

# A Novel Bedside Diagnostic Technique for Acquired Tracheoesophageal Fistula

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## INTRODUCTION

Acquired tracheoesophageal fistula (TOF) is an unusual medical dilemma and usually results from either malignancy, granulomatous infections, penetrating trauma, foreign bodies in trachea or oesophagus, and iatrogenic injuries such as post endotracheal intubation, tracheostomy, and laryngectomy. Regardless of its cause, the disastrous pulmonary sepsis due to its ongoing tracheobronchial contamination, and the interference with nutrition are all lethal facets of this disease. Due to its rarity, subtle clinical presentations, and invasive diagnostic test, tracheoesophageal fistulas (TOF) is often missed or the diagnosis and treatment delayed.

## CASE SERIES

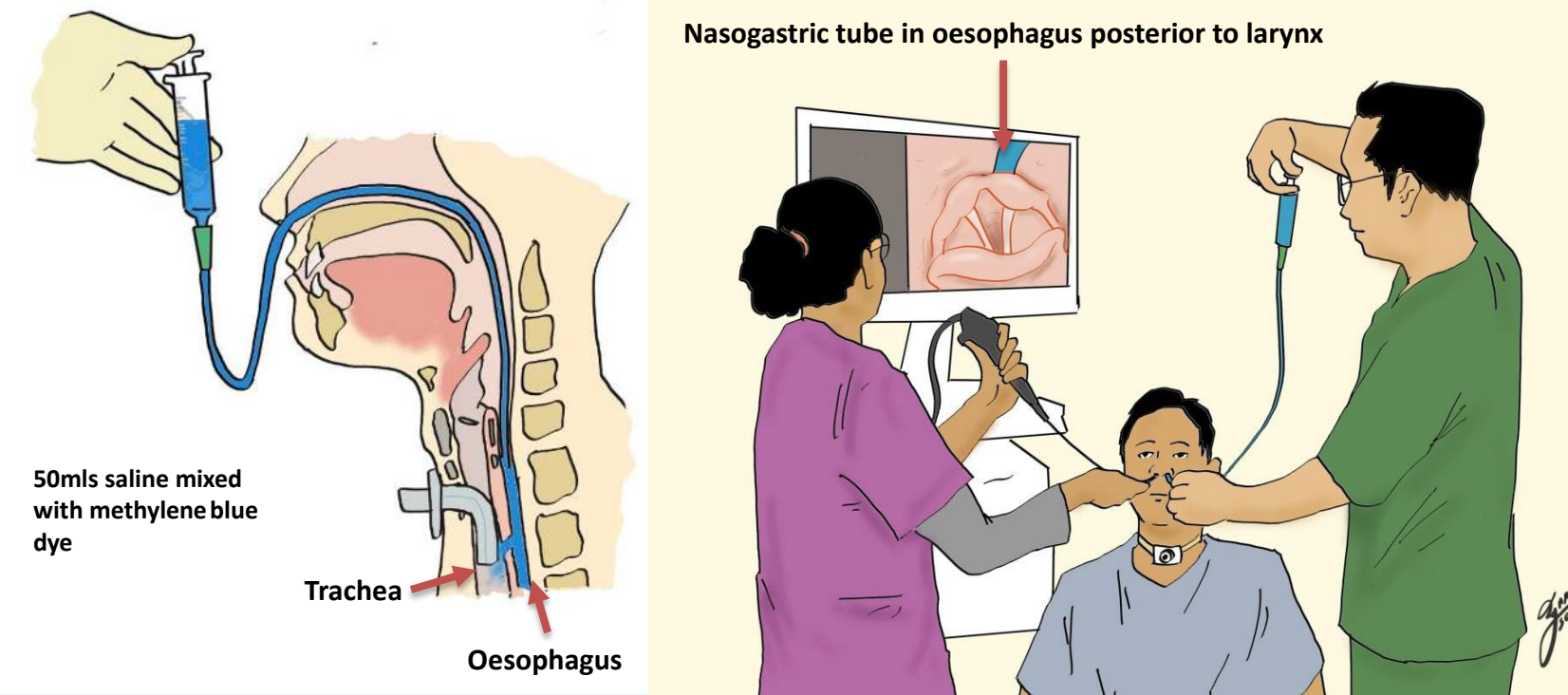
This is a case series of tracheoesophageal fistula (TOF) diagnosed utilising a new, novel, minimally invasive, office-based procedure in diagnosing a TOF in a bedside setting, without subjecting the patient to general anaesthesia.

The **1<sup>st</sup> case**: A 77-year-old man with subglottic stenosis Cotton Mayer grade 3 who required a re-tracheostomy under local anaesthesia, which was complicated by oesophageal injury whereby a TOF was suspected as the patient noted food particles coming out from his tracheostomy tube opening.

The **2<sup>nd</sup> case**: A 66-year-old lady who presented with dysphagia and odynophagia was subjected to oesophagogastroduodenoscopy (OGDS) for further evaluation. During the procedure, she was suspected to have an opening/fistula on the oesophageal wall likely connected to the trachea and was referred to our team.

The **3<sup>rd</sup> case**: A 61-year-old male who had anterior cervical corpectomy and fusion, with open tracheostomy for prolonged ventilation, was suspected to have an oesophageal fistula post neck surgery after saliva was noted surrounding his anterior neck wound.

## METHOD



All three cases underwent this bedside technique to diagnose TOF, and all their findings were negative.

1. With the nasogastric tube-in situ, a flexible nasopharyngolaryngoscope (FNPLS) is introduced until the level of hypopharynx.
2. The nasogastric tube is withdrawn slowly under direct vision from the FNPLS until only the tip remains distal to the upper esophageal sphincter (to prevent patient from aspiration during the next step).
3. The airways are then anaesthetized with local anesthesia via FNPLS working channel or transtracheal injection.
4. The FNPLS is then passed through the vocal cord into the subglottic to view the whole trachea or via the tracheal stoma in patient with tracheostomy.
5. 50 mls of sterile water mixed with methylene blue is then instilled through the nasogastric tube to fill the esophagus.
6. The FNPLS is maneuvered to examine the subglottic and trachea region, to visualize for any dye leak which could show clearly any TOF.

## DISCUSSION

1. Acquired TOF continues to be a challenging condition to diagnose and manage.
2. With limited data supporting CT imaging as the best modality in diagnosing TOF, and with the risk that comes along if a contrast study is to be done, diagnosing TOF could be exhausting.
3. In normal practice, the diagnostic approach for TOF would be by means of an endoscopic procedure which would usually be performed in the operating room under general anesthesia. However, concerns arise when patients aren't able to undergo general anesthesia/ or not fit for contrast studies.
4. In this case series, we highlight this non-invasive bedside diagnostic technique, whereby our main aim was to detect a tracheoesophageal fistula without subjecting patient to general anesthesia.
5. With the use of a FNPLS set, a nasogastric tube, methylene blue dye and lignocaine spray, the procedure can be done at any clinic-based setting at anytime.

## CONCLUSION

Tracheoesophageal fistula is difficult to diagnose. Our minimally-invasive technique is practical, utilizes instruments in the clinic itself, is comfortable to the patient, and inexpensive.

## REFERENCES

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