Fiberoptic laryngoscopy—experience in a private hospital

KMM Murshed¹, MHAR Talukder², H Rahman³, AKM S Uddin⁴

Abstract

Background: Laryngoscopy is a medical procedure used to obtain a view from nose to voice box (larynx). A thin, lighted tube is used to view the anatomical detail of the nose, nasopharynx, pharynx and voice box including motion of the vocal cords in fiberoptic laryngoscopy. Biopsy can also be taken from the suspected lesions. The procedure is usually performed as an OPD procedure under local anesthesia. Methodology: This retrospective, cross sectional observational study was conducted from June 2007 to October 2015 in a private hospital. Results: 12265 patients were examined and 625 patients underwent biopsy during the procedure. Among them male was 55.39% and female was 44.61%. Findings were revealed normal in 69.80%, benign like vocal cord polyp, nodule or Reinke's edema or others in 26-35 year age group. Male (55.39%) outnumbered female (44.61%). Smoking and or betel nut chewing were the predominant personal habits of the study population which probably due aggressiveness of the disease or inadequate or incomplete treatment. Conclusion: Fiberoptic laryngoscopy is a very effective in-office or outdoor procedure for examination of the nose, nasopharynx, pharynx and larynx and also for taking biopsy from the suspected lesions under local anesthesia. [J Shaheed Suhrawardy Med Coll 2015;5(2): 59-62]

Keywords: Fiberoptic laryngoscopy, larynx, biopsy.

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Introduction

Laryngoscopy is a visual examination of the nose, nasopharynx, pharynx and voice box (larynx) containing the vocal cords. The three kinds of laryngoscopy are: indirect laryngoscopy, fiber-optic (flexible) laryngoscopy and direct (rigid) laryngoscopy. The indirect procedure can be performed in a doctor’s office using a small hand mirror or a head light to examine the larynx and vocal cords. A rigid viewing tube may be passed through the mouth for a more thorough inspection, a procedure called rigid laryngoscopy, which is more often used as part of a surgical procedure in evaluating kids with stridor (a noisy, harsh breathing), removing foreign objects from throat and lower airway, collecting tissue samples (biopsies) and laser treatments under general anesthesia.

In flexible laryngoscopy, a thin, flexible optic tube (called a laryngoscope) is passed through the nose and guided to the larynx. Fiberoptic laryngoscopy (FOL) permits a physician to directly inspect the anatomical detail and function of the nose, nasopharynx, pharynx and voice box (larynx) under local anesthesia. FOL has been used to guide various in-office procedures for the last 3 decades. Since first described in the early 1970s, it is an effective procedure for discovering the causes of voice and breathing problems, throat or ear pain, difficulty in swallowing, narrowing of the throat (strictures or stenosis), airway blockages and taking laryngeal biopsy. FOL is an in-office procedure that can effectively be used for taking biopsy and for removing foreign body from hypopharynx and larynx.

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**Methodology**

This is a retrospective, cross sectional observational study conducted on the basis of FOL examination (using Olympus CV-150) and biopsy, as a OPD procedure in Labaid Specialized hospital, Dhannmodi, Dhaka from July 2007 to October 2015. Here, 12265 patients were examined in this period. Each patient was counseled about the procedure and verbal consent was taken for biopsy if needed. The procedure was done under 10% Lidocain spray. Biopsy was taken from 625 patients with suspected growth during the procedure. All the findings were properly written in prescribed data collection sheet and biopsy specimen were properly preserved in preservative material and was sent for histopathological examinations. Collected data were analyzed.

**Results**

A total number of 12265 patients underwent FOL. The age range was from 4 to 83 years. Majority of the patients were between the 16 to 65 years age groups with highest number in 26-35 years age group. Male (55.39%) outnumbered female (44.61%). Smoking and or betel nut chewing were the predominant personal habits of the patients examined. Foreign body sensation, feeling something in the throat and pain were the main complaints of the patients. Voice abusers or chemical and garments workers were main sufferers (40.48%) of laryngeal problems. FOL revealed suspected growth in 16.87% and benign looking lesions like vocal cord polyp, noduleor Reinke’s edema or others in 11.61% of the cases. In 69.80% of the patients, FOL revealed no abnormalities. A number of 348 diagnosed post treated cancer patients underwent follow up FOL and revealed recurrent growth in 143 (41.09%) cases. Biopsy was taken from suspected growth in 625 patients during the procedure. Among them, 54.24% were histologically positive for malignancy.

### Table I Age distribution of the patients (n= 12265)

<table>
<thead>
<tr>
<th>Year</th>
<th>&gt;5yr</th>
<th>5-15yr</th>
<th>16-25yr</th>
<th>26-35yr</th>
<th>36-45yr</th>
<th>46-55yr</th>
<th>56-65yr</th>
<th>66-75yr</th>
<th>76yrs+</th>
</tr>
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<tbody>
<tr>
<td>2007</td>
<td>10</td>
<td>169</td>
<td>174</td>
<td>202</td>
<td>195</td>
<td>446</td>
<td>26</td>
<td>27</td>
<td>292</td>
</tr>
<tr>
<td>2008</td>
<td>2</td>
<td>35</td>
<td>272</td>
<td>235</td>
<td>235</td>
<td>191</td>
<td>157</td>
<td>38</td>
<td>61</td>
</tr>
<tr>
<td>2009</td>
<td>2</td>
<td>53</td>
<td>280</td>
<td>378</td>
<td>311</td>
<td>325</td>
<td>295</td>
<td>52</td>
<td>40</td>
</tr>
<tr>
<td>2010</td>
<td>10</td>
<td>55</td>
<td>311</td>
<td>353</td>
<td>420</td>
<td>388</td>
<td>371</td>
<td>78</td>
<td>63</td>
</tr>
<tr>
<td>2011</td>
<td>2</td>
<td>26</td>
<td>234</td>
<td>385</td>
<td>365</td>
<td>275</td>
<td>252</td>
<td>71</td>
<td>27</td>
</tr>
<tr>
<td>2012</td>
<td>2</td>
<td>29</td>
<td>284</td>
<td>301</td>
<td>278</td>
<td>243</td>
<td>190</td>
<td>52</td>
<td>42</td>
</tr>
<tr>
<td>2013</td>
<td>1</td>
<td>27</td>
<td>221</td>
<td>252</td>
<td>226</td>
<td>259</td>
<td>123</td>
<td>32</td>
<td>35</td>
</tr>
<tr>
<td>2014</td>
<td>6</td>
<td>32</td>
<td>171</td>
<td>255</td>
<td>249</td>
<td>248</td>
<td>173</td>
<td>49</td>
<td>23</td>
</tr>
<tr>
<td>2015</td>
<td>5</td>
<td>25</td>
<td>147</td>
<td>208</td>
<td>210</td>
<td>165</td>
<td>77</td>
<td>35</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>292</td>
<td>2089</td>
<td>2541</td>
<td>2496</td>
<td>2289</td>
<td>2084</td>
<td>427</td>
<td>334</td>
</tr>
</tbody>
</table>

(0.23%) (2.38%) (17.03%) (20.71%) (20.35%) (16.99%) (3.48%) (2.72%)

### Table II Sex distribution of the patients (n= 12265)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of patients</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>898</td>
<td>576</td>
<td>322</td>
</tr>
<tr>
<td>2008</td>
<td>1307</td>
<td>697</td>
<td>610</td>
</tr>
<tr>
<td>2009</td>
<td>1769</td>
<td>878</td>
<td>891</td>
</tr>
<tr>
<td>2010</td>
<td>2095</td>
<td>1183</td>
<td>912</td>
</tr>
<tr>
<td>2011</td>
<td>1524</td>
<td>813</td>
<td>711</td>
</tr>
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<td>2012</td>
<td>1437</td>
<td>938</td>
<td>499</td>
</tr>
<tr>
<td>2013</td>
<td>1141</td>
<td>668</td>
<td>474</td>
</tr>
<tr>
<td>2014</td>
<td>1206</td>
<td>629</td>
<td>577</td>
</tr>
<tr>
<td>2015</td>
<td>888</td>
<td>412</td>
<td>476</td>
</tr>
<tr>
<td>Total</td>
<td>12265</td>
<td>6794</td>
<td>5471</td>
</tr>
</tbody>
</table>

(55.39%) (44.61%)

### Table III Personal habits of the patients (n=12265)

<table>
<thead>
<tr>
<th>Year</th>
<th>Smoking</th>
<th>Betel nut</th>
<th>Alcohol</th>
<th>Oth/Comb.</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>167</td>
<td>245</td>
<td>19</td>
<td>270</td>
<td>197</td>
</tr>
<tr>
<td>2008</td>
<td>236</td>
<td>218</td>
<td>21</td>
<td>306</td>
<td>526</td>
</tr>
<tr>
<td>2009</td>
<td>295</td>
<td>268</td>
<td>26</td>
<td>223</td>
<td>957</td>
</tr>
<tr>
<td>2010</td>
<td>321</td>
<td>343</td>
<td>21</td>
<td>256</td>
<td>1154</td>
</tr>
<tr>
<td>2011</td>
<td>327</td>
<td>294</td>
<td>33</td>
<td>255</td>
<td>615</td>
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<tr>
<td>2012</td>
<td>258</td>
<td>271</td>
<td>25</td>
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<td>618</td>
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<tr>
<td>2013</td>
<td>191</td>
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<td>656</td>
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<tr>
<td>2014</td>
<td>174</td>
<td>128</td>
<td>17</td>
<td>159</td>
<td>728</td>
</tr>
<tr>
<td>2015</td>
<td>103</td>
<td>199</td>
<td>11</td>
<td>210</td>
<td>365</td>
</tr>
<tr>
<td>Total</td>
<td>2072(16.89%)</td>
<td>2044(16.82%)</td>
<td>204(1.66%)</td>
<td>2109(17.19%)</td>
<td>5816(47.41%)</td>
</tr>
</tbody>
</table>

Fig. 1 & 2: Huge abdominal lump

Fig. 3: Vocal cord polyp

Fig. 4: Vocal cord growth

Fig. 5: Maggots in nasopharynx

**Photograph 1 & 2 :** Huge abdominal lump

**Fig. 3:** Vocal cord polyp

**Fig. 4:** Vocal cord growth

**Fig. 5:** Maggots in nasopharynx
Office using a small hand mirror or a head light to examine

The indirect procedure can be performed in a doctor’s

and direct (rigid) laryngoscopy2.

objects from throat and lower airway4, collecting tissue

the vocal cords1. The three kinds of laryngoscopy are:

anesthesia.

swallowing, narrowing of the throat (strictures or stenosis),

breathing problems, throat or ear pain, difficulty in

procedure for discovering the causes of voice and

guide various in-office procedures for the last 3 decades7.

FOL has been used to

treated cancer patients underwent follow up FOL and

abusers or chemical and garments workers were main

in 26-35 year age group. Male (55.39%) outnumbered

range was from 4 to 83 years. Majority of the patients were

examined in this period. Each patient was counseled about

conducted on the basis of FOL examination (using

This is a retrospective, cross sectional observational study

Table VI AFOL Findings (n = 12265)

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Discussion

Since its introduction more than 150 years ago,

laryngoscopy has undergone numerous changes in clinical

application. Laryngoscopy was started as an indirect

procedure with the manipulation of a laryngeal mirror

performed on an awake patient and progressed to direct

laryngoscopy, sometimes with an operating microscope

under general anesthesia. Now-a-days office based

procedure, flexible laryngoscopy is becoming popular.

Throughout the globe otolaryngologists are using flexible

fiberoptic laryngoscope for routine throat examination and

performing biopsy from the suspected lesion, a simple and

cost-effective procedure alternative to the traditional direct

laryngoscopy in most of the cases, especially for patients

who are not fit candidates for general anesthesia. In this
country few government and some private set up are using

FOL as a special procedure.

In this hospital FOL is used as routine in-office or OPD

procedure. Patients from other hospitals or doctor’s consultation center are also referred here. Most of the patients were 16-65 years old with peak age incidence in 26-35 year group. The age distribution of the patients was consistent with similar studies7,8. Male (55.39%) was more
than that of female (44.61%). Among them large number of patients (69.80%) had normal findings. This huge number of normal findings may be due to the increased level of consciousness of both the patients and the referring physician about the benign and malignant pathology of the larynx and pharynx and increasing ‘cancer fovea’ among the common people. Endoscopically benign looking lesions were 1007 (8.21%), phonatory gap 329 (2.68%) and suspected malignant lesions 2019 (16.46%). Biopsy was taken from 625 patients, among them malignant was found in 54.24% and tuberculosis was revealed in 26 (1.46%) of the biopsy specimen. This finding is nearly similar with a study done in Israel. Biopsy was taken in some of the suspected malignant cases as the patient or his attendant did not consented for taking biopsy. Follow up FOL of 348 post treated cancer patients revealed recurrent growth in 143 (41.09%) patients and no growth or showed some degree of edema in 205 (58.90%) patients. Recurrence of growth probably due aggressiveness of the disease or inadequate or treatment failure of the cancer. Smoking, betel nut chewing were the predominant habits of the study population which is similar to astudy. It may be mentioned that these two personal habits are recognized as the etiological factors of neoplastic lesions in ENT and Head-Neck region especially in this subcontinent. Voice abusers, chemical or garments workers were the main sufferers. Though the flexible laryngoscope is routinely introduced through nose, sometimes it showed difficulty due to gross septal deviation and some other nasal pathology. In those cases oral route was preferred. Occasionally minor bleeding was occurred during the procedure and managed conservatively. In a very few cases, taking biopsy were little difficult due to severe gag reflex, pain or non-cooperation of the patient and sometimes critical anatomical location of the growth.

Conclusion

Fiberoptic laryngoscopy is a very effective in-office or outdoor procedure for examination of nose, nasopharynx, pharynx and larynx and biopsy specimen can also be obtained from the suspected lesion under local anaesthesia during the procedure. Conventionally, biopsy is taken under general anaesthesia from the suspected lesions of the nasopharynx, larynx and hypopharynx which require hospital admission and stay in the hospital. So, if FOL is used judiciously not only for examination but also for obtaining biopsy, it would avoid unnecessary hospital admission and stay and would be cost effective as well in managing ENT and Head-Neck pathology. Moreover, FOL would be a beneficial procedure especially for those who are not fit for general anesthesia. FOL is also suitable for follow up the post treated carcinoma patients.

References