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Safe and easy method for secondary tracheo-oesophageal puncture

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Abstract
We describe a method for performing secondary tracheo-oesophageal puncture in patients who have undergone total laryngectomy. The technique is straightforward and easy. It uses a minimum of readily available equipment with a simple modification to a standard pharyngoscope.

Key words: Voice Prosthesis; Tracheosophageal Fistula; Surgical Procedures, Operative

Introduction

Voice restoration utilizing a tracheo-oesophageal speaking valve as described first by Singer and Blom[1] is now the principal method of speech rehabilitation for many total laryngectomees. The formation of the fistula for the valve can be made either at the time of the laryngectomy (a primary puncture) or at a later date (a secondary puncture). Even in centres where primary puncture is the routine there are sometimes technical reasons why this cannot be undertaken in an individual and there are cases where the fistula tract is lost and needs to be re-established by a secondary puncture. This can be a difficult and time-consuming procedure. Many techniques have been described since the initial description by Singer and Blom.[2–7] We present our technique, which has the advantage of being simple, safe and quick. It requires minimal equipment with only a minor modification to a pharyngoscope.

Materials and method

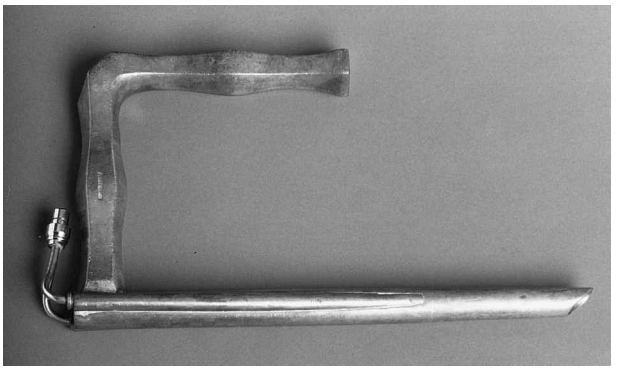
Equipment

The equipment that is needed is an adapted pharyngoscope with suitable light source; a hypodermic needle; a size 11 scalpel; a blunt-ended flexible metal probe; and a size 14FG Foley catheter.

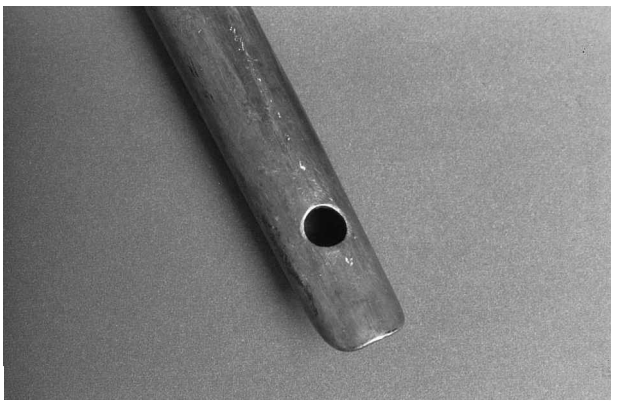
A pharyngoscope is adapted by drilling a 6 mm hole on the upper surface of the pharyngoscope approximately 1 cm from the tip of the blade. The edges of the hole are burred to ensure smoothness. Note that there is a back wall to the pharyngoscope opposite the hole. This is to protect the posterior oesophageal wall when the puncture is made.

Technique

The patient is anaesthetized and placed supine with a sandbag under the shoulders if necessary. The pharyngoscope is passed until its end can be palpated through the tracheostome. It is positioned so that the hole in the pharyngoscope is at the site where the puncture is required. This should be 5 mm inferior to the mucocutaneous junction of the superior lip of the stoma as described by Singer and Blom. If the hole is difficult to palpate an angled fibre-optic light source could be inserted into the pharyngoscope and the theatre lights dimmed, although we have never found this necessary. When the position is satisfactory the hypodermic needle is passed from outside through the posterior wall of the trachea and through the



(a)



(b)

Fig. 1
a and b: Photograph of pharyngoscope with modification.

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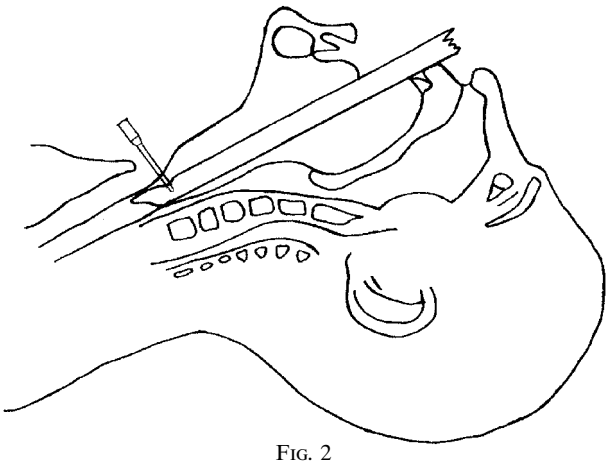

FIG. 2

(Step 1) Establishing the site of the puncture with the hypodermic needle through the hole in the pharyngoscope. Once needle is visualized through the pharyngoscope the hole is enlarged with an 11 blade scalpel.

hole in the pharyngoscope (Figure 2). Position is confirmed via the pharyngoscope and then the puncture is made with the scalpel at the same site. With the aid of the blunt metal probe (Figure 3) the catheter is inserted through the incision, and the hole in the pharyngoscope, into the oesophagus where it can be grasped with long forceps (Figure 4). The pharyngoscope is gently withdrawn whilst the top of the catheter is held with the grasping forceps. The pharyngoscope is then withdrawn a little further so releasing the catheter from the hole. The catheter can then be fed into the oesophagus. Finally, the balloon is inflated and the catheter is secured to skin with a suture. This remains in place until the speaking valve is inserted at between two and seven days.

Discussion

We have been using this method for all of our secondary punctures for the last two and a half years with 100 per cent success and no complications. It has the advantage of holding the lumen of the oesophagus open and splinting it against the back wall of the trachea so avoiding the problems of missing the lumen of the oesophagus or puncturing the back wall. It enables accurate puncture easily and safely with a minimum of equipment.

This technique has proved to be very straightforward provided that the pharyngoscope can be safely passed to the level of the stoma. There are reports of complications in cases where difficulty is encountered when passing the pharyngoscope[8–10] and in these situations we would not recommend this technique but would suggest one of the alternative techniques for puncture that have been described.[2–4,6,7]

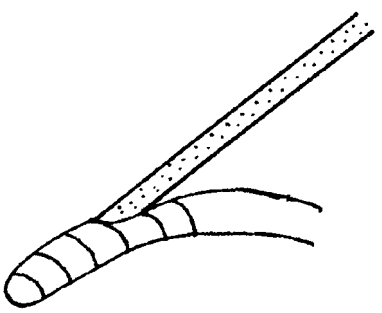

FIG. 3

(Step 2) Catheter is mounted on a metal probe for rigidity.

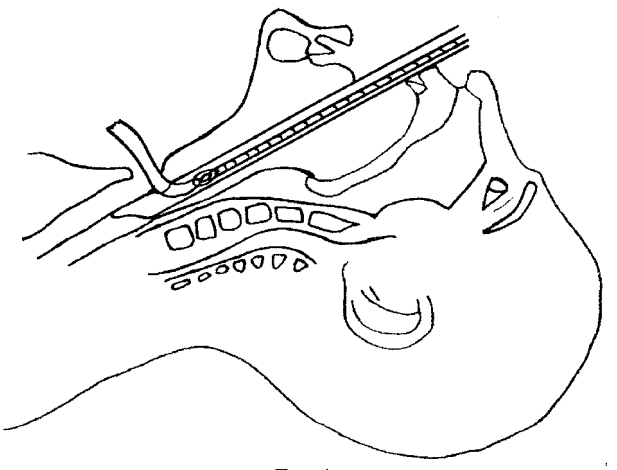

FIG. 4

(Step 3) Catheter pushed through puncture and into lumen of oesophagus where it is grasped with forceps and held as the pharyngoscope is partially withdrawn.

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