

# ORIGINAL ARTICLES

## Transnasal esophagoscopy

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**BACKGROUND:** Transnasal esophagoscopy (TNE), a new diagnostic technology, allows comprehensive, in-office examination of the esophagus without sedation.

**OBJECTIVE:** To report the authors' experience using TNE.

**METHODOLOGY:** Retrospective review of 100 consecutive patients undergoing TNE.

**RESULTS:** The most frequent indications for TNE were screening examination of the esophagus in reflux, globus, and/or dysphagia patients (n = 79), biopsy of a lesion in the laryngopharynx, trachea, or esophagus (n = 8), screening examination of the esophagus in head and neck cancer patients (n = 5), tracheoscopy and bronchoscopy (n = 4), and evaluation for an esophageal foreign body (n = 2). Four procedures were aborted secondary to a tight nasal vault. Significant findings were found in 44% (42/96). The most frequent findings were esophagitis (n = 19), Barrett's (n = 6), hiatal hernia (n = 4), and carcinoma (n = 5).

**CONCLUSIONS:** TNE is safe and well tolerated by patients with topical anesthesia alone. TNE may replace radiographic imaging of the esophagus in otolaryngology patients with reflux, globus, and dysphagia. (Otolaryngol Head Neck Surg 2001;125:588-9.)

Recently, new diagnostic technology has become available that allows the otolaryngologist to perform in-office transnasal esophagoscopy (TNE) without intravenous or per oral anesthesia/analgesia. This esophagoscope is small enough (5.1-mm external diam-

eter) to go through the nose and has essentially the same safety and comfort level for patients as transnasal fiberoptic laryngoscopy (TFL). In addition, air insufflation, irrigation, and biopsies can be performed. The entire upper aerodigestive tract from the nasal vestibule to the gastroesophageal junction is easily and safely visualized.

TNE is particularly useful in patients with reflux, swallowing disorders, strictures, and other esophageal and aerodigestive tract pathology. In addition to esophageal examinations, the instrument is suitable for performing laryngoscopy and bronchoscopy, with or without biopsies. The purpose of this manuscript is to report the authors' initial experience (indications, techniques, and results) using TNE.

### TECHNIQUE

Our technique of TNE involves the patient sitting upright in an examination chair across from the endoscopist. The patient's more patent nasal cavity is first sprayed with 1:1 oxymetazoline 0.05% and lidocaine 4%. Two Tessalon Perles (benzonatate) are given to the patient who is then instructed to keep them in the back of his/her oropharynx until they completely dissolve. Two sprays of 20% benzocaine (Hurricane) are then administered to the oropharynx. The endoscope (VE-1530, Pentax Precision Instrument Corporation, Orangeburg, NY) is lubricated with 2% viscous lidocaine. The examiner waits at least 5 minutes to allow the topical anesthesia to take effect. The endoscope is then passed into the nasal cavity either along the floor of the nose or between the middle and inferior turbinates. Nasopharyngeal closure, tongue base, hypopharynx, vocal fold motion, and possible pooling of oral secretions is observed. The patient's head is then flexed forward toward their chest as the fiberoptic scope is passed toward the cricopharyngeus muscle. The patient is asked to swallow or belch, and the instrument is gently advanced. Our standard practice is to advance the instrument into the gastric cardia. Using a combination of air insufflation and irrigation, we examine the mucosa of the entire esophagus while the scope is slowly withdrawn. If mucosal lesions or irregularities are noted, biopsy forceps are passed through the biopsy port and multiple biopsies are obtained.

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**Table 1.** Indications for TNE (N = 100)

Indication	N (%)
Screening examination in patients with reflux/globus/dysphagia	79 (79%)
Biopsy of known lesion in laryngopharynx	8 (8%)
Screening examination in head and neck cancer patients	5 (5%)
Tracheoscopy	4 (4%)
Evaluation of possible esophageal foreign body	2 (2%)
Dilation of esophageal stricture	1 (1%)
Replacement of tracheoesophageal puncture under direct vision	1 (1%)

## STUDY METHODS

The charts of the first 100 consecutive patients undergoing TNE at the Center for Voice Disorders of Wake Forest University were reviewed. Information was gathered regarding patient demographics, procedure indications, complications, and findings.

## RESULTS

One hundred patients underwent TNE between October 1, 2000, and February 28, 2001. Four (4%) procedures were aborted secondary to an inability to pass the endoscope through a tight nasal vault. The authors' indications for performing TNE are summarized in Table 1. Of the 96 completed examinations, significant findings were noted in 44% (see Table 2).

Seventy-nine patients underwent TNE as a screening examination for the evaluation of reflux, globus, and/or dysphagia. The most common findings in the esophagus were esophagitis, Barrett's metaplasia, and hiatal hernia. Eight patients underwent TNE for biopsy of a suspicious lesion in the laryngopharynx that was initially identified using TFL. Five (63%) of these 8 biopsies resulted in a diagnosis of squamous cell carcinoma; 1 biopsy found a laryngeal fungal infection, and 2 were nondiagnostic.

Two patients underwent TNE for the evaluation of a suspected foreign body. Both examinations were negative. These patients eventually underwent rigid esophagoscopy in the operating room under general anesthesia (both negative). One patient with junctional epidermolysis bullosa underwent TNE with placement of a guidewire through a tight esophageal stricture under direct vision. The guidewire was then withdrawn from the nasal cavity and brought out through the mouth. The patient underwent successful dilation of the stricture over the guidewire with Savary dilators. One laryngectomy who had failure of an indwelling trachea-esophageal puncture underwent successful replacement under direct vision with the TNE. Previous attempts at blind replacement were unsuccessful.

Minor complications occurred in 4 patients. Three of 96 patients had self-limited anterior epistaxis. The bleeding was controlled with direct pressure and no

**Table 2.** TNE findings (N = 96)

Finding	N (%)
Esophagitis	19 (20%)
Barrett's metaplasia	6 (6%)
Carcinoma	5 (5%)
Hiatal hernia	4 (4%)
Stricture	4 (4%)
Patulous gastroesophageal junction	3 (3%)
Esophageal web	3 (3%)
Esophageal diverticulum	2 (2%)
Tracheoesophageal fistula	2 (2%)
Esophageal polyp	1 (1%)
Bezoar	1 (1%)

packing. One patient had a self-limited vasovagal reaction that required no treatment.

## DISCUSSION

Transnasal esophagoscopy is an exciting new technology that allows fiberoptic visualization of the aerodigestive tract from the nasal vestibule to the gastric cardia. Our initial experience with the endoscope demonstrates that the examination is easily performed, well tolerated, and safe. In our practice, it has replaced the barium swallow as a screening examination of the esophagus in patients with reflux, globus, and dysphagia. It is also useful to obtain biopsies of lesions in the laryngopharynx, proximal trachea, and esophagus and can be used as a screening examination for second primaries in patients with carcinoma of the head and neck. Various other procedures can also be facilitated by this device such as the use of Savary dilators or the passage of feeding tubes under direct vision. Future uses for TNE will become apparent as more procedures are performed and more experience is acquired.

## CONCLUSIONS

TNE is well tolerated by patients with topical anesthesia alone. It is performed with the patient upright in the examination chair similar to TFL. No sedation or patient preparation is required. The endoscope's images are superior to most other endoscopic instruments, and biopsies of the laryngopharynx and/or the esophagus may be obtained. In-office TNE has replaced radiographic imaging of the esophagus for our patients with reflux, globus, and dysphagia.