Study of Cases of Laryngeal Pathology by Hopkin’s Endoscopy

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INTRODUCTION
Hoarseness is a significant contributor to patients referring to an otolaryngologist in today’s fast paced, high stress life. Vocal problems significantly influence and alter vocational, social and emotional aspects of the patient’s life. The prevalent lower socio-economic status, different food habits, smoking and alcohol habits, vocal habits, environmental factors and various social customs influence the incidence of various laryngeal pathologies. The diseases may range from benign to the most malignant conditions.

This study is carried out to-  
1. To find out the incidence of various laryngeal lesions and their demographical and etiological correlations.
2. To prove efficacy of Hopkin’s telescope for diagnostic ability in laryngeal pathology.

Hopkin’s Endoscopy
Laryngeal pathologies can be broadly classified into:

- Congenital Anomalies
- Benign Lesions
- Inflammatory Lesions
- Neoplasia
- Neurological lesions
- Traumatic Lesions.

Common laryngeal pathologies include Vocal Nodules, Vocal polyps, Vocal Fold Cysts Chronic Laryngitis, Vocal Fold Paralysis and Laryngeal Carcinoma. Prompt diagnosis of these conditions helps in better management of these patients and hence an improved prognosis (figure 1).

Figure: 1 common laryngeal pathology

Thus, Hopkin’s Endoscopy can be carried out for diagnosing such pathologies when:

- In cases of dysphonia, IDLE shows pathology that needs further evaluation
- When IDLE is not successful due to excessive gag reflex, tilted epiglottis, limited mouth opening etc.
- To find out extent of laryngeal/hypopharyngeal lesions.
To examine the hidden areas of larynx like ventricle, anterior commissure, subglottis, pyriform fossa and laryngeal surface of epiglottis.

Hopkin’s Laryngeal Endoscope is a Rod Lens Telescope incorporating long rods of glass separated by smaller air spaces. This contributes to a greater light transmission, better image resolution, wider field of view and image magnification.

The Hopkin’s Telescope is relatively lighter and provides 4 times the magnification. It measures 24.4 cm in length and 7.6 mm in diameter. Its front length diameter is 3 mm and rectangular light outlet on each side of lens measures 1x7 mm.

The fiber-optic light cable is attached to the light source (Xenon Cold Light Fountain) and helps in transmitting the light to the telescope.

Other components of the entire setup includes Colour video camera and a Coloured T.V Monitor with Digital Recording Facility (figure 2).

**Figure: 2 Hopkins video laryngoscopy units**

**MATERIALS AND METHODS**

A total of 100 patients presenting to the OPD of our hospital with laryngeal complaints underwent Clinical Examination, IDLE and Hopkin’s Telescopy of larynx. The patients ranged from 10 -78 years. A detailed history was taken in all the patients with special reference to drug allergy, gastritis, addictions and past history of surgery, intubation and trauma.

**Procedure**

The patient and the examiner sit facing each other.

The oral cavity and pharynx is topically anaesthetized with 10% Lidocaine spray. Examiner introduces the telescope into the mouth while holding the tongue with the other hand by gauze pieces. Without touching the anterior one third of the tongue, the endoscope is progressed towards the base of the tongue.

The telescope is gently introduced upto the oropharynx until the desired image of larynx is seen while the patient is asked to take deep breaths.

This technique allows visualization of the epiglottis, vocal cords, anterior commissure, arytenoids, aryepiglottic folds, pyriform fossae and sub-glottic area. The vocal cord mobility is assessed by asking the patient to say “ee”.

The pyriform fossae can be visualised for any pathology by directing the tip of telescope on both the sides.

The telescope is then gently withdrawn.

**RESULTS AND DISCUSSION**

The following observations were noted upon undertaking our study.

**Table 1 – showing gender distribution**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>61</td>
</tr>
<tr>
<td>Female</td>
<td>39</td>
</tr>
</tbody>
</table>

As shown in table 1, Males (61%) were more affected with the laryngeal pathologies as compared to females (39%). This may be attributed to the smoking and tobacco habits in males.

**Table 2 – Showing Presenting Complaints**

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Change of voice</td>
<td>85</td>
</tr>
<tr>
<td>Throat pain</td>
<td>07</td>
</tr>
<tr>
<td>Difficulty in swallowing</td>
<td>05</td>
</tr>
<tr>
<td>Difficulty in respiration</td>
<td>03</td>
</tr>
</tbody>
</table>

As shown in table 2 change of voice is the most common presenting symptom(85%). Group of patients presenting with respiratory difficulties had an advanced stage of cancer, suggesting lack of awareness amongst them. A group of them was due to stenosis after corrosive poisoning and a group of them having post traumatic laryngeal injury.

**Figure 3 – showing incidence of various laryngeal pathologies and diagnostic sensitivity of hopkin’s endoscopy**
Highest number of cases are of Carcinoma Larynx, contributing to 20% of cases, as most patients are from low socio-economic class where bidi smoking, tobacco chewing and alcohol consumption, the contributory factors to laryngeal carcinoma, is highly prevalent. Vocal nodules contribute to 16% of the cases, mainly teachers, hawkers and housewives, who are likely to have poor vocal hygiene. Major cases of vocal fold palsy in our study were Pulmonary Koch’s and COPD.

The above mentioned findings matched with that by Hopkin’s Endoscopy in 56% patients. 70 degree endoscopy is useful for visualisation of Anterior Commissure, SubGlottic area and laryngeal surface of Epiglottis.

**Figure 4 – showing age-wise distribution**

As shown above, the age group 41-60 years contributes highest number of cases (40%) as carcinoma are more common in older age groups while vocal nodule and vocal polyp are more common in younger age group due to vocal abuse/overuse in them. Chronic laryngitis is more common in older age groups due to GERD or smoking habits.

**CONCLUSION**

Hopkin’s Laryngoscopy is a very safe OPD procedure which gives larger, brighter and clear images as compared to indirect laryngoscopy and allows prompt diagnosis and aids in pre-operative assessment and post operative evaluation of patient with laryngeal disorder. Close circuit television can be attached with it by camera and thus the images can be visualised and stored. 70 degree endoscopy is useful for visualisation of Anterior Commissure, SubGlottic area and laryngeal surface of Epiglottis. Thus Hopkin’s Endoscopy is helpful to plan surgical intervention, for documentation, for teaching purpose, for patient understands and follow up review.

**REFERENCES**

2. Kadambaribatra, gulmotwani, p.c.sagar, ; functional voice disorder and their occurrence in 100 patients of hoarsness as seen on fibre-optic laryngoscopy. 2004; Indian journal of otolaryngology, april-june;vol.56.no.2,91-95.
7. Laryngeal examination: a comparison of mirror examination with a rigid lens system. Barker M,Dort JC