



# The Incidence and Treatment of Laryngeal Tumors in Patients Attending Al-Thawra Teaching Hospital, Our Experience.

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## ABSTRACT

**Background:** Tumors of the larynx include all masses in the larynx, neoplastic or non-neoplastic. Non-neoplastic are inflammatory, traumatic, or degenerative in origin. Neoplastic tumors are benign or malignant. The symptoms produced by tumors depended on the location and size of tumors.

**Objective:** To evaluate the incidence and methods of treatment of laryngeal tumors.

**Patients and Methods:** Prospective study was carried out from January 2015 to December 2019 at ENT Department, at Al-Thawrah Teaching Hospital Sana'a, Yemen. A total of 130 patients were enrolled in this study, 100 males and 30 females. All patients who had laryngeal tumors underwent clinical examination, investigations, and treated according to the type of tumors.

**Results:** A total of 130 patients were enrolled in this study, 100 males and 30 females, mean ages were 48.1 years. Neoplasm (62.3%), malignant (96.3%), benign (3.7%), non-neoplastic tumors (37.7%), laryngeal polyps constituted (65.4%) of benign lesions. Hoarseness (100%), difficulty of breathing (34.6%). Left side involved in (61.5%). Advanced malignant (64.1%). Early malignant (30.8%), in situ (5.1%), glottic area (76.9%), supraglottic (14.2%), while transglottic was (10.3%). Modalities of treatment, excision by laryngoscope (35.4%), radiation (32.3%), total laryngectomy (27.7%) speech therapy (3.1%), external approach (1.5%).

**Conclusion:** Malignant tumors were the commonest tumors of the larynx, and Laryngeal polyps were the commonest non-neoplastic tumors in the larynx. Surgical intervention was the main standard method of treatment either neoplastic or non-neoplastic tumors followed by radiation for malignant lesions.

## 1. Introduction:

Tumors of the larynx include all masses in the larynx, neoplastic or non-neoplastic. Non-neoplastic are inflammatory, traumatic, or degenerative in origin while neoplastic tumors are benign or malignant [ 1]. The symptoms produced by the tumors depended on the location and the size of the tumors. Those located on the true vocal cords may present initially with hoarseness of voice, subglottic tumors presenting with dyspnea and stridor, while supraglottic tumors may present with

dysphagia and muffled voice [2]. A benign lesion of the larynx was defined as any mass of tissue in the larynx which does not present characteristic of malignant [1,2]. Benign tumors of the larynx are of interest and importance to the laryngologist not only because of the symptoms which they produce by interference with the normal function of the vocal mechanism or by obstruction of the respiratory tract but because of the necessity of distinguishing them from the malignant laryngeal lesion [3,4]. The common complaints of hoarseness or change of voice,

vocal fatigue, foreign body sensation dyspnea, and stridor depend on the type of laryngeal tumors [5,6]. Non-neoplastic tumors to be more common as compared to neoplastic tumors of the larynx [5]. surgical removal with microsurgical instruments remains the mainstay of the therapy for laryngeal polyps, cysts and nodules [7]. Laryngeal cancer is the most common head and neck cancer worldwide. Over 90% of laryngeal cancer is squamous cell carcinoma (S C C). Patients with laryngeal cancer initially presenting with airway obstruction are uncommon, because over 70% of tumors originated on the true vocal fold creating the early symptom of hoarseness [8].

The aim of the study was to determine the incidence, distribution, types and treatment of laryngeal tumors in adult patients.

**2. Patients and Methods**

A prospective study was conducted at the Department of Otolaryngology-Head and Neck Surgery, Al-Thawra Teaching Hospital Sana'a, Yemen during the period between January 2015 to December 2019. A total of 130 patients, males 100 patients and females 30 patients were enrolled in this study. The study protocol was approved by the ethics board of our department, and informed consent was obtained from patients before enrollment. History taking, ENT examination, indirect laryngoscopy, fiberoptic laryngoscopy, hematological and radiological investigations were done. The treatment advised was either conservative medical, speech therapy or surgical procedures including direct laryngoscopy, microlaryngoscopy, tracheotomy, partial or total laryngectomy. All excised tissues were sent for histopathological examination. Post-operative management includes voice rest, speech therapy for benign lesions, care of tracheotomy and voice rehabilitation.

**3. RESULTS:**

A total of 130 patients were included in the study, their ages ranged from 25-75 years with a mean age of 48.1 years. Males were 100 (76.9%) and females were 30 (23. 1%). Patient age categories are shown in (Table 1). In patients who had neoplasm 81(62.3%), 78 (96.3%) were

malignant and 3 (3.7%) were benign. Their ages ranged from 31-75 years with a mean age of 54.2 years for malignant neoplasm. Non-neoplastic tumors were found in 49 (37.7%) patients their ages ranged from 25-75 years with a mean age of 39.6 years. Malignant neoplasm age categories are shown in (Table 2). Non-neoplastic age categories are shown in (Table 3). Laryngeal polyps age categories are shown in (Table 4). Presenting symptoms of all laryngeal lesions either neoplasm or non-neoplasm (Figure 1). Types of laryngeal tumors (Figure 2) where malignant lesion 78 (96.3%) are the most common neoplastic lesions followed by Laryngeal polyps represented 32 (65.4%) of benign lesions. In addition, the left side was affected more than the right side 48 (61.5%) of malignant and 30 (61.2%) of non-neoplastic lesions were found on the left side. Advanced laryngeal carcinoma (T3, T4) presented in 50 patients (64.1%) of malignant whereas early carcinoma (T1, T2) found in 24 patients (30.8%) and 4 patients (5.1%) in situ. Regarding the origin of the cancer larynx, the glottic region was the most common region where 60 (76.9%) of cancer found in it, supraglottic 10 (14.2%), while transglottic found in 8 (10.3%) of a malignant lesion. Modalities of treatment showed in (Figure 3). Excision by laryngoscopy 46 (35.4%) patients, radiation 42 (32.3%) patients, total laryngectomy 36 (27.7%) of patients (Figure 4).

**Table 1:** Patient age categories N=130

Group	No	%
25-34	26	20
35-44	20	16.1
45-54	41	30.8
55-64	27	20.8
65-75	16	12.3
Total	130	100

**Table 2.** Age of malignant categories N=78

Age categories	No	%
31-40	10	12.8
41-50	31	39.7
51-60	24	30.8
61-70	11	14.1
.> 70	2	2.6
Total	78	100

Table 3. Age categories of non-neoplastic lesions N=49		
Age categories	No	%
25-34	26	53.1
35-44	10	20.4
45-54	6	12.2
55-64	3	6.1
65-7	4	8.2
Total	49	100

Table 4. Age categories of laryngeal polyp n=32		
Age categories	No	%
25-34	17	53.1
35-44	6	18.7
45-54	4	12.5
55-64	2	6.3
65 -74	3	9.4

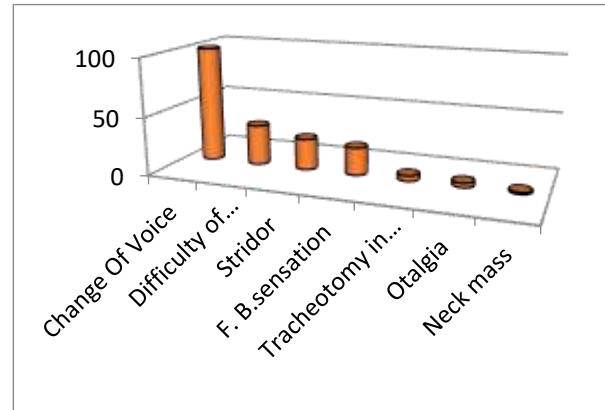


Figure 3. Methods of treatment of laryngeal tumors

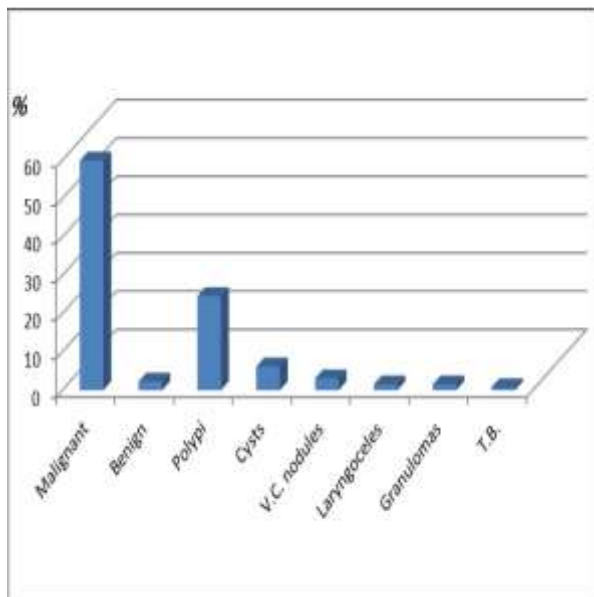


Figure 1.Types of laryngeal tumors



Figure 4. larynx after excision with trans glottic carcinoma

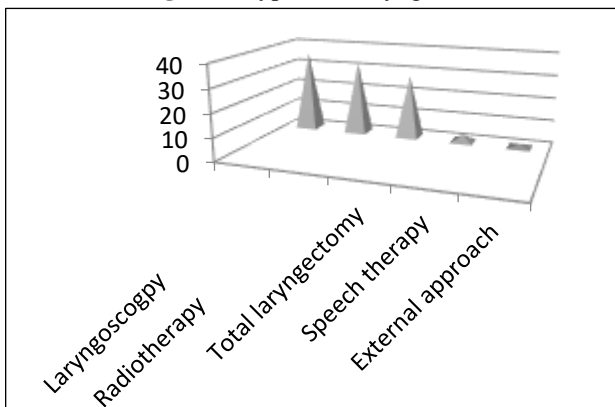


Figure 2. Presenting complaint of laryngeal tumors

#### 4. DISCUSSION:

In 1938, New and Erich proposed that true proliferated neoplasms were clinically indistinguishable from non-proliferative inflammatory or often hyperplastic growths, the term benign tumors should be used to include all abnormal growth of tissue in the larynx that lacked malignant or metastatic properties [1]. The presence of mass lesions in the larynx can provoke numerous acute, chronic, progressive, or even life-threatening symptoms [6]. When assessing the patient with a potential laryngeal

lesion, history should be taken with particular emphasis on the age of the patient, the course of symptoms complex, any previous surgery or trauma and presence or absence of respiratory symptoms. Cancer larynx is the most common head and neck cancer worldwide [8,9,10]. Patients with laryngeal cancer initially presenting with airway obstruction are uncommon, because over 70% of tumors originate on the true vocal fold creating the early symptom of hoarseness. Those with supraglottic or subglottic early tumors may first present with stridor or dyspnea. Patients have airway obstruction due to delayed diagnosis [8].

The first line treatment of lesions caused by phonotrauma is a behavioral intervention with speaking and singing therapy. The primary goal of voice therapy is to maximize the efficiency of phonation and to eliminate maladaptive vocal behaviors that exacerbate these masses. Additionally, patients should be treated for concomitant problems that contribute to mucosal friability, such as laryngopharyngeal reflux and poor vocal hygiene [11]. When maximal behavior intervention does not achieve satisfactory improvements in voice, surgical intervention is considered. The decision to surgical intervention, however, should take into account multiple factors, including the patient vocal cord impairment, type and location of the lesion and willingness to accept surgical risk [6]. Age group ranged between 45-64 years more affected 51.6 % of all patient's complaint of laryngeal tumors while malignant found high incidence in age group ranged between 41-60 years 70.5%. Males were 76.9% and females 23.1%. Neoplasm found in 62.3% of the total number of patients, while non-neoplastic 37.7% which means that neoplasm is more than non-neoplasm. The findings of our study consisting of the previous studies [12,13]. while Singhal et al [6]. found non-neoplastic tumors were more than neoplastic types, this result contradicts the findings of our study. According to the present study, the occurrence of both benign and as well as malignant tumors was higher in males than females where it is 76.9 % in males and 23.1% in females. The findings of our study were similar to some previous studies [6,14,15].

Explanation that males are more exposed to risk factors.

The most common benign lesion was vocal cord polyp 65.4% where the occurrence of malignant was 96.3% of neoplastic lesions in our study These findings are in concordance with the results of previous studies [5,6]. Regarding the site of origin of the tumors, the glottic region was found to be the commonest site for the origin of all neoplastic and non-neoplastic tumors it is found in 76.9 %. The left side tumors were more than the right side it represented 61.5% of tumors without a clear cause. These findings agree with previous studies [3,5]. while another study [16] reported that laryngeal malignancy found that 56 % of tumors were supraglottic, and 17% found in the glottis region, Sharma et al [10]. reported that 50 % of malignant tumors were found in the supraglottic region, and 20% in glottic region, these findings contradict with our findings. Advanced laryngeal cancer (T3, T4) found in 64.1% of malignant tumors due to delayed diagnosis and lack of health-seeking behavior of the patients. Menach et al [8]. reported that the majority of patients presented stages (T3, T4) in 73.6% of laryngeal cancer due to the health-seeking behavior, Lack of adequate health facilities and personnel as well as high cost of medical care. Hoarseness was the main symptom with all patients of benign and malignant tumors presented in 100%, while the difficulty of breathing was found in 34.6% of patients, most of them had malignant tumors. previous studies [16,17], reported that hoarseness of voice is the commonest symptom in otolaryngological practice and it indicates disease of the larynx ranging from totally benign condition to the most malignant condition. Bakshi et al [15]. mentioned that hoarseness was the earliest presenting symptom in both benign as well as malignant growth. While most patients with benign tumors had only one symptom, patients with malignant tumors had associated symptoms like dyspnea, dysphagia cough, hemoptysis. These findings agree with our study because the majority of tumors were originated from the glottis area. Regarding the treatment of laryngeal tumors, non-neoplastic and benign neoplasm all treated by surgical excision through

direct laryngoscopy under general anesthesia except 1.5% of patients' complaints of combined Laryngocele treated by external approach. This agrees with previous studies [17,18]. Malignant tumors were treated by combined treatment, surgical and radiation or radiochemotherapy in the form of surgical excision followed by radiation for early cancer larynx ( T1, T2) 30% of malignant, and total laryngectomy and radiotherapy for advanced cancer larynx ( T3, T4) 27.7% of patients and 32.3% of patients who refused surgical intervention referred to radiochemotherapy. The goal of cancer treatment is to cure the patient and preserve the function of the larynx. The treatment philosophy of patients with cancer larynx is the preservation of the form and function of the larynx whenever possible reserving ablative option for advanced cancer or when organ preservation is impossible [18,19]. Post-operative management for benign lesions includes voice rest, for three weeks followed by the resumption of voice in order to resume the normal function of the vocal cords. Along with this regime, the patient was also advised to avoid extremely hot and cold food, exposure to air pollutions, smoking, tobacco, alcohol, and coughing and clear the throat [5,20].

## 5. Conclusion

Laryngeal dysfunction produces symptoms that can vary from mild hoarseness to life-threatening stridor. Laryngeal neoplasm was more than non-neoplastic lesion, and laryngeal polyps were the most of non-neoplastic lesions. Early diagnosis of the lesion leads to effective management and good recovery. Early diagnosis also leads to identification of malignant in an early-stage and better prognosis. Standard treatment of choice should be micro laryngeal surgery for non-neoplastic, benign, and early malignant, while radical surgery and radiotherapy for advanced malignant lesions.

### Footnote.

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