomy for pharyngeal release. One patient had both myotomy and TEP concurrently.

When myotomy is planned, as part of a patient evaluation, a lidocaine blockage test is performed by injecting the superior constrictor muscle at the region of the planned myotomy.

Five minutes after injection of lidocaine, a voice test is performed. If the patient is capable of voice production, the test is considered positive. This indicates that the problem is due to muscle constriction and myotomy might help. However, if the patient is incapable of voice production, the voice test is negative and the problem might be due to stricture. In this case, myotomy will not help the patient.
For both myotomy and secondary tracheoesophageal puncture, the same technique is used. Topical anesthesia is applied to the nose, mouth, and the trachea with 10% lidocaine pump spray and nasal decongestants applied by cotton pledgets soaked with a solution of amethocaine 2% and adrenalin.

The operative field is injected with 5 mg/mL bupivacaine + 5 µL/mL adrenalin solution (Figure 1). A Foley catheter is passed through the nose into the cricopharyngeus area and inflated by air (Figures 2 and 3). In the case of myotomy only, a vertical skin incision is followed by paramedian muscle incision over the inflated balloon until the pharyngeal mucosa is exposed (Figure 4). The voice test is then performed by occlusion of the tracheostoma with the surgeon’s finger and visualization of pharyngeal mucosa vibration (Figure 5). In the case of secondary TEP, the proposed puncture site is marked 1 centimeter below the upper posterior edge of the mucocutaneous junction. The incision (TEP) is made with a Bovie over the site of the balloon. The mucosal layer is opened with low intensity Bovie to avoid balloon rupture. A speech prosthesis is inserted (Figures 6 and 7) and the voice is immediately evaluated.

RESULTS
All patients were capable of immediate good voice production after the procedure. In 1 patient, there was pharyngeal mucosa penetration and immediate closure without sequelas.

DISCUSSION
Many studies have found TEP to be an excellent method of restoring voice in laryngectomized patients,
Primary TEP is the preferred option in our institution. However, in some patients, a primary TEP is not performed initially and a secondary procedure is planned.

Over the last decade, several techniques for secondary TEP with the patient under local anesthesia have been described. Two effective methods for secondary TEP with the patient under local anesthesia were described by Eerenstein and Schouwenburg in 2002 and by Le Bert et al. A transnasal esophagoscope-guided TEP placement procedure was described by Le Bert et al; the esophagoscope is introduced nasally and the puncture is performed using transillumination of the esophagoscope light as a guide. Eerenstein and Schouwenburg described secondary TEP with local anesthesia: oral introduction of an intubation tube with an illuminated inflatable cuff at the puncture site. This serves as a beacon during the procedure and the tube protects the posterior tracheal wall.

The use of a Foley catheter was introduced by the senior author (L. B.) and published in relation to a primary TEP procedure in patients undergoing stapler laryngectomy. In addition to all TEP procedures, with the patient under local anesthesia described by others, our technique has the additional protection of the posterior pharyngeal wall with the inflated balloon of the Foley catheter similar to the use of an intubation tube described above. However, the procedure we are presenting is less traumatic, without the potential vagal response from the oral introduction of the intubation tube and without sophisticated or procedure-specific instruments needed.

The myotomy in our method can be done simultaneously.

CONCLUSION

Outpatient Foley catheter–guided myotomy and TEP are simple, safe, time saving, and cost-effective procedures for secondary restoration of voice in laryngectomized patients.

REFERENCES