OFFICE BASED TRANS NASAL ESOPHAGOSCOPY, AND ITS ROLE

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ABSTRACT : *Trans Nasal Esophagoscopy (TNE) - a new concept to visualize the esophagus in office practice has obviated the conventional rigid esophagoscope, which is a cumbersome, time consuming procedure and sometimes associated with complications like perforation. Many surgeons in the West using flexible endoscope after air insufflation have tried this procedure. We fabricated a new gadget for the purpose of air insufflation in collaboration with the department of biomedical engineering, Apollo hospitals, Chennai which substitute oxygen insufflation through central supply or through the flow meter connected to an O₂ cylinder. In this article we have discussed various uses of the procedure in diagnosis & therapeutic application in an E.N.T office practice and also the unique technique of air insufflation with the new gadget.*

Key Words : *Transnasal esophagoscopy, Flexible esophagoscopy, Panendoscopy, Transnasal Endoscopy*

INTRODUCTION

The revolution in bronchoesophagology after the advent of the fibreoptic endoscopes is phenomenal. Technical advances in fibreoptic instrumentation have practically replaced the rigid endoscopes except for very few indications. Esophagoscopy via nares is relatively a new concept. Normally conventional rigid esophagoscope and fibreoptic flexible esophagoscope can't be passed through the nares because of the incompatibility of the size. The small diameter soft flexible laryngoscopes and bronchoscopes can be passed through the nares easily except the bigger diameter flexible fibreoptic esophagoscopes. This promising innovative technology which has shown itself to be effective in our short series of cases, is safe, cost effective and easy to perform. So far it appears, the new technology is here to help a number of patients to be treated fast with least trauma and discomfort, is going to be the mainstay in future.^{1,2}

The office based conventional esophagoscopy requires lot of preparations and major setup viz. a separate endoscope room or a minor theatre. But flexible endoscopy of hypo-pharynx has long been considered as office based procedure. As of now, an otolaryngologist's ability to visualize below the level of pyriform sinus is restricted. Gastroenterologist's consultation¹ and radiological investigations are mandatory to complete an evaluation for dysphagia in a case of head and neck malignancy.

The esophagus is a collapsed tube, which opens only

when solid or liquid food passes through by gravity, dynamic segmental contractions and motility of the esophagus. To visualize the lumen, air insufflation is necessary. Familiarity of rigid scopy and anatomy of esophagus makes TNE a simple procedure for an otolaryngologist. Thus office-based panendoscopy and many diagnostic and therapeutic procedures becomes possible without any conscious sedation and hassle. TNE procedure is very useful and handy as a diagnostic and therapeutic tool. In this article, we are highlighting the methodology of TNE, air insufflation pump and a short review of literature.

CLINIC SET UP:

- 1) Flexible Naso-Laryngoscopy (Machida FLT-5) / Bronchoscope (Machida 6TL W2) With Working Channels
- 2) Examination Couch
- 3) Improvised Portable Battery Operated Electronic Pump, (Substituted for conventional O₂ insufflation through flow meter)
- 4) Electrical Suction Apparatus
- 5) A thin plastic tube connected to the electronic pump and the free end is connected to the suction channel of the endoscope (Fig. 1).
- 6) Single chip-integrated camera, TVmonitor, videocassette recorder (optional)

Fabrication of Electronic Insufflation Pump :

The pump is the most essential and key instrument to

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Fig. 1 : Schematic diagram of the setup

perform this procedure. The electrical pump and circuit connections are planned in collaboration with the Bio medical engineering department of Apollo Hospital. The electrical pump is salvaged from a discarded self-measuring BP apparatus. The pump works on a dry rechargeable small 6 volts battery commonly used in the emergency lamps. The terminals of the battery are connected to the terminals of the electronic pump. A socket and jack is connected to the battery terminus and the jack in turn is connected to a small charging unit separately which is connected to mains. Whenever the battery needs recharging, the jack is plugged to the socket and it can be disconnected when not required. The battery is charged over night for the next day use of the pump.

A nozzle provided in the electronic pump is connected to the working channel of the Flexible Naso-Laryngoscopy (Machida FLT5) or Bronchoscope (Machida 6TL W2) by a one meter slender thick plastic tube. An On/Off switch is connected in the circuit for intermittent use of the electronic pump. (*see diagram*)

In office practice where the central O₂ supply and /or O₂ cylinder with a flow meter is unavailable, the new air insufflating electrical pump described above can be substituted in the set-up. The newly fabricated pump is simple, portable, cost effective, efficient and less cumbersome.

Endoscopy Procedure :

Preparations for the procedure are very simple. As far as possible, patient should be fasting for a few hours prior to the endoscopy. The nose, nasopharynx, oropharynx are sprayed with 4% Lignocaine liberally. The scope should be lubricated with 2% Lignocaine gel. After 5-10 minutes, patient is made to lie down on the couch, (some surgeons

prefer to do it in sitting or reclining posture) but we prefer the patient to be in the relaxed supine posture without any sedation.^{1,2}

The flexible Naso-laryngoscope (Machida FLT 5) or the Bronchoscope (Machida 6TLW2) is passed through the left or right nares whichever is patent. The endoscope is passed down oropharyngeal isthmus with ease. Sometimes fogging of the endoscope tip blurs the vision. This can be corrected by asking the patient to swallow and the saliva forms a film over the lens tip. The blurred vision vanishes and doesn't require antifog agent. Now a birds eye view of the naso pharynx, posterior part of tongue, oropharynx, supraglottic larynx, both pyriform sinuses and a possible pooling of saliva over post cricoid area obtained. Then the endoscope is directed to the left pyriform sinus and at this juncture the patient is asked to phonate and swallow or belch. The flexible scope is advanced down the cricopharynx and simultaneously air insufflated by switching on the pump. Suction and air insufflation can be applied simultaneously. Esophagus opens up and one can visualize any lesion in the middle 1/3 of the esophagus, when flexible laryngoscope is used or one can reach the cardiac sphincter and the whole length of esophagus can be visualized when a flexible bronchoscope is substituted.

Our experience :-

In out patient set-up, TNE procedure was done on 50 patients who presented with aero digestive disorders and we diagnosed a case of growth esophagus of middle 1/3 which turned out to be a malignant and another case of benign stricture esophagus. Other 16 cases showed esophagitis and posterior laryngitis, 1 case of Barret's esophagus, remaining thirty-two patients were normal. In over 1000 Trans Nasal laryngoscopy procedures done by the senior author in the outpatient, only 50 cases were taken up for TNE procedure.

During the routine diagnostic flexible fibreoptic endoscopy we have started doing TNE whenever it is indicated. TNE procedure replaces the usual rigid / flexible esophagoscopy in the consulting room.²

Other uses:

Pan Endoscopy TNE is useful in obviating the standard panendoscopy, which is mandatory in screening to locate the lesion in occult primary cases. With the help of this

we are able to see the nasopharynx, larynx, tracheo-bronchial tree, hypopharynx and the esophagus in one-go, which is most comfortable and cost effective to the patient. This procedure can be done in consulting room with ease and is well tolerated. Biopsies can be done from the oesophagus during air insufflation which is an added advantage.^{2, 4,5}

Secondary Tracheo Esophageal Puncture

In an outpatient setup TNE procedure will facilitate to perform Tracheo Esophageal Puncture (T.E.P) to introduce Blom Singers device to rehabilitate the total laryngectomy patients. The entire procedure is performed under video monitoring.^{3,5,7}

In some patients with the prosthesis getting dislodged and if significant period of time is lost and it becomes difficult to reinsert. In such cases, TNE is useful to reinsert the prosthesis. Also the flexible endoscopes is used to examine the pharyngo esophageal segment for any narrowing or recurrence of the growth.

Stricture Dilatation

It may not be possible to perform TNE in all patients but it is tailor-made to suit few individuals in case of a minimal benign esophageal stricture. The technique is superior especially when blind dilation can be hazardous to few patients. With Transnasal flexible endoscope in esophagus, a vascular guide wire is introduced through the suction port. Under direct vision the scope can be passed safely through the strictures. The scope is removed leaving the wire passing through patient's nostril. The guide wire is brought out per orally and then serial Savary dilators passed over the wires to achieve adequate dilatation of the strictures.⁶

Foreign Body Retrieval

TNE is useful to visualize and locate the exact site of the foreign body in the esophagus. Small sized foreign bodies stuck in the wall of the esophagus can be removed without traumatizing the mucosa.

Excision / Tissue Ablation

Flexible ND-YAG or Pulse dye laser fibers can be passed through the biopsy channel and granulation tissues can be excised and fulgurated under direct vision with this device.

Naso Gastric Tube Insertion

In a few conditions, insertion of Naso gastric tube can be

very difficult. But under direct vision through this methodology, feeding tubes can be introduced safely and with ease.

CONCLUSION

TNE allows surgeons to perform a remarkable variety of procedures in the consultation room set up without any sedation. TNE is safe and well tolerated by the patients with topical anesthesia alone and without any sedation, which may replace radiographic imaging of the esophagus and conventional esophagoscopy in otolaryngology patients with reflux, globus and dysphagia. This procedure is comfortable and less traumatic especially in apprehensive and paranoid patients. This is our experience in 50 patients. The innovation of the pump made the procedure easy and successful. In our series there are no complications, but the patients during the procedure complain of aerophagy and gas in the stomach, which can be reversed by application of suction through the same port and or the patient is advised to belch after the procedure. One should be careful not to over insufflate air, lest it may cause embarrassment to the heart.

This is done in few centers abroad and it is in the teaching program too. So far there are no articles pertaining to the TNE in our country. We felt it is appropriate to highlight our technique, which will be beneficial to E.N.T. surgeons as well as patients. The purpose of this article is to describe the basic protocol necessary to carry out TNE in an outpatient office set up and its usefulness.

It requires study in more number of cases to establish the usefulness of TNE in ENT practice. This is only a preliminary ongoing study and we hope more centers start doing TNE. Although our experience is currently limited, we feel this technique is valuable and safe for evaluation of naso oropharyngeal, laryngeal and esophageal lesions in office practice in unsedated patients.

REFERENCES

1. Aviv JE, Takoudes TG, Ma G, Close LG. Office-based esophagoscopy : a Preliminary report. *Otolaryngology Head Neck Surgery* 2001 ; 125 : 170-175.
2. Belafsky PC, Postma GN, Koufman JA, Daniels E. Transnasal esophagoscopy. *Otolaryngology Head Neck Surgery* 2001 ; 125 : 588 – 589.
3. Belafsky PC, Postma GN, Koufman JA. Replacement of a failed tracheoesophageal puncture (TEP) under direct vision. *ENT Journal*, 2001 ; 80: 862.

4. Gregory N. Postma, MD; Kevin K. Bach, MD; Peter C. Belafsky, MD, PhD; James A. Koffman, MD: The role of Transnasal Esophagoscopy in Head Neck Oncology, Laryngoscope 112:December 2002: 2242-2243
5. Oh CK, Meleca RJ, Simpson ML, Dworkin JP. Fiberoptic Examination of The Pharyngoesophageal Segment in Tracheoesophageal Speakers. Archives of Otolaryngology Head Neck Surgery 2002;128: 692-697
6. Postma GN, Belafsky PC, Koufman JA. Dilation of an esophageal stricture Caused by Epidermolysis bullosa. ENT Journal, Feb 2002: 86.
7. Singer MI, Blom ED., An endoscopic technique for restoration of voice after laryngectomy. Annals of Otol. Rhinology. 1980: 89; 529-533.

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CLINICOPATHOLOGICAL STUDY OF TUMORS OF HYPOPHARYNX

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ABSTRACT : Thirty cases of tumors of hypopharynx were admitted in ENT department of Rajendra Hospital, Patiala for clinicopathological study. Peak age incidence of tumours was seen in 6th decade of Life. Males were affected more than females (23:7). Alcohol consumption, smoking and poor oral hygiene were important predisposing factors responsible for the disease. Maximum number of cases the growth was seen in pyriform fossa (80%). Dysphagia, neck mass and throat pain were commonest symptoms. All cases were found to be histologically squamous cell carcinoma. Most of the patients presented in advanced stage with cervical lymphnode metastasis in 60% of cases.

INTRODUCTION

Hypopharynx is the longest of the three segments of the pharynx comprising of pyriform fossa, post-cricoid region and the posterior pharyngeal wall. Hypopharyngeal tumours have constitutively been one third as common as laryngeal tumours. Benign tumours are rare while malignant tumours are exclusively squamous cell carcinoma. Pyriform fossa tumours metastasize early to cervical lymph nodes. The pathological staging is useful for prognostic purposes and for dividing modality of treatment required (surgery or radiotherapy).

Robin (1983) found that incidence of tumours is more in males, whereas, in females post-cricoid malignancy predominates. Alcohol and tobacco are the principal carcinogens implicated in the malignancy of the hypopharynx. Most of the patients have already advanced tumours at presentation because capacity of the hypopharynx allows considerable tumour growth before the passage of food is hindered.

Early diagnosis is of utmost importance to have better results in treating hypopharyngeal tumours. So ENT surgeon should always be aware of the various modes of clinical presentation of tumours of this region so that disease can be diagnosed early and accordingly treatment can be started as soon as possible.

MATERIAL AND METHOD

This study was carried from 1999 to 2001 in Department of ENT and Department of Pathology, Medical College/

Incidence of Tumors of Hypopharynx at Various subsites

Subsite	No. of cases	Percentage
Pyriform Fossa	24	80.0
Post cricoid region	4	13.3
Posterior Pharyngeal	2	6.7
Total	30	100.00

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