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Surgical Review of Laryngeal Lesions in Port Harcourt, Nigeria.

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Abstract:
Background*:The larynx can be affected by a wide range of lesion that would necessitate surgical interventions. This lesion could be congenital, inflammatory, infections, trauma, tumour, or neurologic, however some of the lesion are peculiar to certain age groups. The surgical intervention would depend on the nature of the lesion. The aim of this study is to describe the clinicopathological profile of laryngeal lesions, the surgical treatment and outcome of treatment in patients seen.*
Materials and Methods*: This is a five-year retrospective study of all patients that were managed surgically for laryngeal lesion at the Ear, Nose and Throat Department of the University of Port Harcourt Teaching Hospital from June 2013 to May 2019. The data were extracted and analyzed.*
Results*: A total of 73 patients were seen during the study period, 50 males and 23 females (2.3:1). The age range was from 2 months to 76 years. laryngeal foreign bodies were commoner in children 0-10 year while laryngeal neoplasms and chronic laryngitis were commoner in older adults. The commonest presentation was dyspnoea (89.0%), hoarseness (63.0%) and fast breathing (57.5%). patients with foreign body aspiration tend to present early as against those with neoplasms. The commonest surgical procedure carried out was examination under anaesthesia and biopsy (100%), tracheostomy (87.7%) and laryngeal biopsy (41.1%). The nature of foreign body commonly seen were: fish bone,metal pins, metal foil, nail, plastic piece, broken bottle. Among patient with neoplasm squamous cell carcinoma (60.0%) was the commonest histologic diagnosis.*
Conclusion: *laryngeal lesions that requires surgical intervention show correlation between the age and aetiology, with the aetiology also affecting onset of presentation*.
Key Word*: laryngeal lesions, laryngeal pathology, surgical treatment.*

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I. Introduction

The larynx is located in the anterior aspect of the neck; it has cartilaginous frame work with muscles attached.[1] Its function is for phonation, respiration and prevention of aspiration, weight bearing and bearing down.[1, 2] The larynx like other organs in the body can be affected by a disorder such as a tumour, infection, inflammation, trauma, neurological or congenital condition. This could be in the form of a laryngeal carcinoma or laryngeal papilloma in adult, foreign body inhalation in children, laryngeal injuries from trauma or congenital laryngeal web.[3] These lesions could be in the supraglottic, glottis, subglottic region or transglottic.[3, 4]Certain lesions have been observed to be commoner among particular age groups. Laryngeal foreign bodies are commoner in children, while neoplastic lesion are more in middle age adult and the elderly.[1, 5]This usually affects their presentation, in the form of difficulty breathing, hoarseness, noisy breathing, fast breathing.[6] As clinician we should be able to differentiate the various form of noisy breathing which could occur in airway obstruction, such as stertor, snoring, stridor and wheezing.[6] Stridor is a high pitched musical sound that results from a partially obstructed upper airway.[6] Most laryngeal cancer arise from the epithelia surface of the larynx, thus are classified as keratinizing and non-keratinizing squamous cell carcinoma. Other rare malignant forms being; verrucous carcinoma, spindle cell carcinoma, adenocarcinoma, fibrosarcoma, and chondrosarcoma.[4, 7]Laryngeal lesions usually results in upper airway obstruction, this could present as life threatening emergencies that would require a surgical intervention.[3, 8] Emergency surgical interventions could be in the form of tracheostomy, cricothyrotomy, percutaneous dilatation tracheostomy or endotracheal intubation.[8, 9]While elective surgical procedure include examination under anaesthesia , biopsy, foreign body removal, neck exploration with repair, total or partial laryngectomy, laser laryngeal surgery, micro laryngeal surgery, endoscopic laryngeal surgery, trans oral robotic surgery TORS. The aim of this study is to analyze the clinicopathological profiles and surgical treatment options, with outcome after the treatment of cases with laryngeal lesions.

II. Material And Methods

This is a retrospective study that involves all patients that were managed surgically for laryngeal lesion at the ENT surgery department of UPTH. Data collection was from June 2013 to May 2018. The surgery registers and patient's folders were the source of data from which the biodata, clinical presentations, treatment, complications and histology were extracted. All patient had at least one surgical intervention and direct laryngoscopy. These were analyzed using SPSS 20.0.

Study Design: Retrospective study

Study Location: This was a tertiary care teaching hospital based study done in Department of Ear nose and throat surgery, at University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers state, Nigeria.

Study Duration: June 2013 to May 2018.

Inclusion criteria:

1. All patient presenting with a laryngeal lesion requiring surgical intervention.
2. All age group

Exclusion criteria:

1. Those patient with incomplete record due to poor record keeping.
2. Patient with laryngeal lesion that did not require surgical treatment.

Procedure methodology

The surgery registers and patient's folders were the source of data from which the biodata (such as age, gender), aetiology, clinical presentations, treatment, complications and histology were extracted. All patient had at least one surgical intervention and direct laryngoscopy.

Statistical analysis

Data was analyzed using SPSS version 20 (SPSS Inc., Chicago, IL). The data was analyzed by simple descriptive methods and results presented as tables of frequency and percentages for illustration.

III. Result

A total of 73 patients were managed for laryngeal lesion at University of Port Harcourt Teaching Hospital, 50 males and 23 females with a ratio of 2.3: 1. The age range of patients presenting was 2 months to 76 years. Table 1 show the age range of patients and the relationship with aetiology. The age group 0-10 years was the most affected age range requiring surgical intervention. All the children between the age of 0-10 years were managed for foreign body aspiration except for one child that was managed for laryngeal papilloma. While laryngeal trauma was commoner in the age range of 11-40 years and laryngeal neoplasm and chronic laryngitis were observed to be more in the patients in the age bracket of 50-80 years.

The presenting complaint observed in these patient is shown in Table 2. The duration of symptom before presentations depended on the nature of the lesion, for neoplasm it ranged from 5weeks – 16 years (mean of 2.57 years) while for Foreign bodies was 4 hours to 3months (mode of 1 day and median of 3 days), most of the patients with foreign body aspiration presented early with those with laryngeal neoplasm tend to present late. Among patient with trauma, most occurred from cut throat (6 cases), RTA (3 cases), strangulation (2 cases) and suicidal attempt (1 case). Duration from 1st visit to surgery ranged from 2 hours to 3 months. This depends on the nature of presentation by the patient as emergency and patient wiliness to accept surgery. Duration from 1st visit to surgery ranged from 1month to 2years 6months.

Most of the patient had at least soft tissue radiograph of the neck down, while some patient had CT scan of the neck. All 73 patient had surgical intervention, examination under anaesthesia and direct laryngoscopy, 64 had tracheostomy, 30 had biopsy done, 26 had foreign body removal done, 4 had total laryngectomy done as shown in Table 3. However, 16 patients had chemoradiotherapy for treatment of malignant lesion. Table 4 show the histologic diagnosis seen in patient with neoplasm. The nature of foreign body commonly seen were: fish bone, metal pins, metal foil, nail, plastic piece, broken bottle. The average duration of stay in these patient was 28.85 days, this stay ranged from 13 days to 82 days in admission. The surgical complications seen included: surgical emphysema in 5 cases, difficult extubation in 8 cases, dislodged tracheostomy tube in 3 cases and death in 6 cases while on admission.

TABLE 1: RELATIONSHIP OF AGE DISTRIBUTION AND AETIOLOGY

AGE (YEAR)	NUMBER	PERCENTAGE %	AETIOLOGY	NUMBERS/ PRECENTAGE %
0-10	26	35.6	FOREIGN BODY	25 (34.2)
11-20	1	1.4	LARYNGEAL TRAUMA	11 (15.1)
21-30	5	6.8		
31-40	5	6.8		
41-50	10	13.7	LARYNGEAL NEOPLASM / CHRONIC LARYNGITIS	37 (50.7)
51-60	14	19.2		
61-70	4	5.5		
71-80	8	11.0		
TOTAL	73	100		73 (100)

TABLE 2: PRESENTING COMPLAINT SEEN IN PATIENTS

PRESENTING COMPLAINT	NUMBER	PERCENTAGE %
DYSPNOEA	65	89.0
HOARSNESS	46	63.0
FAST BRATHING	42	57.5
NOISY BREATHING	39	53.4
FOREIGN BOGY ASPIRATION	22	30.1
DYSPHAGIA	20	27.4
SUDDEN COUGH/CHOKING	17	23.3
ODYNOPHAGIA	14	19.2
FEVER	10	13.7
TRAUMA	9	12.3
WEIGHT LOSS	7	9.6

TABLE 3: THE VARIOUS SURGERIES PROCEDURE PREFORMED

SURGERY	NUMBER	PERCENTAGE
EXAMINATION UNDER ANAESTHESIA AND DIRECT LARYNGOSCOPY	73	100
TRACHEOSTOMY	64	87.7
BIOPSY	30	41.1
FOREIGN BODY REMOVAL	26	35.6
NECK EXPLORATION/ REPAIR	6	8.2
TOTAL LAYNGECTOMY	6	8.2

TABLE 4: THE HISTOLOGIC PATTERN OF TISSUE BIOPSY

HISTOLOGY	NUMBER	PERCENTAGE
SQUAMOUS CELL CARCINOMA	18	60
ADENOCARCINOMA	3	10
SQUAMOUS CALL PAPILLOMA	3	10
LARYNGEAL POLYP	3	10
CHRONIC LARYNGITIS	2	6.7
TOTAL	30	100

IV. Discussion

Laryngeal disorders requiring surgical intervention are quiet common in otorhinolaryngologicalpractice. It was observed from this study that there was a male preponderance with male to female ratio of 2.3:1, this is very similar to study by Alabi et al that report of 2:1.[3] among patients with acute airway obstruction.[3] While Ogunleye et al noted male to female ratio of 4.3:1 in patients with upper airway obstruction.[8] This is also similar to works by Shinde and Hashmi.[1] The age range was from 2 month to 76 years, with most of the children presenting with foreign body aspiration, while neoplasm was noticed more in the patient above 40 years of age.

It was also observed that there was a close relationship between aetiology and age as illustrated in table 1. This is in keeping with several other works, as Murty P.S et al observed that 68.9% of cases of foreign body in the aerodigestive tract were children[5] also Foltran et al in a meta analytical review of foreign body in the airway reported that this occurred most commonly in children[10]. While Sharma et al noted that laryngeal neoplasms were seen in patient adult population > 20 year for benign neoplasm and > 30 years for malignant

neoplasms.[11]. A study on the clinicopathology of laryngeal mass by Shinde and Hashmi observed that neoplastic lesion occurred in > 20 years while this was commonest in the age group 60-70 years.[1]

The relationship between age and aetiology could be due to the peculiarities of the various age groups. Foreign bodies have been observed to be commoner in children because the they frequent put objects into their mouth and orifices, inability to chew properly, and coordinate swallowing adequately and they are playful while eating.[5, 12] However, the adolescent and younger adult age groups are more adventurous and thus most likely prone to trauma from road traffic accident, violent sport and activities.[13] While the older adults and elderly are predisposed to neoplastic lesion because of chronic exposure to carcinogenic substance like tobacco and alcohol, with the mucosa undergoing metaplastic changes over time.[2]

It was observed that the average duration of symptoms before presentation depending on the pathology, patients with foreign body aspiration presented earlier, this is probably because they have sudden symptom that compels them to present early. In contrast patients with neoplastic lesion tend to present late with some presenting more than 10 years after the onset of symptoms, this may be to due the insidious nature of the symptoms which they largely ignore for many years and also may be due to the health seeking behaviour of many people who reply on over the counter medications.

The clinical presentation depends on the aetiology, however generally the most common presenting complaint for laryngeal lesions is dyspnea. This is similar to the findings of this study as 89.0% of the patient presented with dyspnea, followed by hoarseness and fast breathing and noisy breathing. This is similar to the studies by Alabi et al who reported dyspnea followed by hoarseness, then noisy breathing and cough.[3] Although hoarseness has been reported as the commonest presenting complaint with patient with neoplastic laryngeal lesions.[1] In cases for foreign body aspiration Foltran et al in a meta-analysis on foreign bodies in the airways reported cough, chocking, and dyspnea as the most documented presentation.[10]

The most surgical procedure offered to patient and examination under anaesthesia and Direct laryngoscopy in all the patient. This was followed by tracheostomy to relieve upper airway obstruction or to protect and secure the airway. For patients with laryngeal trauma, there are treatment options varies depending on the nature of the injury. For penetrating neck injury there are different arguments for mandatory or selective neck exploration, but we performed selective neck exploration in 6 patients. [2]Total laryngectomy was performed on 6 patients.

Squamous cell carcinoma was the most common histologic diagnosis accounting for 60% of the total tissue biopsied for histologic analysis. This is similar to study by sharma et al with similar figures 58% of neoplastic lesion of the larynx was the squamous cell carcinoma.[11] While squamous papilloma and laryngeal polyp account for 10% respectively, sharma et al reported 8% and 30% respectively in their study.[11]

V. Conclusion

Laryngeal lesions that necessitates surgical intervention exhibits an association between the age and aetiology. The aetiology of laryngeal lesions also determine how early patient present for management.

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