Direct Laryngoscopy Using a Videogastroscope: Outcome of 119 Cases

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Abstract Direct laryngoscopy is an essential examination for supraglottic and laryngeal pathology. Fibreoptic or videolaryngoscope are not readily available. This study was designed to see the usefulness of Videogastroscope to evaluate laryngeal lesion instead of fibreoptic or videolaryngoscope. Patients with unsuccessful or unsatisfactory indirect laryngoscopic examination referred by ENT surgeons were examined using videogastroscope and anaesthetizing oropharynx and hypopharynx with lidocaine pharyngeal spray. Under direct supervision impressions including still and dynamic images were recorded. Study group comprised of 76 males and 43 females with age varying from 09 to 87 with mean age 44 years. Various abnormalities were detected among 74 (62.2 %) patients. Common pathologies were vocal cord polyps and nodules in 28, laryngitis and laryngeal ulcer in 16, supraglottic growth in 13 and pyriform fossa growth in 10. Direct laryngoscopy using videogastroscope is safe, effective and easily performed newer technique which might be very useful where indirect laryngoscopy is difficult and fibreoptic or videolaryngoscope is not available.

Keywords Videogastroscope · Laryngeal lesion · Direct laryngoscopy

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Introduction

Indirect laryngoscopy is the initial diagnostic tool for evaluation of larynx and hypopharynx. But direct laryngoscopy is required when laryngeal examination is unsuccessful, incomplete or unsatisfactory. Direct laryngoscopy can be performed by rigid or fibreoptic or videolaryngoscope. With the exception of videolaryngoscope, all other techniques have limitations of maneuverability, narrower field of vision and documentation. Direct laryngoscopy using fibreoptic or videolaryngoscope is of great value for making accurate diagnosis and planning proper treatment. It is flexible with a working channel allowing aspiration of secretion aiding adequate visualisation [1]. But it requires nasal anaesthesia as its insertion may not be possible in patients with severely deflected nasal septum and hypertrophied turbinate or other nasal pathologies. And the procedure may not be comfortable for many patients. Direct laryngoscopy using gastroscope was not done previously because of its larger diameter [2]. But newer gastroscopes are slim, with four way movement and ability of suction of secretion and blood. It has ability to give a magnified digital view of structures with option of documentation [3]. It is relatively more available. With this background the study was done to see the outcome of direct laryngoscopy using gastroscope.

Method

This was a prospective study conducted in a private diagnostic centre in Sylhet, a city at Eastern part of Bangladesh from September 2009 to May 2010. All consecutive patients, referred by ENT surgeons of the city for direct laryngoscopy using gastroscope, were enrolled in this study.

Patients in whom indirect laryngoscopy was incomplete, inconclusive or not possible because of overhanging or large epiglottis, non co-operation of patients were referred for this examination. Patients with strong gag reflex and unable to co-operate were excluded. Examination was done after informed and written consent of patients. Lidocaine pharyngeal spray was used to anaesthetize oropharynx and hypopharynx. The examination was done by a gastroenterologist using a gastroscope (Olympus GIF Q145, made in Japan with insertion diameter of 9.8 mm). Examination was undertaken in presence of ENT surgeon. Both still and dynamic images were recorded. The gastroscope was introduced with patient in left lateral position. Uvula, posterior part of tongue, aryepiglottic folds, valleculae, oropharynx, pyriform fossae, true and false vocal folds and their movement were observed. Findings in association with still and dynamic images were recorded. Biopsies were taken from lesions at epiglottis, pyriform fossae and hypopharynx whenever required or asked for.

Result

Total 123 patients were sent for examination of larynx during above mentioned period. Among them examination was not possible in four patients hence they were excluded from the analysis. Examination was completed in remaining 119 patients. Among them 76 (64 %) were male and 43 (36 %) were female. Their age varied from 9 to 87 years with mean age 44 years. Causes of consultation (Table 1) with ENT surgeons were hoarseness or change of voice, pain, irritation or discomfort in throat, dysphagia and for post treatment follow up of carcinoma of larynx, hypopharynx or pyriform fossae. Among the examined patients 45 (37.8 %) had no abnormality. Common abnormalities were vocal cord polyps and nodules in 28 (23.5 %) cases, supraglottic growth in 13 (10.9 %), laryngitis in 16 (13.5 %) and pyriform fossae growth in 10 (8.4 %). Other abnormalities hypopharyngeal growth 2, Reinkes' oedema 1, foreign body impaction 1, vocal cord palsy 2 and epiglottic polyp 1 constituted the rest. Findings are summarized in Table 2.

Table 1 Cause for consultation

Complain	Number	Percentage
Hoarseness of voice	83	69.74
Dysphagia	8	6.72
Foreign body sensation or irritation in throat	6	5.04
Pain in throat	12	10.08
Neck gland metastasis	6	5.04
Follow up (after treatment)	4	3.36

Table 2 Findings of direct laryngoscopy using videogastroscope

Findings	Number	Percentage
Normal	45	37.8
Vocal cord polyps	19	15.96
Vocal cord nodule	09	7.54
Laryngitis, vocal cord ulcers, leukoplakia	16	13.5
Supra-glottic growth	13	10.9
Pyriform fossae growth	10	08.4
Others	07	05.9

Discussion

Direct laryngoscopy is an important diagnostic procedure in ENT diseases. It is essential when indirect laryngoscopy is unsuccessful or unsatisfactory. It may be due to pooling of saliva, overhanging epiglottis, non co-operation from patient. Sometimes anterior part of vocal cords can not be well visualized. Direct laryngoscopy is then preferred for diagnosis and planning for management. This may be done by rigid laryngoscope, fiberoptic or videolaryngoscope [2, 3]. For rigid laryngoscope, difficulty in maneuvering, narrower field of vision and failure of documentation are its limitations. On the other hand fiberoptic or videolaryngoscope requires nasal anaesthesia. Severe septal deviation and hypertrophy of turbinate preclude its use. But insertion of gastroscope is easier. It can be moved in four ways to make better visualisation. It also allows suction of secretion and blood. It is highly useful to visualize laryngeal anatomy. But use of gastroscope for laryngoscopy is very new technique. In the study by Chandail VS, Jamwal V and Kanotra JP direct laryngoscopy was done in 52 patients referred by ENT surgeons in whom indirect laryngoscopy was incomplete or inconclusive with encouraging result. Among them various pathologies including vocal cord growth, vocal cord polyps and nodules, vocal cord palsy were seen in 31 patients [3] they also did not observe any complication. They conclude the use of gastroscope for direct laryngoscopy as a helpful although not alternative tool for direct laryngoscopy.

In this series out of 123 patients, examination was completed in 119. Lesions were found in 74 patients. Common lesions were vocal cord polyps and nodules, laryngitis and vocal cord ulcers, supraglottic growth and pyriform fossae growth. It provided the chance of taking biopsies from lesions at pyriform fossae and epiglottis. Failure to complete examination was in four cases only. Patients tolerated the procedure well and no complication except discomfort in throat and retching was encountered.

But it is not possible to see lesions in nasal cavity and nasopharynx. Biopsy from supraglottic growth was not taken to avoid aspiration.

It is to mention that videogastroscope is now being used for various natural orifice transluminal endoscopic surgical procedures (NOTES) in addition to upper gastrointestinal endoscopy. Reports of cholecystectomy, hepatic resection, splenic resections using videogastroscope and endoscopic instruments through transvaginal route are published in literature [4, 5]. This surgical procedure also provides the opportunity for performance of incisionless and scarless operations [6].

Videogastroscope is relatively easily available in our country. With this, lesions of larynx, hypopharynx, epiglottis, pyriform fossae and base of the tongue can be visualized effectively in most of the patients safely. So in developing country like us use of videogastroscope for detection of laryngeal lesions may be cost effective. It is to mention that with installation of one instrument detection of pathology of larynx and upper gastrointestinal tract could be done.

So from this study it may be concluded that gastroscope can be used to perform direct laryngoscopy successfully with no or minimum complication where fiberoptic or videolaryngoscope is not available.

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