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DETERMINE THE INCIDENCE AND CLINIC-DEMOGRAPHIC PROFILE OF PATIENTS UNDERGOING MICROLARYNGEAL SURGERY FOR VARIOUS PATHOLOGIES OF THE LARYNX AT TERTIARY CARE HOSPITAL.

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Abstract
Aim: to determine the incidence and clinic-demographic profile of patients undergoing microlaryngeal surgery.
Materials and Methods: this is a prospective study of 100 patients attending an outpatient department with laryngeal lesions evaluated irrespective of their age, sex, and occupation. Biopsy-confirmed malignant cases were excluded.
Result: of the 100 patients, 84 of them exhibited benign lesions and rest 16 patients showed malignant pathology. Most commonly seen benign vocal lesion is vocal nodule (37.0%) followed by vocal polyp (28.0%). Along with hoarseness of voice, other symptoms reported were cough and throat pain, Dysphagia and fever. Improvement in symptoms was seen after the treatment.
Conclusion: Microlaryngeal surgery is a good therapeutic tool in both benign and malignant lesions. The differentiation of benign from malignant lesions is vital. Microlaryngoscopic examination has proved to be the best modality for visualizing these lesions and arriving at a clinical diagnosis
Keywords: Benign, Larynx, Voice change, Vocal nodule

Introduction

Larynx is a vital body organ that functions as an airway and the organ of phonation. The benign laryngeal lesions occur in a ratio of 2:3 to the malignant lesions. Various studies opined that true benign neoplastic lesions are uncommon and occur in a ratio of 1:6 to the non-neoplastic lesions.[1] Some of these tumors may even undergo malignant changes like papilloma (4%), granular cell tumor (2%).[2,3]

Microlaryngeal surgery along with speech therapy is one of the most powerful techniques to address laryngeal and voice disorders in all age groups. Microlaryngeal surgery (MLS) is minimally invasive procedure to visualise magnified view of larynx through videolaryngoscope or operating microscope for diagnostic and therapeutic purpose using microlaryngeal instruments.[4]

Current era of microlaryngeal surgery began around 1961 by Oscar kleinsasser and Jako, who introduced surgical operating microscope, microlaryngeal hand held instrument with wide laryngoscopes fitted with suspension system.[5]

Oscar kleinsasser of Cologne (1960-1968) honoured as “The Father of Microlaryngeal Surgery”, he designed a laryngoscope with much wider diameter which permitted more freedom for the surgical manipulation within the larynx, new instrument for magnified endolaryngeal observation, photography and observation of early pathological changes of malignancy.[5]

Hence the present study was conducted with the aim to determine the incidence and clinic-demographic profile of patients undergoing microlaryngeal surgery for various pathologies of the larynx at tertiary care hospital.

Materials and Methods

The present observations study was conducted on 100 randomly selected patients diagnosed with laryngeal pathology visited the department of ENT, Nalanda Medical College and Hospital, Patna, Bihar, India.

Inclusion Criteria:

1. Patients above 18 years of age of either sex
2. Patients diagnosed with laryngeal pathology and planned for microlaryngeal surgery
3. Those who give informed consent

Exclusion Criteria

1. Patients who are unfit for surgery
2. Patients who have not signed the informed consent

Ethical approval and Informed consent

The study protocol was reviewed by the Ethical Committee of the Hospital and granted ethical clearance. After explaining the purpose and details of the study, a written informed consent was obtained.

Sample selection

The sample size was calculated using a prior type of power analysis by G* Power Software Version 3.0.1.0 (Franz Faul, Universitat Kiel, Germany). The minimum sample size was calculated, following these input conditions: power of 0.80 and $P \leq 0.05$ and sample size arrived were 60 participants.

Methodology

After taking detailed history and recording demographic data, a comprehensive clinical examination of each patient was done. Thorough clinical examination including an indirect laryngoscopy was undertaken. A fibreoptic laryngoscopic examination was then carried out with an olympus fibreoptic scope (ENF P-2). The patients were admitted one day prior to surgical intervention. Microlaryngoscopic examination was performed under general anaesthesia using Zeiss GMBH 73446 microscope with video-photographic attachment. The lesions were then excised/ biopsied using standard MLS instruments and the tissue was preserved in 10% formalin and sent for histopathological examination.

Statistical Analysis

The data was coded and entered into Microsoft Excel spreadsheet. Analysis was done using SPSS version 20 (IBM SPSS Statistics Inc., Chicago, Illinois, USA) Windows software program. The variables were assessed for normality using the Kolmogorov Smirnov test. Descriptive statistics included computation of percentages, means and standard deviations. Level of significance was set at $p \leq 0.05$.

Results

Table 1: demographic profile of the study population

Variables	**N=100 (%)**
Age	
18-27 Years	16 (16%)
28-37 Years	50 (50%)
38-47 Years	24 (24%)
>47 Years	10 (10%)
Education	
Illiterate/ Read and write	7 (7%)
Primary	24 (24%)
Higher Secondary	46 (46%)
Graduate	23 (23%)
Occupation	
Un-employed	14 (14%)
Skilled	58 (58%)
Un-skilled	28 (28%)
Residence	
Rural	54 (54%)
Urban	28 (28%)
Peri-Urban	18 (18%)

Table 2: distribution of presenting symptoms

Symptoms	N (%)
Change of voice	38 (38%)
Cough	24 (24%)
Throat Pain	16 (16%)
Dysphagia	12 (12%)
Fever	10 (10%)

Table 3: Distribution of deleterious habits

Habits	N (%)
Smoking	24 (24%)
Alcoholic	10 (10%)
Smoking + Alcoholic	16 (16%)

Table 4: distribution of different laryngeal lesions

Lesions	N (%)
Benign	
Vocal Nodule	37 (37%)
Vocal Polyp	28 (28%)
Hemangioma	19 (19%)
Malignant	
Squamous cell carcinoma	9 (9%)
Dysplasia	7 (7%)

Discussion

This present investigation was directed to decide the incidence of different laryngeal pathologies among patients experiencing micro laryngeal surgery. As per the previous literature, the most well-known age bunch influenced in this investigation was 28-47 years. 50% of the participants were found to be indulged in some kind of deleterious habit like smoking and alcohol use. It is realized from the fact that people in more youthful age bunch are progressively eager, dynamic, utilize their vocal capacities to the most extreme and exhibit hazard taking conduct, for example, smoking and liquor consumption.[6-8]

In this study, the change of voice is seen as the major presenting symptom observed in 38% of the cases, which means any sign or symptom of laryngeal pathology that point at potential laryngeal pathology. The second most common presenting symptom was cough (24%) followed by throat pain (16%) in the study population. Other presenting symptoms were dysphagia (12%) and fever (10%). When compared with the study done by Baitha et al., [1] who observed cough in 30% and fever in 26.36% cases. A similar study noted that 100% cases presented with hoarseness.[9,10]

Analysis shows that the most commonly seen benign vocal lesion is vocal nodule (37.0%) followed by vocal polyp (28.0%). There are studies[11] in past dated to 1971 stated that nodules are commonly seen in young women and children and infrequently in adult males and adolescents. Most common benign vocal lesions are vocal nodules, vocal cysts and vocal polyps on clinical examination. These lesions mostly involved the medial margin of the vocal

cords thus causing hoarseness due to changes in its vibratory pattern. After histopathological examination 16 patients were found to have malignant lesions who were subsequently subjected for radiotherapy. All patients were on regular follow up and no recurrence reported.

Conclusion

MLS is a good therapeutic tool in both benign and malignant lesions. The differentiation of benign from malignant lesions is vital. Microlaryngoscopic examination has proved to be the best modality for visualizing these lesions and arriving at a clinical diagnosis. Cure and outcome following surgery is good as procedure yields complete clearance of benign lesions and in adjuvant with radiotherapy gives complete cure for premalignant and malignant lesions. Laryngeal hygiene and de-addiction from deleterious habits need to be practiced, as they are the common causative factors.

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