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Laryngeal Lesions Among Adults in University of Port Harcourt Teaching Hospital: Pattern and Management

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***IBEKWE MATILDA UJU, ADEKWUE IJEOMA**

Ear Nose And Throat Surgery Department University Of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria

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ABSTRACT

Background: There are many lesions that can affect the larynx. It could be neoplastic, infective or inflammatory. Others could be neurologic or autoimmune in nature. This study is to determine the pattern and management of lesions of the larynx among the adult population seen in the University of Port Harcourt teaching hospital in order to better equip as well as improve the services provided to these patients by the laryngologists. **Methodology** It is a retrospective descriptive analysis of adult patients that presented to the Ear Nose and Throat Surgery department who in addition to the complaints of symptoms of laryngeal disorder or lesion have confirmed diagnosis of laryngeal pathology. It is a three year review from January 2017 to December 2020. The clinic, theatre, ward registers were the source of data. Patients with incomplete records were excluded. **Result** There were 96 patients, 61males and 35 females. Males were more affected. Age ranged from 20-73 years. The commonest lesion was chronic laryngitis(28.1%) and laryngeal cancer was second commonest(24.1%) there was a significant statistical correlation between laryngeal lesions with gender and age with p values of 0.012 and 0.009 respectively. Emergency tracheostomy was carried out on 65.22%. Total laryngectomy was done on 26.08% of those with laryngeal cancer. All the patients with laryngitis had medical management. Mortality was 3.13%. **Conclusion:** Laryngeal lesions are common among adults in our environment, chronic laryngitis and laryngeal cancer were the commonest lesions seen. Age and sex were significantly related to the type of laryngeal lesion.

INTRODUCTION

The larynx or the voice box by virtue of its function remains an indispensable part of the head and neck region. Different lesions diverse in nature can affect this organ. These could be neoplastic; benign or malignant, infectious, inflammatory and traumatic. These lesions result in changes both in the structure and function of the larynx. It has been documented that the most common disorders of this area are neoplastic. [1] However, some researchers found inflammatory conditions such as reflux laryngitis commoner.[2] It was also noted that some disorders of the larynx have sex predilection for example, while vocal nodules and polyps tended to occur more in females, laryngeal cancers are seen more in the males.[2] Laryngeal cancer comprises 1/3rd of all head and neck cancers and is known to have significant burden of both morbidity and mortality.[3] It has an annual incidence of 157,000 cases worldwide.[4] The benign vocal cord lesions such as nodules, cysts and polyps often arise due to vocal overuse or trauma from repetitive overuse or misuse.[5]

Laryngitis which is an inflammation of the larynx can be acute or chronic. When the inflammation is mild and self-limiting lasting only a few days, it is said to be acute while that which persists up to 3 weeks is termed chronic.[6] The commonest cause of acute form is infection especially following a viral upper respiratory tract infection[7] it can also be from non-infective causes such as trauma seen as voice misuse or abuse, allergy, Gastroesophageal reflux disease and inhalational injuries.[7] Specific chronic laryngitis; such as Tuberculous laryngitis can also be seen and often can occur without any sign of pulmonary tuberculosis.[8] The main symptoms seen in patients with laryngeal pathology is dysphonia of various degrees.[9] Others are cough, throat pains and respiratory difficulty.[10] The study therefore is to determine the pattern and management of laryngeal lesions among the adult patients seen in the Ear Nose and Throat department of University of Port Harcourt Teaching Hospital.

MATERIALS AND METHODS

It is a retrospective descriptive analysis of adult patients that presented to the Ear Nose and T throat Surgery department who in addition to the complaints of symptoms of laryngeal disorder or lesion have confirmed diagnosis of laryngeal pathology. It is a three years review from January 2017 to December 2020. The clinic, ward and theatre records were the source of the

data. The demographics, presenting symptoms, specific laryngeal diagnosis and treatment were collated. The patients with incomplete records were excluded.

Descriptive statistics (frequency and percentage) was used to present distribution of the data. A cross-tabulation of diagnoses by demographic data and treatment was done with the Chi-square statistic. The analysis was with the Statistical Package for Social Sciences version 25 software at a 95% confidence interval and a p-value less than 0.05 was considered significant.

RESULTS

A total number of 96 cases met the inclusion criteria and had complete records and therefore were studied. There were 61 males and 35 females giving a male: female ratio of 1.7:1. The age ranged from 20-73 years with a mean age of 47.5+/- 14.5 years. The age group 50-60+ made up 50% of the population studied. (Table 1) Hoarseness was seen in almost all the patients n=89(70.6) followed by cough, throat pains and breathlessness in 8.7%, 6.4%and 5.6% respectively. (Table 2) The commonest condition was laryngitis with the chronic seen in n=27(28.1%), acute in n=17(17.7%) and Tuberculous laryngitis in n=2(2.1%). This is closely followed by laryngeal cancer in 24.1%. Benign laryngeal masses comprised 15.7%, distributed as vocal nodule 7.3%, papilloma 4.2% while polyps and cysts were 2.1% each. (Table 3)

Laryngeal conditions and gender distribution showed laryngeal cancer to be more in males (87%) than females (13%). While acute laryngitis and all the laryngeal papilloma was found in females, the other laryngeal disorders occurred more in males. This difference was found to be statistically significant with p value of 0.012.(table4). Age distribution of laryngeal lesions showed that laryngeal cancer was seen more in the ages 50 to 60+ while inflammatory conditions such as laryngitis was more in the ages 20 to 40 years. (table 5). The relationship of age and the type of laryngeal lesion was significant statistically; p value=0.009.

All the patients had endoscopy in the form of indirect, direct or flexible laryngoscopy carried out. The patients that had masses or tumors of any kind in the larynx were examined under anaesthesia by direct laryngoscopy and had biopsy done. More than half (65.22%) of the patients with laryngeal cancer and all the patients with trauma to the larynx had emergency tracheostomy carried out (65.22%). Total laryngectomy was done in 26.08% of the patients with laryngeal cancer while remaining half that opted for radiation therapy and surgery outside the country,

were referred since our Centre do not yet offer radiation services. Some of these were lost to follow up. The inflammatory conditions were managed with medical treatment only and did not undergo surgeries. The patients with trauma had initial emergency tracheostomy and definitive surgical repair subsequently. (Table 6) There were three mortalities recorded 3.13% and these had advanced laryngeal cancer.

Table No. 1: Demographic distribution of subjects

Variable	Frequency (n=96)	Percent ()
SEX		
Male	61	63.5
Female	35	36.5
Age Groups		
20 - 29	11	11.5
30 - 39	18	18.8
40 - 49	19	19.8
50 - 59	24	25
60 and above	24	25
Mean age	***47.5±14.5***	

Table No. 2: Distribution of Symptoms

	Frequency	Percent
Hoarseness	89	70.6
Cough	11	8.7
Breathless	7	5.6
Throat pains	8	6.4
Sore throat	4	3.2
Voice fatigue	3	2.4
Bleeding	1	0.8
Cough	1	0.8
Dysphagia	1	0.8
Heartburn	1	0.8
Total	**126**	**100.0**

Multiple responses apply.

Table No. 3: Distribution of Diagnoses

Diagnoses	Frequency	Percent
Chronic Laryngitis	27	28.1
Laryngeal cancer	23	24
Acute laryngitis	17	17.7
Laryngeal reflux	7	7.3
Vocal nodule	7	7.3
Laryngeal papilloma	4	4.2
Gun-shot injury	2	2.1
Laryngeal cyst	2	2.1
Laryngeal polyp	2	2.1
Tb laryngitis	2	2.1
Cut throat injury	1	1
Laryngocele	1	1
Traumatic dislocation	1	1
Total	**96**	**100**

Table No. 4: Distribution of diagnoses by Gender

	Male	Female	Total
Chronic Laryngitis	18(66.7)	9(33.3)	27(100)
Laryngeal cancer	20(87)	3(13)	23(100)
Acute laryngitis	5(29.4)	12(70.6)	17(100)
Laryngeal reflux	4(57.1)	3(42.9)	7(100)
Vocal nodule	5(71.4)	2(28.6)	7(100)
Laryngeal papilloma	0(0)	4(100)	4(100)
Gunshot injury	2(100)	0(0)	2(100)
Laryngeal cyst	2(100)	0(0)	2(100)
Laryngeal polyp	1(50)	1(50)	2(100)
Tb laryngitis	1(50)	1(50)	2(100)
Cut throat injury	1(100)	0(0)	1(100)
Laryngocele	1(100)	0(0)	1(100)
Traumatic dislocation	1(100)	0(0)	1(100)

Chi-square = 25.72, p =0.012; The distribution by gender is statistically significant.

Table No. 5: Distribution of diagnoses by age groups

	Age Groups (years)					
	20 - 29	**30 - 39**	**40 - 49**	**50 - 59**	**60 and above**	**Total**
Chronic Laryngitis	5(18.52)	6(22.22)	7(25.93)	3(11.11)	6(22.22)	**27(100)**
Laryngeal cancer	0(0)	0(0)	2(8.7)	7(30.43)	14(60.87)	**23(100)**
Acute laryngitis	3(17.65)	3(17.65)	4(23.53)	5(29.41)	2(11.76)	**17(100)**
Vocal nodule	0(0)	1(14.29)	1(14.29)	4(57.14)	1(14.29)	**7(100)**
Laryngeal reflux	0(0)	2(28.57)	2(28.57)	3(42.86)	0(0)	**7(100)**
Laryngeal papilloma	1(25)	0(0)	2(50)	1(25)	0(0)	**4(100)**
Tb laryngitis	0(0)	2(100)	0(0)	0(0)	0(0)	**2(100)**
Laryngeal polyp	1(50)	0(0)	0(0)	0(0)	1(50)	**2(100)**
Laryngeal cyst	0(0)	1(50)	1(50)	0(0)	0(0)	**2(100)**
Gunshot injury	0(0)	1(50)	0(0)	1(50)	0(0)	**2(100)**
Traumatic dislocation	1(100)	0(0)	0(0)	0(0)	0(0)	**1(100)**
Laryngocele	0(0)	1(100)	0(0)	0(0)	0(0)	**1(100)**
Cut throat injury	0(0)	1(100)	0(0)	0(0)	0(0)	**1(100)**

Chi-square = 74.33, p =0.009; The distribution by age groups is statistically significant.

Table No. 6: Distribution of diagnoses by treatment types

	EUA& Biopsy	**Emergency Tracheostomy**	**Laryngectomy**	**Medical treatment**	**Total**
Chronic Laryngitis	0(0)	O(0)	0(0)	27(100)	**27(100)**
Laryngeal cancer	23(100))	15(65.22%)	6(26.08%)	0(0) 3(lost)	**23(100)**
Acute laryngitis	0(0)	0(0)	0(0)	15(88.24)	**17(100)**
Vocal nodule	7(100)	0(0)	0(0)	0(0)	**7(100)**
Laryngeal reflux	0(0)	0(0)	0(0)	4(57.14)	**7(100)**
Laryngeal papilloma	4(100)	1(25)	0(0)	0(0)	**4(100)**
Tb laryngitis	2(100)	0(0)	0(0)	0(0)	**2(100)**
Laryngeal polyp	2(100)	0(0)	0(0)	0(0)	**2(100)**
Laryngeal cyst	2(100)	0(0)	0(0)	0(0)	**2(100)**
Gunshot injury	0(0)	2(100)	0(0)	0(0)	**2(100)**
Traumatic laryngeal dislocation	0(0)	1(100)	0(0)	0(0)	**1(100)**
Laryngocele	1(100)	0(0)	0(0)	0(0)	**1(100)**
Cut throat injury	0(0)	1(100)	0(0)	0(0)	**1(100)**

Chi-square = 114.91, p =0.00001; the distribution by diagnoses by treatment is statistically significant.

3 mortalities among the patients with laryngeal cancer who had advanced stage of the disease were recorded.

DISCUSSION

In the present study, there was a male preponderance as recorded in other studies.[10-12] The study population had an age range of 20 -73 years with a mean age of 47.5 years, in contrast Nwaorgu et al in their study in Ibadan had a mean age of 46.98years and Onotai et al with 58.5 years.[11,12]The elderly with ages from 50 to 60+years were the more affected as documented in similar studies.[12,13] Possibly because these researchers studied laryngeal tumors which is documented to be commoner in ages 50 years and above. In contrast another researcher found ages 30-40 years more commonly affected in a study on benign laryngeal lesions only.[10]

The commonly occurring symptoms noted were hoarseness, cough, breathlessness and throat pains which were also documented by other researchers.[9,12,14] Laryngitis of different forms were the commonest laryngeal lesion documented in the present study with chronic laryngitis being the most seen. This agrees with the study by Coyle et al however they documented laryngitis due to reflux as the commonest lesion.[2] In contrast, majority of other works had neoplastic lesions as the more commonly occurring lesions of the larynx.[1,12] It was noted that Tuberculous laryngitis was seen in only two cases unlike an earlier study in India that recorded 6 cases and another, 19 cases.[8,10]Laryngeal cancer was the second commonest lesion seen in the study and the commonest neoplastic lesion documented similar to the findings of other authors.[12,13]

A correlation of the different laryngeal lesions with sex showed as documented by other studies that laryngeal cancer was commoner in the males while benign lesions such as vocal nodules occurred more commonly in females.[2] In this study, papilloma was found only in females. This could be because most of the benign lesions arise as a result of phonatory trauma and vocal misuse and it is commoner to find women singing with wrong notes and therefore straining their voices. The repetitive overuse and misuse often gives rise to these conditions.[5]There was a significant statistical difference in distribution of laryngeal lesions and sex of patients. The age of the patients was also found to have a statistically significant correlation with the distribution

of laryngeal lesions. The inflammatory conditions such as laryngitis were found in the younger age group 20-40years and traumas such as cut throat, gunshot injuries and laryngeal trauma was found in the middle age group as documented by other works. [15,16] while the benign neoplastic lesions were found more among the young adults as recorded in an earlier work, [10]laryngeal cancer was seen more in the ages 50 to 60+ similar to the findings of most researchers.[11,12,14,17]

These conditions were all confirmed by endoscopy with the neoplastic lesions biopsied for histology. These patients often presented quite late and therefore with advanced diseases. Majority of the patients with laryngeal cancer presented with upper airway obstruction therefore were seen as emergencies. The first line of treatment hence was to secure the airway, 65.22% had emergency tracheostomy similar to the finding in other studies. [12,13,16,18,19] They were then offered the definitive treatment of total laryngectomy due to the advanced disease states. In a similar study by Fasunla et al, they recorded 57.7% of total laryngectomy in contrast to 26.08% in the present study.[18] In our society, people are reluctant about the option of losing their voice hence you have about 52.17%% opting for radiation and since our center does not yet offer this service, they were referred out to other Centres for treatment however these patients were lost to follow up. The benign lesions during the examination under anaesthesia had excision biopsies done as well. They were subsequently treated with counselling on voice therapy and behavioural modifications in agreement with other researchers.[5,20] The inflammatory conditions including Tuberculous laryngitis all had medical treatment.

There was a record of 3.13% mortality from advanced laryngeal cancer in this study.

CONCLUSION

Laryngeal lesions are common among adults in our environment, chronic laryngitis and laryngeal cancer were the commonest lesions seen. Age and sex were significantly related to the type of laryngeal lesion. Emergency tracheostomy was carried out in a good percentage of the patients due to upper airway obstruction. The patients with neoplastic lesions and trauma had surgical intervention while those with inflammatory conditions had medical treatment mainly.

Conflict of interest

None declared

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Image *Author -1*	***Author Name – Corresponding Author IBEKWE MATILDA UJU*** *Author Affiliation: CONSULTANT ENT SURGEON* *Author Address/Institute Address ENT SURGERY DEPARTMENT, UNIVERSITY OF PORT HARCOURT TEACHING HOSPITAL, PORT HARCOURT, RIVERS STATE, NIGERIA.*
Image *Author -2*	***Author Name- ADIEKWUE IJEOMA*** *Author Affiliation REGISTRAR IN ENT* *Author Address/Institute Address: SAME AS ABOVE*