INTRODUCTION
The first successful laryngectomy was performed in 1873 by Theodore Billroth and by 1874, Gussenbauer had devised the first artificial larynx for Billroth’s patients. Yet it wasn’t until 1979 when Singer and Blom developed the tracheoesophageal puncture (TEP) prosthesis that would forever change voice rehabilitation in total laryngectomy patients.

Voice rehabilitation with esophageal speech has been documented in the literature between 24% to 32% successful. When Singer and Blom first popularized the TEP as a technique for voice rehabilitation, 88% of their patients had attained successful vocalization following total laryngectomy (1). Since this historical publication, many studies have looked at the success rates for TEP and reported rates have ranged from 40 to 90%.

OBJECTIVE
This study was designed to evaluate the success of voice rehabilitation and complication rate in patients who underwent laryngectomy with primary tracheoesophageal puncture (pTEP).

METHODS AND MATERIALS
Fifty individuals who underwent total laryngectomy with pTEP from 6/2003 to 3/2007 were studied. Subjective information on voice rehabilitation and the occurrence of microstomia requiring stomaplasty, dislodgement rates, and leakage were recorded. Patients were then divided into a previously radiated group and a nonradiated group, and voice rehabilitation success, as well as complication rates, were compared between these two subgroups. Differences in proportions were analyzed using Chi-square.

RESULTS
Approximately 76% of patients who received a TEP at the time of their total laryngectomy had successful voice rehabilitation. Microstomia requiring stomaplasty occurred in 20%, dislodgement rate in 18%, and leakage in 10%. Of patients who had undergone preoperative XRT, 33.3% experienced microstomia, which was significant (p 0.043). 38.1% of patients who had undergone preoperative XRT were aphonie, compared to 13.8% of patients not previously radiated. Patients with preoperative XRT and failure of successful voice rehabilitation was significant (p 0.006. There was no significance between preoperative XRT and dislodgement of TEP.

DISCUSSION AND CONCLUSIONS
Early approaches to post-laryngectomy speech rehabilitation with the electrolarynx and esophageal speech were successful in less than 1/3 of patients (2). TEP, introduced by Singer and Blom in 1980 (3), has since become the standard approach to voice rehabilitation, and has proven to be effective in up to 90% of patients. Questions remain concerning the most appropriate time for performing TEP, however. While primary TEP is convenient and avoids the need for a secondary procedure, concerns continue to be expressed regarding a higher rate of complications following primary TEP when compared to secondary TEP.

Primary TEP afforded successful speech rehabilitation in approximately 75% of patients. Complications were common, however, and remedial surgery with secondary TEP due to failed primary TEP or stomaplasty was required in a significant number of patients. The clear association of preoperative irradiation with failure to achieve acceptable vocalization and with an increased risk of microstomia requiring stomaplasty is of concern, and should be considered prior to performing primary TEP in irradiated patients.

REFERENCES