Seeing is Believing!

GI Debate
Transnasal Endoscopy (TNE) Versus Esophagogastroduodenoscopy (EGD)

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Objectives

1) Understand the anatomical regions visualized by TNE and EGD and how each modality contributes to aerodigestive evaluation.

2) Compare the technical approaches and patient experiences of TNE and EGD, including sedation requirement and procedural settings.

3) Evaluate the diagnostic capabilities and limitations of TNE and EGD.

4) Assess the clinical scenarios where TNE may be preferred over EGD and vice-versa.

When you have an issue, you get some tissue!

International Journal of Pediatric Otorhinolaryngology
Volume 193, June 2025, 112367

Esophageal pathology and the aerodigestive triple endoscopy for pediatric recurrent croup

Stephen Liangtjan Trisno [a], Michael Carver [b], Douglas Sidell [c d], Seema Khan [a]

Home | JAMA Otolaryngology–Head & Neck Surgery | Vol. 139, No. 9

Original Investigation

Prevalence of Eosinophilic Esophagitis in Children With Refractory Aerodigestive Symptoms

Courtney A. Hill, MD[1]; Jyoti Ramakrishna, MBBS, MD[2]; M. Shannon Fracchia, MD[3] ; et al

Seminars in Pediatric Surgery
Volume 30, Issue 3, June 2021, 151064

Current management of aerodigestive foreign bodies in children

Ian N. Jacobs [a], Kris R. Jatana [b]

Aerodigestive Sequelae and Triple Endoscopy after Congenital Tracheoesophageal Fistula Repair in Children

Whitney Jin, BA[1,2], Eric H. Chiou, MD[3], Shailendra Das, MD[4], Kathleen E. Hosek, BS, MS[5], and Elton M. Lambert, MD[1,2]

Chapter

Acquired and Congenital Esophageal Stricture Management in the Aerodigestive Patient

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DOI: 10.1007/978-3-030-86354-8_22-1

Transnasal Endoscopy (TNE)

Authors: Vrinda Bhardwaj, MD, Amornluck Krasaelap, MD, Daniel Duncan, MD, and the Aerodigestive SIG NASPGHAN

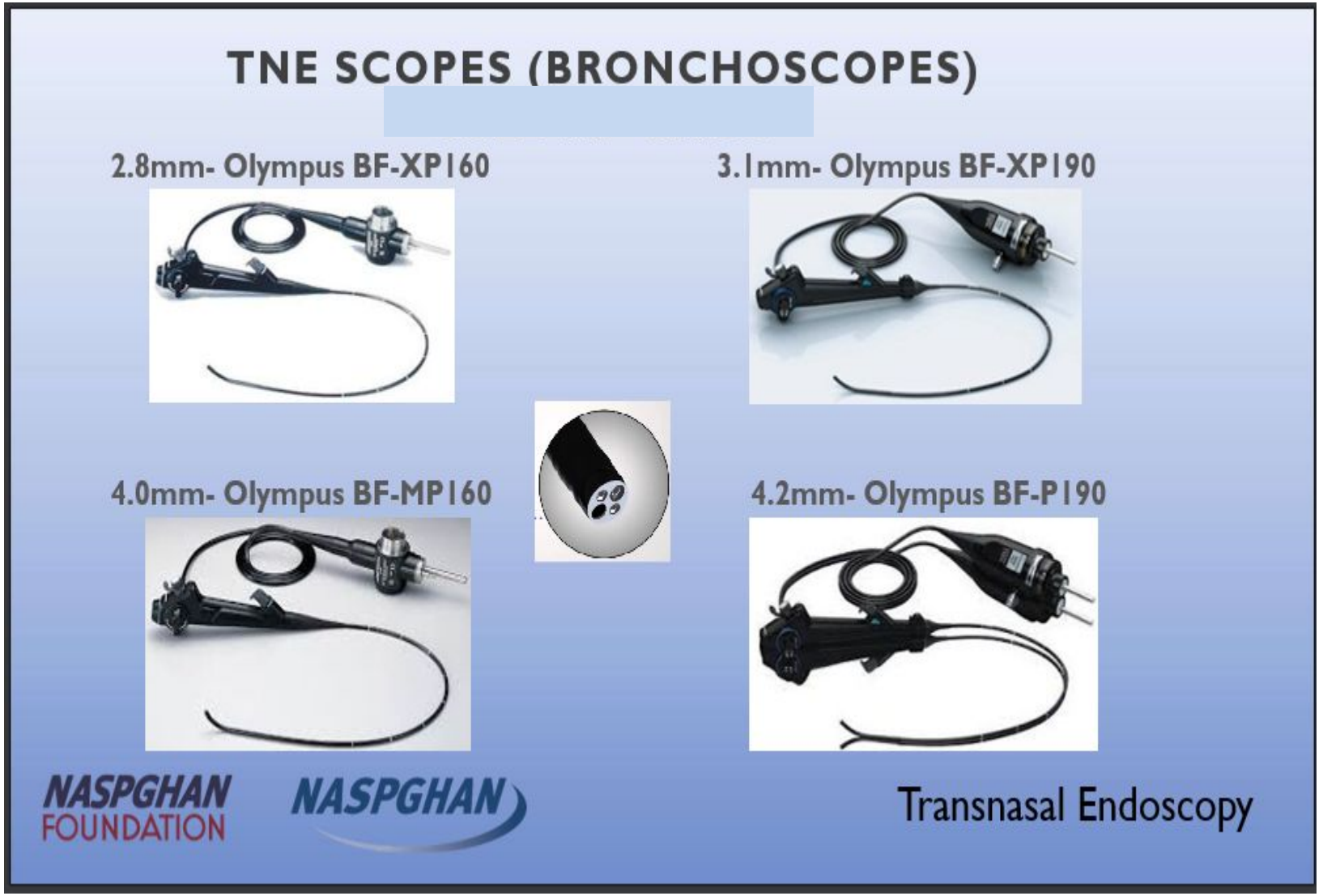
TNE in Clinical Practice

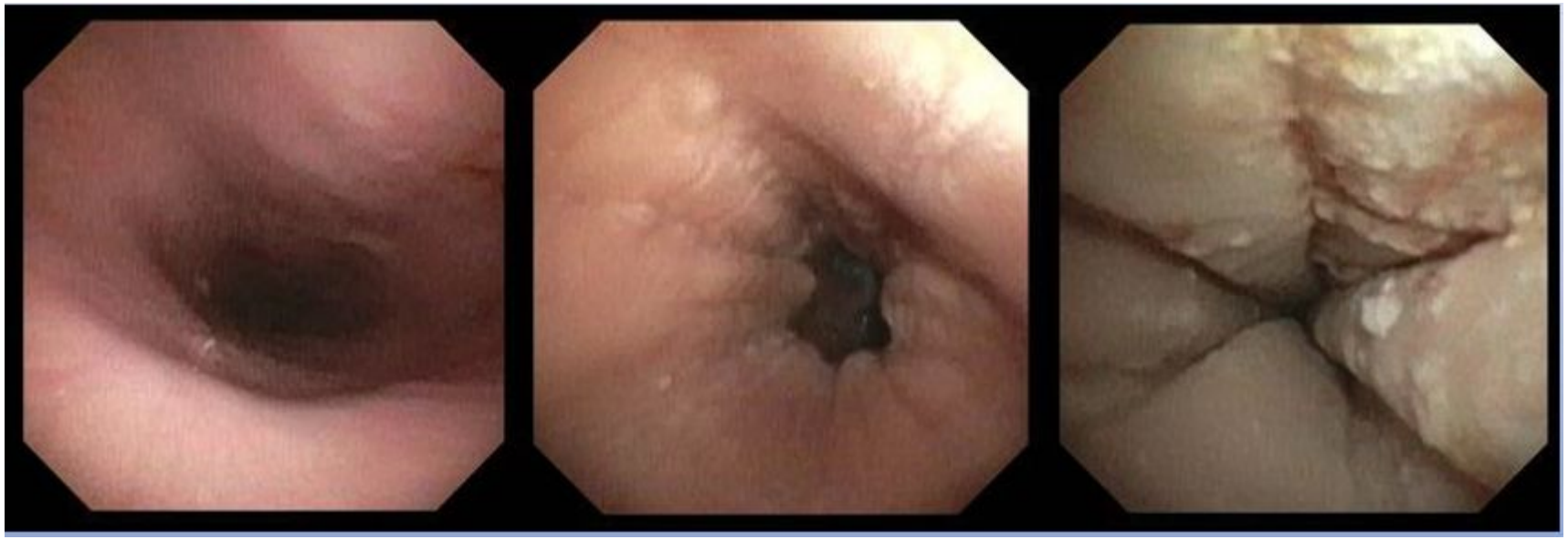
- Pre-operative visit
  - Child Life assistance
  - Review what to expect
  - Obtain consent
  - Try out virtual reality goggles
- Transnasal endoscopy
  - Time out
  - Lidocaine spray
  - Put on virtual reality goggles
  - Complete procedure- 3-10 minutes
    - 4 proximal and distal biopsies
  - Popsicle given
  - Discharge instructions given

Single Dial
Suction/ Air – one at a time
Water – available for push

Length- 60cm
Working channel 1.2- 2.8mm

Gastroscope (EvoEndo)
OD- 3.5mm
Length 85-110cm
Working Channel 2.0 mm





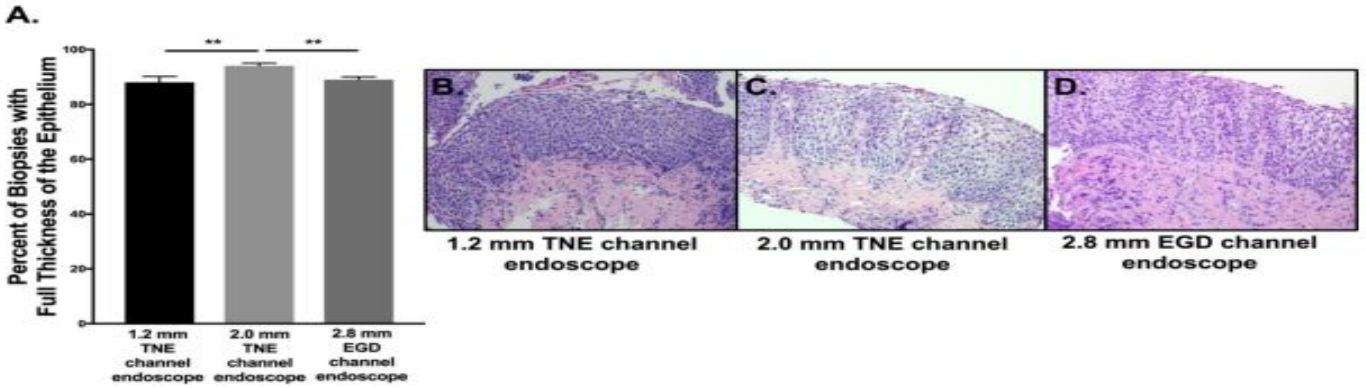


Figure 6:
A) Percent of esophageal biopsies with full thickness of the epithelium obtained by transnasal endoscopy (TNE) with 1.2mm biopsy forceps (2.8–3.1mm TNE), 2.0mm biopsy forceps (4.0–4.9mm TNE), and by esophagogastroduodenoscopy (EGD) with 2.8mm biopsy forceps. B) Representative images of esophageal biopsies obtained from 1.2mm biopsy forceps, C) 2.0mm biopsy forceps, D) 2.8mm biopsy forceps.

Clin Gastroenterol Hepatol. 2019 November ; 17(12): 2455–2462. doi:10.1016/j.cgh.2019.01.023.

Esophagogastroduodenoscopy (EGD)

- Flexible endoscope
  - 100 cm long, 8-10 mm in diameter
  - Per oral
  - Light, camera and 2.8 mm working channel
    - Biopsy forceps, graspers, cautery, dilations
    - Esophagus, stomach and 1st/2nd portions of the duodenum
- Considerations
  - Requires sedation/general anesthesia
  - No/limited visualization of nasal cavity, oropharynx, upper esophageal sphincter area
  - More costly

EGD in Clinical Practice

- Patient arrives (outpatient surgery center/OR)
- Preop registration
  - Change into gowns
  - Pregnancy testing when indicated
- Procedure and anesthesia consent
- Transport into room
- Anesthesia induction
- Procedure time
- Extubation
- Recovery in PACU
- Discharge

Sedation, Patient Tolerance and Scope size

Aspect	Esophagogastroduodenoscopy (EGD)	Transnasal Endoscopy (TNE)
Procedure Route	Oral insertion through the mouth	Nasal insertion through the nose
Sedation/Anesthesia	Usually requires general anesthesia or deep sedation;	Often performed with topical lidocaine
Patient Tolerance	Requires sedation and tolerated well under anesthesia	Better tolerated awake due to smaller scope and less gag reflex stimulation
Scope Size	Larger diameter (typically 8-10 mm)	Smaller diameter (2-4.5 mm)
Visualization Quality	High-quality imaging, ability to perform detailed examination	Good visualization, sometimes limited by smaller scope and angle

Diagnostic Capabilities, Complication risk and usage

Diagnostic Capabilities	Excellent for diagnosis and therapeutic interventions including biopsies, polyp removal, dilation, etc.	Diagnostic biopsies and esophageal brushing can be done
Biopsy Capability	Yes, multiple biopsies can be taken	Yes, multiple biopsies can be taken
Therapeutic Use	Can perform interventions (dilation, foreign body removal, hemostasis)	Limited therapeutic capabilities, mainly diagnostic
Procedure Duration	Usually longer due to sedation and therapeutic steps	Typically shorter due to topical sedation and fewer interventions
Complications Risk	Higher risk due to anesthesia and larger scope	Lower risk, topical anesthesia reduces anesthesia-related risks
Use in Emergency Situations	Preferred for urgent interventions	Less suitable for emergencies needing therapeutic action

Costs and Limitations

Cost & Resources	Higher cost due to anesthesia and operating room usage	Lower cost, can be done in outpatient setting
Limitations	Requires anesthesia, longer recovery, higher risk in some patients	Limited therapeutic use, smaller working channel, may not reach beyond proximal duodenum
Ideal Patient	Children requiring full diagnostic and therapeutic evaluation	Children who need minimally invasive diagnostic evaluation and better tolerance

EGD or TNE???

- 7 yo patient with subglottic stenosis, needs endoscopy to follow up on treatment efficacy for GERD
- 10 yo EA-TEF off of PPIs
- 17 yo female with abdominal pain and esophageal dysphagia
- 12 yo autistic male with refusal of solid foods and vomiting

In Summary

- **EGD** offers **comprehensive diagnostic and therapeutic** capabilities with high-quality imaging but requires **general anesthesia** and carries a higher cost.
- **TNE** provides a **minimally invasive, well-tolerated** alternative for **diagnostic biopsies and esophageal brushing** with topical anesthesia, shorter procedure time, and lower risk.
- **Choice depends on clinical need:**
  - Use **EGD** for full evaluation and therapeutic interventions.
  - Use **TNE** for less invasive diagnostic assessment, especially in patients where sedation risks are higher or those who require repeated GI evaluations.
- Both methods are valuable