

Short Communication

A Novel Procedure for Salvaging a Tracheosophageal Puncture in Patients With a Speaking Valve

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Abstract

Loss of a speaking valve is a medical emergency. The tracheosophageal puncture can close up within a matter of hours; restoration may require operative intervention centre perform puncture under local anaesthetic.

In this technique a probe is formed by cutting an intravenous extension set at a bevel. Once located the fistula is subsequently dilated using a nasogastric tube and a suction catheter in a Seldinger fashion. This technique is performed under nasoendoscopic guidance to ensure correct placement in the oesophagus.

This technique has been used successful by the authors in an outpatient setting, avoiding the need for further general anaesthetic and operative management

To our knowledge, this is the first technique to be described for salvaging a tracheoesophageal fistula in the outpatient setting using readily available materials.

Keywords: Laryngectomy; Larynx; Artificial Tracheoesophageal Fistula

Introduction

Loss of a speaking valve is a medical emergency¹. Without a valve in place the trachea-oesophageal fistula can close within a matter of hours with serious medical and psychological implications for the laryngectomy patient. Unless the fistula can be salvaged, these patients who often have multiple co-morbidities are rendered voiceless and facing a general anaesthetic in order re-insert the speaking valve. Primary trachea-oesophageal puncture under local anaesthetic is only performed in selected tertiary centre where specialist equipment sets are available. We describe a technique that can be performed in

the outpatient clinic with readily available materials which allows successful salvage of a fistula that has closed to the point of no visible lumen.

Materials and Methods

Materials

Intravenous extension set with the luer lock removed by cutting the tube diagonally, leaving a bevelled end to the tubing. This will form the 'probe'. (Figure 1) The bevelled end of the probe should be trimmed at the edges to reduce risk of trauma

to the fistula.

6 Fr paediatric nasogastric tube.

10 Fr suction catheter trimmed diagonally at the distal end to leave an overall length of approximately 20cm. (Figure 2)



Figure 1

-Above- IV extension set.

-Below- IV extension set with the end cut at a bevel- forming the 'probe'

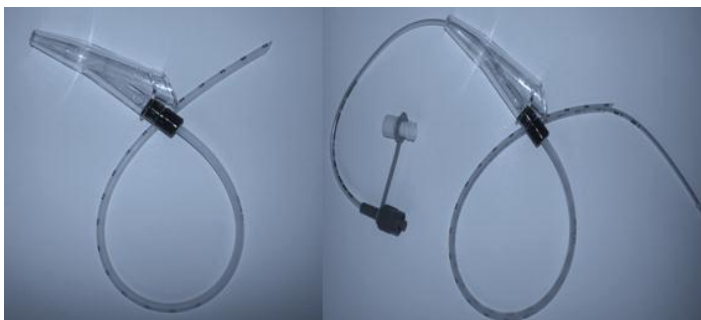


Figure 2

Left- 10Fr suction catheter cut at bevel, approximately 20cm long
Right- 6Fr NG tube threaded down the lumen of the modified suction catheter acting as a guide wire for insertion.

Methods

The 'probe' is used to dilate and cannulate the trachea-oesophageal fistula. Correct placement into the oesophageal lumen rather than a false passage is confirmed by fiberoptic nasendoscopy. This step is only necessary when the fistula is too small to permit cannulation with a 6 Fr nasogastric tube.

The nasogastric tube is threaded down the lumen of the modified suction catheter in order to act as a 'guide wire'. (Figure 2) Lubricant gel may be required.

The nasogastric tube is passed through the fistula and its correct position can again be confirmed with nasendoscopy. The suction catheter is then advanced over the nasogastric tube and into the oesophageal lumen.

The nasogastric tube is removed and an umbilical cord clamp is applied to the proximal end of the suction tube to prevent reflux of gastric contents.

The suction catheter is subsequently exchanged for larger diameter urinary catheters until the desired diameter is achieved and the valve can be replaced. The speed at which this progressive dilatation occurs will be patient dependent and may be over a period of hours to days.

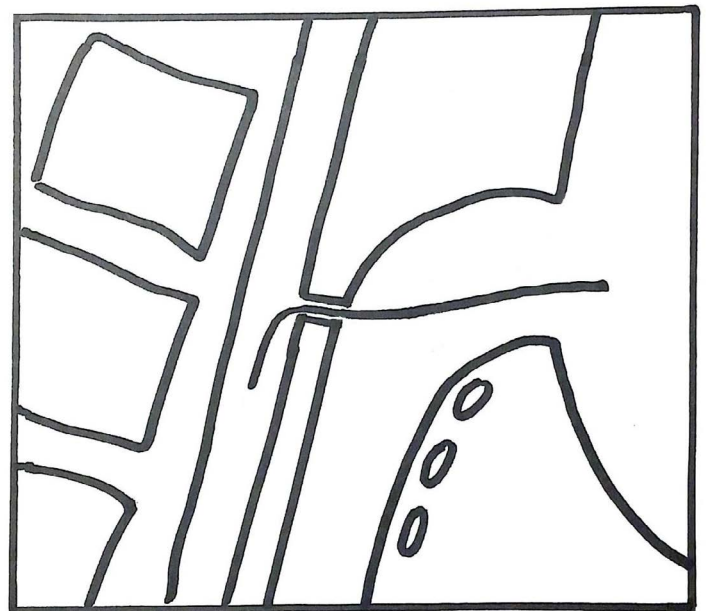


Figure 3

The 'probe' is used to dilate and cannulate the trachea-oesophageal fistula.

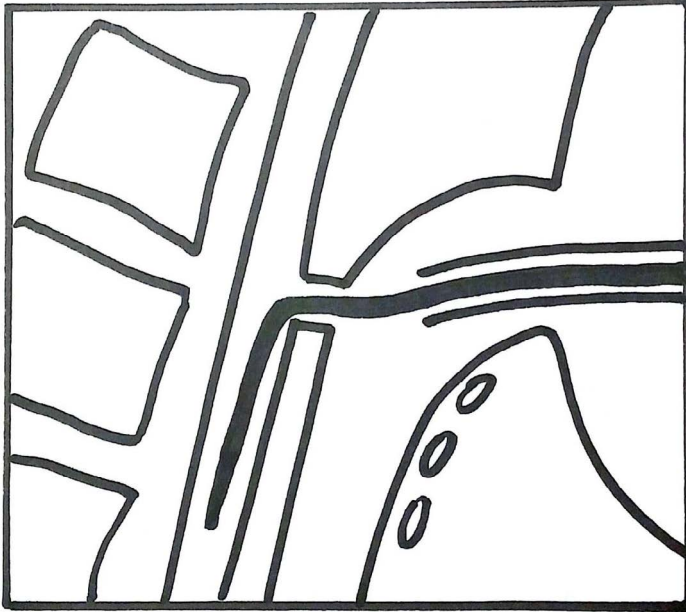


Figure 4

The nasogastric tube is threaded down the lumen of the modified suction catheter in order to act as a 'guide wire'. The nasogastric tube is then inserted into the tracheoesophageal fistula.

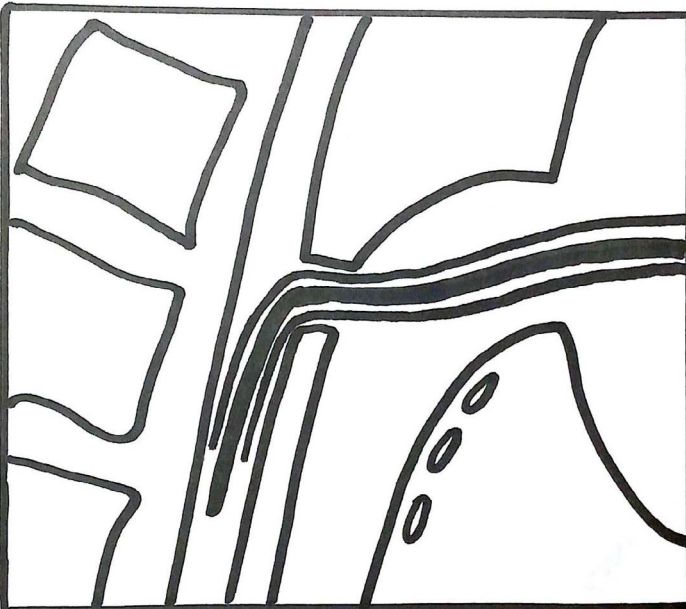


Figure 5

The suction catheter is then advanced over the nasogastric tube and into the oesophageal lumen.

Discussion

Voice restoration using Provox2 and Blom-Singer3 speaking valves is common for voice restoration in the UK. Loss of a speaking valve is a medical emergency because the trachea-oesophageal fistula can close rapidly. Alternative techniques for salvaging a trachea-oesophageal fistula have been described,

including the use of a Jobson-Horne probe to re-establish the tract. This is a traumatic technique with the potential to create a false passage or posterior oesophageal wall injury. Bougie dilatation has also been described, but this may not always be possible if the lumen of the fistula has become too small. The technique described above is a safe and effective method for salvaging a tracheoesophageal fistula after loss of a speaking valve.

References

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