

LETTER TO THE EDITOR

Proposal for a new nomenclature of tracheo-oesophageal puncture: a different perspective

Proposta di una nuova classificazione delle fistole tracheo-esofagee per il posizionamento della protesi fonatoria: una nuova prospettiva

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PAROLE CHIAVE: *protesi tracheo-esofagea, laringectomia totale, riabilitazione fonatoria e polmonare*

Dear Editor,

The management of laryngeal cancer is focused on improving survival while preserving function; nevertheless, total laryngectomy is often required for primary and recurrent disease ¹.

While total laryngectomy is undoubtedly an effective oncological surgery, it profoundly alters speech, respiration and sense of smell and taste. Specifically, the loss of voice has the impact on the psychosocial and economic consequences following laryngectomy ^{2,3}.

There are three methods of voice rehabilitation after total laryngectomy: electrolarynx, oesophageal speech and tracheo-oesophageal (TE) speech. Historically, oesophageal speech was the method of choice by which all others were compared, and patients who could not master oesophageal speech used the electrolarynx. In 1969, Staffieri ⁴ introduced a surgical voice restoration technique called "phonatory neoglottis surgery": this was a personal technique that allowed one-way air transit from the lungs to the hypopharynx or oesophagus through a fistula between the trachea and the hypopharynx or oesophagus. In 1977, Amatsu ⁵ with a different surgical technique that included a posterior tracheal wall flap, namely the "Amatsu tracheo-oesophageal shunt", achieved similar results. Both authors addressed the issue of frequently occurring aspiration and the use of a trachea-oesophageal prosthesis placement to manage failures. In 1972, Mozolewski first described a TE shunt prosthesis with a valve function. In 1980, Singer and Blom ⁶ proposed a simplified endoscopic method for voice restoration. They addressed the problems of aspiration and stenosis (of the fistula) by means of a valved prostheses placed inside the TE fistula. This procedure was initially proposed as a secondary salvage technique for patients who failed oesophageal speech or those who were displeased with the electrolarynx voice. Maves and Lingeman ⁷ and Hamaker et al. ⁸ were the first to introduce TE puncture with voice prosthesis as a primary technique, performed at the time of laryngectomy.

Nowadays, TEP with voice prosthesis is the gold standard for voice rehabilitation after total laryngectomy ⁹.

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In the literature, there is little agreement on the nomenclature of tracheo-oesophageal puncture (TEP): the terms currently used mostly include *primary* or *secondary* TEP. In the first case, the puncture is performed at the time of the laryngectomy, while in the latter the puncture is performed at a later time. Regarding the voice prosthesis, it can be placed at the same time of the puncture (primary voice prosthesis placement) or after a period of temporary stenting of the fistula using a catheter or feeding tube before initial voice prosthesis insertion.

Unfortunately, *secondary TEP* is a heterogeneous group in which at least two subgroups of patients are present: the first (A) concerns patients with planned secondary TEP after pharyngo-laryngectomy, flap reconstruction, or adjuvant radiotherapy in whom TEP is postponed because of the high risk of complications or dissection of the TE space (e.g. gastric pull-up), and therefore the TEP is performed after healing of the surgical wound. In these cases, the surgeon has planned voice rehabilitation with the voice prosthesis prior to surgery and has discussed this with the patient. The second subgroup (B) includes patients who underwent total laryngectomy in the past and are dissatisfied with (oesophageal) speech. In most of these cases, at the time of total laryngectomy the surgeon did not anticipate the use of heat and moisture exchangers (HMEs) and voice prosthesis, and the stoma might be more difficult for TEP voicing. In some of these cases, a stomaplasty might help to create a better stoma for HME use and occlusion.

We believe that these two subgroups of patients among the so-called “secondary TEP” are different from each other in terms of surgical planning of the TEP (refinements or not) and timing of TEP after total laryngectomy (months or years). In order to distinguish these two subgroups of patients, to better understand their follow-up and to highlight the criterion of time in the planning of the TEP, we propose a different nomenclature for TEPs:

- simultaneous TEP (former primary TEP);
- sequential TEP (former secondary TEP, subgroup A);
- delayed TEP (former secondary TEP, subgroup B).

We also believe that the surgeon should try to create a flat regular stoma and prevent hypertonicity (cricopharyngeal muscle myotomy, circular stoma, sternal head of sternocleidomastoid muscle section) regardless of the voice rehabilitation chosen after total laryngectomy. A regular flat stoma is required for pulmonary rehabilitation with HME filters for all patients.

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