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Evaluation finding of flexible nasopharyngolaryngoscopy in patient attending the tertiary care centre: A prospective cohort study

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Abstract

Background: Upper airway complains are commonly encountered by ENT surgeon, nasopharyngolaryngoscopy is a very simple opd procedure to diagnose the hidden area of the nasopharynx, and early detection of pre-malignant lesions.

Method: This prospective cohort study held in ENT OPD in Pacific institute of medical sciences, umarda, Udaipur, with 200 patients of upper airway complains during the period of march 2021 to march 2022. Study subjects were evaluated by history, general and local ENT examinations then underwent NPL procedure in ENT OPD. Data were recorded and analysed.

Results: Out of total 200 participants 118(59%) were male and 82(41%) were female. The most common age group were between 18-40 year (108, 54%), 61-81 (51, 25%) and 41-60 (41, 20.5%). Common symptoms among the participants were changes of voice (CV)12%, hoarseness of voice (HV) 10.5%, foreign body sensation throat (FBT) 16%, difficulty in swallowing (DS) 14%, irritation throat (IT) 14%, lump throat (LP) 11.5%, weakness of voice (WV) 9.5% and 13% had multiple complains 13%, 1 (0.5%) complain of aphonia.

On NPL examination most common finding were growth larynx 51(25.5%), followed by normal 38 (19%) and GERD 25 (12.5%), vocal cord pathology were 20 (10%), Laryngopharyngeal reflux 15 (7.5%). Vocal cord odema 13 (6.5%). Phonatory gap 12 (6%), secretion pyriform fossa 10(5%), growth pyriform fossa 10(5%) respectively.

Conclusion: In the study it was found the growth larynx 51(25.5%) in patient with C/O change in voice, difficulty in swallowing, hoarseness of voice, followed by normal 38(19%) with C/O difficulty in swallowing, irritation in throat, lump in throat, were disease of larynx and pharynx found at early stage and help provide patient satisfaction.

Keywords: Nasopharyngolaryngoscopy, larynx, pharynx, upper airway, out patients department

Introduction

Persistent upper airway symptoms are common entity in India. Most of the patients visit their family doctor with nasopharyngeal complaints, eg, hoarseness of voice, dysphagia, chronic cough, throat irritation, foreign body sensation, or chronic sore throat, and among them some may have serious underlie pathologies such as cancer larynx (LC) [1].

Various conventional method are performed on OPD basis like indirect laryngoscopy (IL), Anterior and posterior rhinoscopy but these could not give information about hidden pathologies of upper airway as there were restrictions to reach in that hidden area, but with the introduction of flexible fiberoptic nasopharyngolaryngoscope (NPL) in 1975 a very drastic changes in ENT practice and simple out patients department (OPD) procedure [2] that has been very helpful for the clinician in easily accessible of hidden area and is being used both for diagnostic and therapeutic purposes [3].

NPL provides information about structural abnormalities, gross function and airway disorders. It is being used for treatment plan, documentation, education of patient and even monitoring the outcome of therapy. Both rigid and flexible endoscope are available to access the airway. Rigid endoscope is highly complicated procedure and not performed in OPD. Rigid endoscopy need general anaesthesia so surgeon unable to evaluate the dynamic natural function like swallowing, speech and singing but NPL have advantages to provide

information about natural functions because simple OPD based procedure not require General anaesthesia. It helps to even assess the velopharyngeal insufficiency and is an intimate part of assessment of obstructive sleep disorders [4]. Moreover, general anaesthesia is a financial burden on the poor social economical patients, and also cannot to given to patients unfit for giving general anaesthesia like respiratory, and cardiac patients. Thus, NPL has become state of the art in the visualization of nose, nasopharynx and larynx [2]. For better follow up the documentations of the finding can be given to the patients in form of photographs and videos.

Material and methods

A cross-sectional descriptive study was conducted in the Department of ENT at Pacific institute of medical sciences (PIMS), a medical college teaching hospital for a period of six months (From march 2020 to August 2020) after taking permission from institutional ethical committee. During that period covid-19 first wave was at peak, and most of the patients had fear regarding the spread of pandemic disease and attend ENT OPD with different complaints of upper airways. And fear of the patients was on the top that they insisting for advance examination of the upper airway. All the barrier precaution were taken during attending to the patients. During routine OPD days, approximately 20-25 patients attend the OPD with different upper airway complaints but during study period OPD was around 40 -50. A total of 200 patients had upper airway symptoms and underwent Nasopharyngolaryngoscopy (NPL) after taking written informed consent.

Inclusion Criteria: Adult patients above 18 years of age with upper airway complaints.

Exclusion Criteria: Children patients of age less than 18 years and who refused to participate in the study, non-cooperative patients. Detailed history, clinical examination and required investigations were done. Procedure was explained to patients and relative. Olympus, flexible fiberoptic NPL along with camera, light source and colour video monitor was used. The procedure was done in ENT OPD minor OT under monitored anaesthesia care (MAC) in supine position. Both nasal cavities are packed with gauze soaked in 4% xylocaine and xylometazoline 0.1% and throat were sprayed with 10% lignocaine spray 10 minutes before the procedure. The lubricated scope was passed intranasally and airway tract was serially observed up to larynx and hypopharynx for any pathologies. The data was entered into pre-formed pro forma, compiled, and analysis was done using SPSS 25 software.

Results

Out of total 200 patients who attends ENT OPD with different upper airway complains 118(59%) were males and 82(41%) were females. Male/ female ratio was 1.43:1. Among these patient, age group 18 -20 years was 62(31%)

followed by, 21-40 years 46(23%) and 41 to 60 years are 41(20.5%) [Table 1]

Table 1: Distribution of demographic data

Age (year)	Male	Female	Total
18-20	36	26	62 (31%)
21-40	31	15	46 (23%)
41-60	26	15	41 (20.5%)
61-80	15	18	33 (16.5%)
>81	10	8	18 (9%)
Total	118 (59%)	82 (41%)	200 (100%)

Table 2: Distribution of complains of patients who attends ENT OPD

Complain	Female	Male	Total
A	1	0	1 (0.5%)
CV	12	12	24 (12%)
DS	15	13	28 (14%)
FBT	22	10	32 (16%)
HV	8	13	21 (10.5%)
HV+DS	3	8	11 (5.5%)
HV+DR	1	4	5 (2.5%)
HV+DS+DR	2	8	10 (5%)
IT	6	22	28 (14%)
LT	8	15	23 (11.5%)
WV	4	13	17 (8.5%)
Total	82	118	200 (100%)

[A-Aphonia, CV-Change of Voice, DS-Difficulty in Swallowing, DR-Difficulty in Respiration, FBT-Foreign body throat, HV-Hoarseness of voice, IT-Irritation in throat, WV-Weakness of voice, LT-Lump in throat]

Among the cases most common complaint was FBT (foreign body throat) 32 (16%), out of them 22 (68.75%) was female and 10 (31.25%) was male. Second most common complaint was DS (Difficulty in swallowing) 28(14%) and TI (irritation in throat) 28(14%) out of total cases of DS15(53.57%) were female and 13(46.42%) were male but on the other side, out of 28 patients of IT 22(78.57%) was male and 6(21.43%) were female. Third most common complaint was CV (changes of voice) 24(12%), lump in throat 23(11.55%) and HV was 21(10.5%), WV 17(8.5%), and it was observed that changes of voice complaint was same in both the gender. But LT 15(65.21%), HV 13(61.90%), WV 13(76.47%) was significantly high in male as compare to female 8(34.78%), 38.095%,4(23.52%) respectively. Twenty-six (13%) patient came in OPD with multiple complains like HV+DS was 11(5.5%), HV+DR was 5(2.5%) and HV+DS+DR was 10(5%) out of 26, 6(23.07%) were female and 20(76.92%) was male and 1(0.5%) female patient complained of aphonia [Table 2]. Table [3] and figure [1] showing Nasopharyngolaryngoscopy (NPL) finding in female patients.

[VCPp- vocal cord polyp, VCPs vocal cord paresis, PG-phonatory gap, VCN-vocal cord nodule, GL-growth larynx, VCE-vocal cord edema, VCL--vocal cord leucoplakia, VCP-vocal cord palsy, SPE-secretion pyriform fossa, GPF-growth pyriform fossa, PFAEFG-pyriform fossa aryepiglottic fold growth, LPR-laryngopharyngeal reflux, GERD- gastroesophageal reflux disease]

Table 3: Showing distribution NPL findings in female patients

NPL findings	Complains of the patients in OPD ENT										
	CV	DS	FBT	HV	HV+DS	HV+DR	HV+DS+DR	IT	LT	WV	A
VCPp	1									1	
VCPs	1										1
PG	1									2	
VCN	1			1							
GL	5	6		5	2	1	1				
VCE	1			1						1	
VCL	1			1							
VCP	1										
SPF		4									
GPF		3			1						
PFAEFG		2					1				
LPR			5					2	3		
GERD			8					2	2		
Normal			9					2	3		
Total	12	15	22	8	3	1	2	6	8	4	1

Total 82(41%) female patients attended ENT OPD with different complains and out of the most common complained was FBT 22(26.82%), NPL finding of 9(40.90%) patient was normal followed by GERD in 8(36.36%), LPR in 5(22.72%) patients.

Second most common complained was DS 15(18.29%), NPL finding of 6(40%) was GL, followed by SPF 4(26.66%) and GPF was 3(20%), PFAEFG was 2(13.33%).

Third most common complaint done by female patients was Changes of voice 12(14.63%), NPL finding was vocal cord pathology 7(58.33%), followed by GL 5(41.66%). Patients of HV was 8(9.75%), NPL finding in these patients was GL in 5(62.5%) followed by vocal cord pathology in 3(37.5%), which is different from changes of voice complain.

Patients who came with complained of LT was 8(9.75%) and with IT was 6(7.31%), NPL finding in these patients was normal in 5(35.71%), LPR in 5(35.71%), and LPR in 4(28.57%). Six patients (7.31%) came with multiple complained simultaneously, out of them,3(50%) with HV +DS, NPL finding was GL and GPF, followed by HV+DR 1(16%), NPL finding was GL, and with HS+DR+DS was 2(33.33%) patients, NPL finding was GL and PFAEFG. In multiple complains most common NPL finding was GL 4(66.66%).

Four patients (4.87%) came with complain of WV and 2 (50%) had phonatory Gap and 2(50%) had vocal cord pathology. One (1.21%) came with complain of aphonia and NPL finding was VCPs. [Table 3] [Figure 1]

Table 4: Showing NPL finding in Male associated with complains

NPL findings	Complains of the male patients in OPD OF ENT									
	CV	DS	FBT	HV	HV+DS	HV+DR	HV+DS+DR	IT	LT	WV
VCPp	1									2
VCPs	1									
PG	1									8
VCN	1			3						
GL	5	6		5	5	4	6			
VCE	1			3				3		3
VCL	1			2						
VCP	1									
SPF		4						2		
GPF		3			3					
PFAEFG							2			
LPR			2					2	1	
GERD			3					5	5	
NOMAL			5					10	9	
TOTAL	12	13	10	13	8	4	8	22	15	13

Most common complaints of male patients was IT 22 (18.64%) and among them NPL finding was normal in 10 (45.45%), GERD in 5 (22.72%), VCE in 3 (13.63%), LPR in 2 (9.09%), SPF in 2 (9.09%). Second most common complaint was LT 15 (12.71%), NPL finding in these patients was, 9 (60%) were normal, GERD in 5 (33.33%), LPR in 1 (6.66%). Thirds most complains were DS 13 (11.01%), HV 13 (11.01%), WV also 13 (11.01%).NPL finding in patients with DS, were GL in 6(46.15%), SPF in 4 (30.76%), GPF in 3 (23.07%).

NPL finding with complain of HV were GL in 5 (38.46%), VCN in 3 (23.07%), VCE in 3 (23.07%), VCL in 2

(15.38%) and NPL finding with complain of WV were PG in 8 (61.53%), VCPp in 3 (23.07%), VCE in 2 (15.38%). Twelve (10.16%) patients came in OPD with complain of CV, NPL findings were GL in 5 (41.66%), 7 (58.33%) were having vocal cord pathology. FBT were complained by 10 (8.47%) patients and NPL finding normal in 5 (50%), GERD in 3(30%), LPR in 2 (20%). Twenty patients (16.94%) came with multiple complains and their NPL findings are GL 15 (75%), GPF 3(15%), PFAEFG 2 (10%) [Table 4].

Discussion

The result of our study reveals that upper airway complains were more common in male (59%) as compare to female (41%) patients. Study conducted by Abdullah N *et al.* [5] showed that nasopharyngeal complains was more in male as compare to female gender. Most common complains done in age group of 18-81(mean age was 59±14) years and other study were in favour of this age group, according to that Nasolaryngoscopy was done in mean age group, 51.3±14.6 years and female was 71.4% [6]. The common age group of patients who complains of hoarseness, sore throat, neck swelling, breathlessness, cough, odynophagia, earache etc. was between 18-72 years (mean 54±11.79) years and on FOL examinations, 30% were vocal cord polyp, 18% v. cord edema, 21% v. cord growth, 14% v. cord nodule, 8% v. cord palsy, 5% ulcerated lesion, 2% laryngeal web, 2% were normal study [7].

FOL procedure was valuable diagnostic procedure as compare to conventional I/L. Trans nasal esophagoscopy (TEN) is safe, effective and economic procedure as compare to conventional rigid esophagoscopy so based on this review the TNE is a feasible tool for screening and diagnosis of oesophageal disorders [8].

Most common complained noted in our study were changes of voice (CV) 12%, hoarseness of voice (HV) 10.5%, sensation foreign body throat (FBT) 16%, difficulty in swallowing (DS) 14%, irritation throat (IT) 14%, lump throat (LP) 11.5%, weakness of voice (WV) 9.5% and 13% had multiple complains 13%, 1(0.5%) complain of aphonia. This is favoured by the study conducted by Thad Wilkin [6] in which most common complaint was hoarseness of voice (51.3%) followed by Globus sensation (32%), chronic cough (17.1%) and most common NPL finding in that study was laryngopharyngeal reflux (42.5%), chronic rhinitis (32.2%), and vocal cord lesions (13.2%) and in our study Growth larynx was the common finding followed by normal study, GERD, Vocal cord pathology (like oedema, nodule, paresis, polyp, etc.), Phonatory gap, secretions pyriform fossa, growth pyriform fossa.

In our study foreign body sensation, throat was common complain compared to male followed by difficulty in swallowing, on the other hand, irritation throat was more common complains noted in male followed by hoarseness of voice, lump throat, weakness of voice and more than one complains simultaneously by a male.

On the contrary recent study conducted by John Malaty *et al.* in family medicine setup, The most common primary indications were hoarseness (n=33, 37%), chronic cough (n=20, 22%), nasal obstruction (n=9, 10%), and unilateral ear dysfunction (n=6, 7%). The most common primary diagnoses found were allergic rhinitis/postnasal drip (n=41, 46%), laryngopharyngeal reflux (LPR)/gastroesophageal reflux disease (GERD; n=24, 27%), masses concerning for malignancy (n=4, 4.5%), true vocal cord (TVC) polyp (n=3, 3%), TVC nodules (n=3, 3%), and epistaxis (n=3, 3%). Of the four concerning masses, two were confirmed cancers (2%). In addition, there was one case (1%) of erythroplakia with dysplasia of the TVC (9) and also by Shawhely Mahbub *et al.* conducted study stating 30% were vocal cord polyp, 18% v. cord edema, 21% v. cord growth, 14% v. cord nodule, 8% v. cord palsy, 5% ulcerated lesion, 2% laryngeal web, 2% were normal study.

As in support to ours study, studies conducted by Thad Wilkins, most common findings from the nasolaryngoscopy

were LPR (42.5%); chronic rhinitis (32.2%); and vocal cord lesions, eg, granuloma or polyp (13.2%) [11] and also study by Shuaib Kayode Aremu states most of the patients who had the procedure done had normal findings (59.0%), Nasal mass was seen in 15.0%, bilateral vocal cord nodules (5.0%), sloughs over the oropharynx and epiglottis in 6.0%, laryngeal tumor in 4.0%, and right atrophic vocal cord in 2.0% [12].

Video laryngoscopy is increase facilitation of intubation in expected difficult intubation in adults along with better visualisation of glottic view and reduce airway trauma as compare to direct laryngoscopy [13]

Though this study patient will get benefitted as it is an effective and safe tool with direct visualization of pathologies that help in making an early diagnosis, it has definite role in follow-up cases as well as for the therapeutic purposes.

Limitation

Npl cannot be performed in childrens and uncooperative patients, patients with any nasopharyngeal and oro pharyngeal pathology obstructing the pathway. Patients with bleeding disorders, patients on blood thinners.

Conclusion

Pharyngeal and laryngeal problems are common in society in every age group and in both gender. Nasopharyngolaryngoscopy is easy and important OPD-based procedure to diagnose and make a treatment plan and satisfy the patients without further advance intervention like direct laryngoscopy (DL), Micro laryngeal surgery or Esophagoscopy.

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