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## Case Report

# Trans Tracheal Approach to the Oesophagus: Case Report

## Abstract

Hypopharyngeal squamous cell carcinoma (SCC) is a rare form of malignancy and treatment approach is most commonly with chemo-radiotherapy or total pharyngolaryngoesophagectomy. We report a case of hypopharyngeal SCC managed with local resection and larynx preservation in a 77-year-old-woman. Total pharyngolaryngoesophagectomy renders patients with an alteration in both voice and ability to swallow hence carrying significant post-operative morbidity. We review the literature for similar larynx-preserving operations and illustrate a novel approach to the management of this rare malignancy.

## Case

A 77-year-old woman was diagnosed with a localized squamous cell carcinoma (SCC) inferior to the cricopharyngeus. She was considered unfit for chemotherapy and was treated with definitive radiotherapy alone (56gy in 28 fractions). Surveillance endoscopy at three months was normal but at six months there was evidence of recurrent disease with a 2cm nodule below the cricopharyngeus region, confirmed as SCC on pathology. The rest of the oesophagus was normal. FDG PET/CT revealed a localized avid lesion as the only pathology. Panendoscopy and rigid bronchoscopy demonstrated extrinsic protrusion into the membranous tracheal wall with intact mucosa and no other mucosal abnormality.

The patient wished to avoid permanent tracheostomy. She accepted the option of a cervical oesophagectomy with jejunal interposition if it was evident a normal margin from the cancer could be achieved. At operation the cancer did not involve the trachea. The thyroid isthmus was divided and the individual thyroid lobes mobilized and laterally pedicled on their blood supply. The recurrent laryngeal nerves on each side were preserved, kept moist, and continually monitored using a NIM (Nerve Integrity Monitor). Complete access to the cervical oesophagus was obtained by tracheal transection between the first and second rings opening the trachea like a sliding double door (Figure 1). Proximal resection was through the level of the inferior constrictor 1cm beyond the tumour with a similar margin distally through the oesophagus. Frozen section reported no evidence of carcinoma at either margin. A left level II – IV neck dissection was performed. A jejunal segment

was harvested via laparotomy and a feeding jejunostomy constructed. The jejunum was revascularized with microvascular anastomosis to the facial artery and internal jugular vein. Anastomosis to the lower pharynx and the oesophagus was performed with interrupted absorbable sutures (Figure 2). The trachea was closed with interrupted sutures, and tracheostomy created between the 4<sup>th</sup> and 5<sup>th</sup> tracheal rings (Figure 3).

Histopathology of the resected specimen revealed moderately to poorly differentiated SCC invading through muscularis propria into adventitia with focal invasion at the radial surgical margins. Proximal, distal and tracheo-oesophageal wall margins were clear of carcinoma and the lymph nodes were negative.

Jejunostomy and tracheostomy tubes were removed once oral intake was restored and airway protection confirmed.

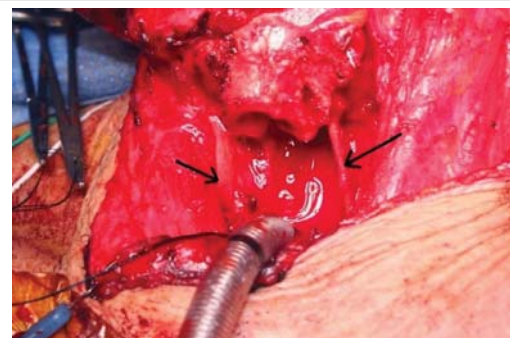
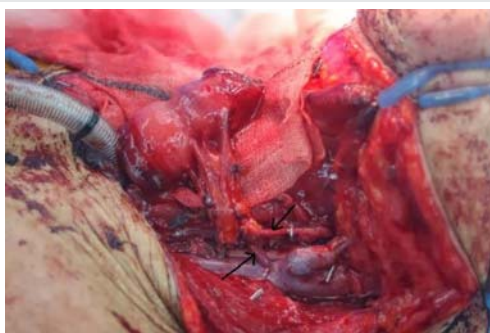
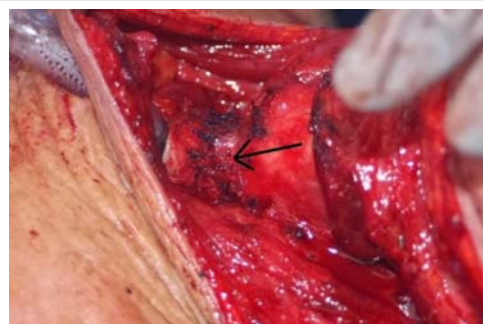


Figure 1: Tracheal transection. Arrows indicating the recurrent laryngeal nerves.



**Figure 2:** Jejunal interposition. Arrows indicating microvascular anastomosis to the facial artery and internal jugular vein.



**Figure 3:** Tracheal closure with interrupted sutures as indicated by arrow.

The options for oesophageal reconstruction include the use of the stomach, colon, musculocutaneous flap, deltopectoral flap and free jejunum<sup>5</sup>. A free jejunal graft offers a better recovery of swallow due to the similar diameter compared with the oesophagus and the secretion of intestinal fluid to moisten mucous membranes<sup>7</sup>. Technical benefits include relative ease of harvesting; low donor site morbidity and reduced aspiration risk due to innate peristalsis aiding propulsion of food into the lower oesophagus<sup>8 5</sup>.

Temporary tracheal transection, resection of the cervical oesophagus and jejunal interposition offers an alternative for resection of cervical esophageal carcinoma whilst preserving the patient's voice and swallow and offering minimal gastro-oesophageal reflux. For SCC of the oesophagus, the presence of intramural skip lesions have been reported to occur in up to 5cm from the primary lesion<sup>3</sup>. Thus this case also highlights the issue of an inadequate margin for this disease. The use of local resection of cervical oesophageal SCC should be reserved for selected cases understanding the limitations of the procedure.

### Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

### Informed Consent

Informed consent was obtained from all individual participants included in the study.

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By discharge she had good voice quality, no stridor and was tolerating a soft diet. The initial course was promising; she possessed a functioning larynx and was able to swallow and nourish herself. Three months post surgery she complained of dysphagia. Endoscopy revealed a new nodule 5mm below and separate from the jejunum-oesophageal anastomosis. Biopsy confirmed this as a "skip lesion" with submucosal SCC. The patient accepted the option of a total pharyngo-laryngo-oesophagectomy with gastric pull-up.

### Discussion

There is no universally accepted approach for the curative treatment of cervical oesophageal cancer. Most commonly patients will be offered definitive chemo-radiotherapy or resection requiring a pharyngo-laryngo-oesophagectomy aiming for appropriate oesophageal margins<sup>4</sup>. Following resection there is reduced quality of life from voice loss, gastric reflux and altered swallow. We highlight the potential for an alternative approach, if local resection is considered appropriate, aiming to preserve the larynx.

Larynx-preserving procedures include laryngeal suspension with cricopharyngeal myotomy<sup>1</sup> and anterior laryngeal retraction<sup>5</sup> often provide insufficient exposure making adequate resection and reliable anastomosis difficult<sup>6</sup>. Transection and re-anastomosis of the trachea, first described in 1992, offers the benefit of laryngeal preservation and exposure to the whole circumference of the cervical oesophageal wall enabling a safer reconstruction<sup>4</sup>.