

SURGICAL AUDIT**Flexible Laryngoscopy Audit in Outpatient Department of a tertiary care hospital, Islamabad**MUMTAZ AHMAD UMAR¹, MOHIBULLAH MUSHWANI², NAVEED ARSHAD³¹Assistant Professor, Islamabad Medical and Dental College, Islamabad²Senior Registrar, Islamabad Medical and Dental College, Islamabad³Assistant Professor, Islamabad Medical and Dental College, IslamabadCorrespondence to Dr. Mohibullah Mushwani, Email: mohibullah@imdcollge.edu.pk, Cell: +92-3215010450**ABSTRACT****Background:** Flexible laryngoscopy is less operator/patient dependent diagnostic procedure with magnified field and well tolerated diagnostic procedure. Flexible laryngoscopy is tolerable diagnostic procedure with clear and magnified visualization of interior larynx.**Aim:** To audit the flexible laryngoscope in outpatient department in our local setting.**Methods:** A retrospective audit survey was carried out in Outpatient ENT Department of Akbar Niazi Teaching Hospital, Islamabad between June 2021 and May 2022. Total 85 patients with age range 10-80 years, with history of laryngopharyngeal symptoms and preoperative evaluation of thyroidectomy patients were selected. After getting detail history of flexible nasopharyngo-laryngoscopy and findings were documented and analyzed. Under local anesthesia, spray in the nose and throat gargles. The laryngoscope passed through nose and nasopharynx into the laryngopharynx, and assessing all the structures. Data was analyzed through SPSS v 22.**Results:** The patients mean age was 28.96±9.14 years. Among all the patients 49(57.64%) were female and 36(42.3%) were male. The population highest percentage 26(30.5%) were 21-30 years old. The laryngeal complaint of hoarseness was highest with 38.8% indicated after flexible laryngoscope procedure according to other symptoms. According to diagnosis made on flexible laryngoscopy, the vocal nodules were highest with 15.3% detected. The diagnostic tools in diagnosis of laryngeal pathologies, its availability and cost effectiveness led to limited access of the patients to such sophisticated diagnostic procedure.**Conclusion:** Flexible laryngoscopy gives detailed visualization of the larynx and don't leave the examiner inconclusive about laryngeal pathologies.**Keywords:** Clinical audit; Diagnostic equipment; Laryngoscopy; Nasopharyngeal diseases; Outpatient clinics, hospital.**INTRODUCTION**

Flexible laryngoscopy is noninvasive diagnostic equipment useful in otorhinolaryngology practice for diagnosis of nasal, nasopharyngeal and mainly laryngeal pathologies¹. Laryngeal examination is not possible through normal oral cavity examination². Before 18th century function of larynx was based only on assumption. Spanish music teacher Manuel Gracia was the first who visualized the larynx through mirror and sunlight reflection reported in 1855³. Traditionally indirect laryngoscopy mirror (IDL) used to visualize larynx⁴. Indirect laryngoscopy through mirror has its limitations in term of visualization of hidden areas, learning curve and exaugurated gag reflex⁵. Advancement in technology resulted in visualization, better understanding anatomy, physiology and pathologies of the larynx.

Flexible laryngoscopy is less operator/patient dependent diagnostic procedure with magnified field and well tolerated diagnostic procedure. Flexible laryngoscopy is tolerable diagnostic procedure with clear and magnified visualization of interior larynx.⁶ Flexible laryngoscopy revolutionized the early diagnosis of laryngeal pathologies specially voice disorders^{7,8}.

Patients with laryngeal disorders can present with variety of symptoms but hoarseness is the most common presenting complaint among such patients⁹. Hoarseness is altered vocal quality, pitch and loudness that affects quality of communication and life. Complete history, examination and direct visualization of the larynx is recommended in hoarse patients to diagnose such patients and manage accordingly. Hoarseness beyond two weeks leads to strong indication of direct visualization of the larynx^{9,10}.

Cough, throat irritation, throat pain, difficulty in swallowing, aphonia, laryngopharyngeal reflux (LPR), difficulty in breathing, trauma larynx, foreign bodies aerodigestive system and hemoptysis are other laryngeal symptoms which can be diagnosed with flexible laryngoscopy procedure¹⁰. Despite one of the best diagnostic tools in diagnosis of laryngeal pathologies, its

Accepted on 15-01-2023

availability and cost effectiveness led to limited access of the patients to such sophisticated diagnostic procedure.

The study aim was to audit the flexible laryngoscope in outpatient department in our local setting.

METHODOLOGY

This retrospective audit study was carried out in outpatient ENT department of Akbar Niazi Teaching Hospital, Islamabad between 1st June 2021 and 31st May 2022. Audit was conducted in accordance with Helsinki principles. Total 85 patients with age range 10-80 years, with history of laryngopharyngeal symptoms and preoperative evaluation of thyroidectomy patients were included. Pediatric population, already diagnosed cases of CA larynx were excluded from this survey.

After detail history flexible naso-pharyngo-laryngoscopy (Euroclinic FNS-2800B) done and findings were documented. All patients underwent procedure of flexible laryngoscopy in the department of ENT of the hospital. The following procedure had been done under local anesthesia, spray in the nose and throat gargles. After 3-5 mints, the laryngoscope passed through nose and nasopharynx into the laryngopharynx, assessing all the structures. A self-structured proforma was used for patient assessment. Laryngopharyngeal symptoms and structure of nasopharynx into the laryngopharynx were assessed and analyzed.

Data collected on research tools and analyzed on SPSS version 22. Frequencies and their percentages were used for categorical variables like gender of patients, laryngopharyngeal symptoms and structure of nasopharynx etc. Whereas mean and their standard deviations were used for continuous variables like age of the patients.

RESULTS

Received on 14-09-2022

The patients mean age was 28.96±9.14 years. Among all the patients presented with laryngeal symptoms (n=85), 49(57.64%) were female and 36(42.3%) were male.

Table I: Age range of the patients presented with laryngeal symptoms, n=85

Age (years)	Frequency	Percentage
11-20	13	15.2%
21-30	26	30.5%
31-40	17	20%
41-50	11	12.94%
51-60	09	10.5%
61-70	06	7.05%
71-80	03	3.5%

Table II: Indication for flexible laryngoscopy according to symptoms, n=85

Laryngeal complaints	Frequency	Percentage
Hoarseness	33	38.8%
Cough	07	8.2%
Aphonia	05	5.8%
Hemoptysis	02	2.35%
Stridor	03	3.5%
Foreign body sensation	11	12.9%
Dysphagia	07	8.2%
Pre-operative assessment for thyroidectomy	17	20%

Table III: Diagnosis made on flexible laryngoscopy, n=85

Diagnosis	Frequency	Percentage
Vocal nodules	13	15.29%
Vocal polyp	05	5.88%
Unilateral VC paralysis	07	8.23%
Chronic laryngitis	11	12.94%
Reinke's edema	03	3.52%
Suspected laryngeal CA	02	2.35%
Phonasthenia	09	10.58%
Acute laryngitis	06	7.05%
Normal larynx	29	34.11%

DISCUSSION

Laryngeal pathologies are one of the commonest pathologies leading to economic burden on health system.¹¹Laryngeal pathologies specially voice disorders lead to work loss and affect the quality of life¹².

In our study female had slight predominance in laryngeal disorders compared to male patients. Other studies also show that females have more laryngeal disorders compared to males.¹³We found that almost half of the patients in our study were in age range of 10 years to 30 year (45%). Literature shows that there are more laryngeal pathologies in younger age because of more exposure infections and overuse of voice¹⁴. We found that flexible laryngoscopy is one the best procedure in diagnosis of laryngeal pathologies. Direct visualization and examination of larynx during verbal commands helps in diagnosis of variety of laryngeal pathologies ranging from viral laryngitis to carcinoma. Flexible laryngoscopy is one of the best and essential part of laryngeal pathologies management across the globe¹⁵. We found that most common indication for flexible laryngoscopy in our study was hoarseness. Published literature shows that hoarseness of voice is the commonest presenting complaint in laryngeal disorders^{8,16}. Majority of our patients, 85(34.11%) had normal laryngeal examination as in routine we have pre operative laryngeal examination of thyroidectomy patients. Pre-operative laryngeal examination in thyroidectomy patients is evidence based recommended practice worldwide¹⁷. Vocal nodules were most common laryngeal pathology in our study (15.29%). Literature shows that voice overuse, noise pollution and recreational activities significantly increased that aforementioned pathology¹⁸.

CONCLUSION

Flexible laryngoscopy gives detailed visualization of the larynx and don't leave the examiner inconclusive about laryngeal pathologies. Flexible laryngoscopy examination should be mandatory part of diagnostic investigation of laryngeal pathologies.

Ethics approval and consent to participate: After getting the approval from Institutional Review Board (IRB) of Islamabad Medical and Dental College, Islamabad vide letter number 1.60.IMDC-2021, Dated: 1st June, 2021. Informed written consent was taken from all the study participants.

Conflict of Interest and Funding: There was no conflict of interests at any stage of this study. This research did not receive any specific grant from funding agencies in the public, commercial, or not for profit sectors.

Authors' contributions: MAU; provided concept/research design and did data collection, NA, did statistical analysis and manuscript writing, MM, MAU did edit of manuscript and project management, NA did critical revision of the manuscript for important intellectual content, MM& MAU takes the responsibility and is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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