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Preliminary Experiences of Trans Nasal Upper Esophagoscopy (TNUE) by Using Nasopharyngolaryngoscopes in LPRD Patients in Outpatient Settings

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Abstract

The purpose of study was to report the role of Trans Nasal Upper Esophagoscopy (TNUE) in the evaluation of LPRD (Laryngopharyngeal Reflux Disease cases). The 20 patients till now selected for the study who underwent TNUE in an outpatient setting without conscious sedation with informed consent. Upper esophagus mucosal changes studied and its role for LPRD management. Here we share our preliminary experience and results with this study.

Keywords: Trans nasal upper esophagoscopy; Nasopharyngolaryngoscope; Laryngopharyngeal reflux disease; Outpatient setting

Introduction

Examinations below the level of pyriform sinus are important in management of LPRD (Laryngopharyngeal Reflux Disease). As an otorhinolaryngologist, we are familiar with anatomical knowledge of esophagus along with transnasal fiberoptic laryngoscopes procedure which we are doing routinely in outpatient settings. Small caliber of flexible endoscopes with excellent image quality and recording facility allow us to examine upper third of esophagus without conscious sedation of patients in the same sitting of laryngopharyngeal examination.

Materials and Methods

The 20 cases for this study were selected till now from outpatients department of otrhinolaryngology [1]. These cases were subjected to specific questionnaires as per reflux symptoms index and scored accordingly [2] (Table 1). Inclusion criteria for the selection of cases were patients:

1. Aged 20 years or more but less than 60 years.
2. Had not taken proton pump inhibitors or histamine blocker for last 4 weeks.
3. Score 13 or above in reflux symptoms index [3].

Patients were excluded from this study who.

4. Had known congenital conditions related to esophagus and larynx?
5. Had history of foreign body esophagus.
6. Were smokers or history of other substance abuse?
7. Had recent endoscopies evaluations (past 1 year).
8. Were Pregnant.
9. Were suffering from diabetes mellitus and with heart ailments.
10. Do not fit into inclusion criteria.

Transnasal upper esophagoscopy (TNUE)

Flexible nasopharyngolaryngoscope (Karl storz) was used for this study. The length of fiber optic cable is 12 inches or 30 cm with outer diameter 3.8 mm only (Figure 1,2).

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Figure 1: The length of fiberoptic cable is 12 inches or 30 cm.

Figure 2: The length of fiberoptic cable is 12 inches or 30 cm with outer diameter 3.8 mm only.

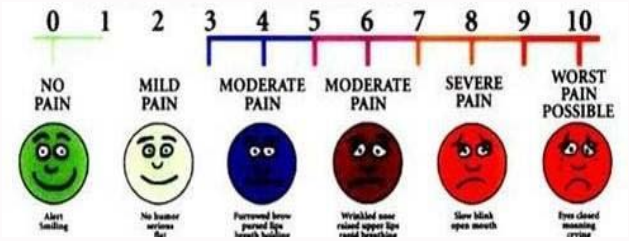

Figure 3: Visual Analogue Scale (VAS).

Figure 4: Normal esophageal mucosa with aortic bulge seen at distal end.

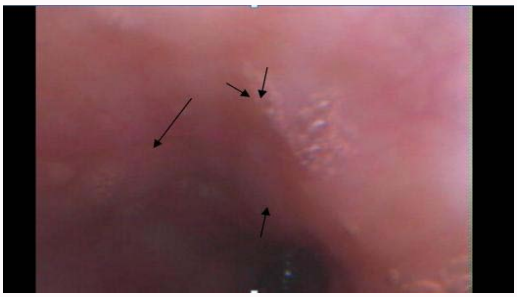

Figure 5: Small multiple localized ulcerations seen.

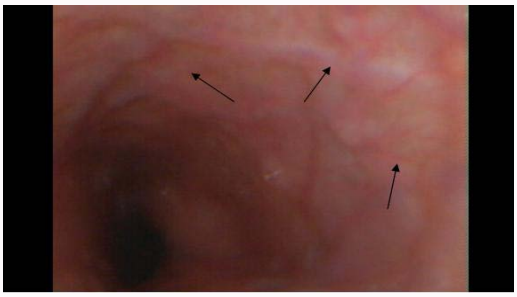

Figure 6: Engorged vessels in esophageal mucosa seen.

Cases were asked to sit with slight neck flexion. Fiber optic nasopharyngolaryngoscope was introduced through nasal cavity. After examination of nose, naso-oro- and laryngopharynx, tip of nasopharyngolaryngoscope was made to rest on post cricoids area and patients were asked to swallow. It was kept in mind while performing TNUE (Transnasal Upper Esophagoscopy) that if any suspicious lesion were found or any lower esophageal dysfunction were suspected, then patient were asked for complete upper gastrointestinal endoscopy.

Visual analogue scale (VAS)

To assess patient's subjective discomfort, a Visual Analogue Scale (VAS) was used for patient's satisfaction and during TNUE (0, no pain; 3-5, moderate pain; 10, worst pain possible) (Figure 3).

Preliminary experience

While doing TNUE on 20 selected cases, we found it very useful for diagnosis and management of LPRD. Our experiences with this study shows several advantages over few disadvantages as mentioned below.

Advantages:

1. One stop procedure - due to simple technique without any conscious sedation, patient's upper digestive tract were also examined along with complete pharyngeal examination in one go.

2. It was observed that visualization of esophageal mucosa was better when xylocaine spray have not been used in patients. Intranasal application of local spray of xylocaine causes more mucoid secretions from upper respiratory mucosa and excess salivary secretions. The trickling of these secretions in the esophagus while performing TNUE leads to difficulty in visualization of esophageal mucosa.

3. Patient acceptance patient were able to accept small caliber (3.8 mm) flexible scopes to pass through their nose in sitting positions and also swallow it without much discomfort.

4. Excellent recording facility of high definition videos in this innovative technology helps to localize the lesion or pathology if found any in esophageal mucosa of upper one third of esophagus.

5. Patients without much LPRD changes in laryngophaynx and larynx have granulation and congestions of upper and mid esophagus which can be visualized easily.

6. Any patients with suspicious lesion seen in esophageal mucosa or accumulated food particles in esophageal lumen which may point towards lower esophagus and below pathology, were referred to gastroenterologist for complete upper GI endoscopy and further management.

Figure 7: Fine granulations seen in most areas of esophageal lumen.

Figure 8: Food particles seen at the distal end of this image (severe reflux).

Disadvantages

1. Cricopharyngeal junction and adjacent area just below it were not visualized properly with this study as insufflations pressure is not present.

2. Salivary and other nasopharyngeal secretions (if excessive) blocks view of thin caliber flexible nasopharyngoscopes.

3. Certain patients with clinical suspicion of foreign body esophagus and diverticulum should not be visualized by this technique in view of lower displacement and risk of esophageal perforations.

Results

Out of 20 selected cases (14 male and 6 female) with reflux symptom index greater than or equal to 13, esophageal mucosa were found to be congested in 12 cases with fine granulations in 9, 2 cases had mucosal ulcerations (who were advised UGI endoscopy later and found to have esophagitis). The 8 cases didn't show any frank abnormality in esophageal mucosa. Minor ulcerations, esophageal rugae as well as granulations of esophageal mucosa can be seen easily with this method (Figures 4-8).

While investigation, 1 case of dysphagia of middle age male patient with LPRD symptoms, we encounter a growth at middle of esophagus and hence referred for biopsy as no separate channels were present for biopsy instruments in the mentioned flexible laryngoscopes we were using. VAS indicated mild to moderate range (3-5) pain or discomfort while performing TNUE.

Discussion

Technical advancement of fiber optical instrumentations has practically replaced the rigid endoscopes in most of the clinical scenario except for few indications. The incompatible feature of rigid endoscopes and traditional flexible esophagoscope gives advantage to our flexible thin nasopharyngoscopes to do TNUE in an outpatient setting of Otorhinolaryngology. The innovative technology used here has shown to be safe, cost effective and easy to perform. It is here to help large number of patients to be treated fast with least trauma and discomfort in LPRD cases.

We are now quite familiar with endoscopic intranasal anatomy and regularly performing office-based procedures without needing conscious sedation. TNUE with nasopharyngoscopes allows endoscopic visualization of the aerodigestive tract from the nasal vestibule to the upper esophagus and 'one stop' service in investigations thus avoiding delays, costs and risks of contrast studies and rigid endoscopy [4-9].

Table 1: Reflux Symptoms Index.

Reflux Symptoms Index
Within the last month, how did the following problems affect you?
0-No problem
5- Severe problem
1. Hoarseness of voice- 0 1 2 3 4 5
2. Clearing your throat- 0 1 2 3 4 5
3. Excess throat mucous or post nasal drip- 0 1 2 3 4 5
4. Difficulty in swallowing food, liquid and pills- 0 1 2 3 4 5
5. Coughing after you ate or lying down- 0 1 2 3 4 5
6. Breathing difficulty or chocking episodes- 0 1 2 3 4 5
7. Troublesome or annoying cough- 0 1 2 3 4 5
8. Sensation of something sticking in your throat or lump in throat- 0 1 2 3 4 5
9. Heartburn, chest pain, indigestion or stomach acid coming up- 0 1 2 3 4 5

Conclusion

Innovative technology and revolutions in field of endoscopy also open new technique as well as more exposure and expansion of the field for study. TNUE can be useful in evaluation and early management of LPRD cases. As an otolaryngologist, we should have a flexible endoscopes of length around 50 cm to 60 cm (To examine whole length of esophagus) with outer diameter not exceeding 5 mm to 6 mm with separate channels for biopsy. Insufflations pressure is mandatory for visualization of cricopharyngeal and lower esophageal sphincter area. It is one of the best tools for routine screening purpose of pathology involving esophagus and upper airway.

References

1. Ayazi S, Hagen JA, Zehetner J, Lilley M, Wali P, Augustin F, et al. Loss of alkalization in proximal esophagus: A new diagnostic paradigm for patients with laryngopharyngeal reflux. J Gastrointest Surg. 2010;14(11):1653-9.

2. Belafsky PC, Postma GN, Koufman JA. Validity and reliability of the reflux symptom index (RSI). J Voice. 2002;16(2):274-7.

3. Chung EJ, Rho YS, Jung ZKY, Kim JW, Lee SW. The role of transnasal esophagoscopy in ENT office: A prospective, multicenter study in Korea. Clin Exp Otorhinolaryngol. 2014;7(2):123-5.

4. Postma GN, Bach KK, Belafsky PC, Koufman JA. The role of transnasal esophagoscopy in head and neck oncology. Laryngoscope. 2002;112(12):2242-3.

5. Aviv JE, Takoudes TG, Ma G, Close LG. Office-based esophagoscopy: a preliminary report. Otolaryngol Head Neck Surg. 2001;125(3):170-5.

6. Postma GN, Cohen JT, Belafsky PC, Halum SL, Gupta SK, Bach KK, et al. Transnasal esophagoscopy: revisited (over 700 consecutive cases). Laryngoscope. 2005;115(2):321-3.

7. Aviv JE. Transnasal esophagoscopy: State of the art. Otolaryngol Head Neck Surg. 2006;135(4):616-9.

8. Andrus JG, Dolan RW, Anderson TD. Transnasal esophagoscopy: A high-yield diagnostic tool. Laryngoscope. 2005;115(6):993-6.

9. Price T, Sharma A, Snelling J, Bennett AM, Qayyum A, Bradnam T, et al. How we do it: The role of trans-nasal flexible laryngo-oesophagoscopy (TNFLO) in ENT: One year's experience in a head and neck orientated practice in the UK. Clin Otolaryngol. 2005;30(6):551-6.