

Endoscopic and Histologic Findings in Oesophageal Masses in a Tertiary Hospital Northwestern Nigeria: A Five Year Review

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Abstract

Background: Oesophageal masses, including cancers, are serious gastrointestinal conditions diagnosed and studied using endoscopic and histologic techniques to confirm. **Objectives:** To analyze and evaluate the endoscopic and histologic findings in oesophageal masses over a five year period. **Methodology:** This was a 5-year retrospective study of all patients with endoscopic and histologic diagnosis of oesophageal masses as seen at the Usmanu Danfodiyo University Teaching Hospital (UDUTH) Sokoto between January 2017 and December 2022. **Results:** The age range was 41-70, mean of 57.26±15.10 years and Male: Female ratio of 1.62: 1. The commonest indications were dysphagia and weight loss accounting for 64.7%. About half of the masses were located in the mid oesophagus, 50% were Squamous cell carcinoma, 8(23.5%) and Adenocarcinoma, 7(20.6%). Cigarette smoking as a risk factor was seen in only 2 (11.8%). Alcohol was not a recognized risk factor. Majority of the masses were located at the upper and mid oesophagus were squamous cell carcinoma and none was adenocarcinoma. Two-thirds of the masses seen at the lower oesophagus were histologically confirmed adenocarcinoma. The overall results were statistically significant ($p = 0.006$). **Conclusion:** Oesophageal masses during the period of the study were seen among patients over the age of 41 years, male gender predominated, dysphagia and weight loss were the most common clinical presentations. Mid oesophagus accounted for the majority of the masses and squamous cell carcinoma the predominating histologic type. Adenocarcinoma was seen dominating the lower esophagus.

Keywords: Oesophageal Masses, Endoscopy, Northern Nigeria.

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INTRODUCTION

One of the commonly encountered disorders in medical practice is upper gastrointestinal disorders resulting in significant number of morbidity and mortality. Oesophago-gastro-duodenoscopy is commonly used to diagnose various upper gastrointestinal tracts benign and malignant diseases. Suspicious tissue specimens can be removed using biopsy forceps of the endoscope for histopathologic analysis to diagnose suspected gastrointestinal lesions including oesophageal malignancy [1].

Oesophageal cancer (OC) is the seventh most common type of cancer worldwide and the sixth leading cause of cancer-related death, with a 5-year survival rate of 15–20%. The incidence is higher in males than females [2].

The commonest malignant oesophageal masses are oesophageal squamous cell carcinoma (OSCC) and

oesophageal adenocarcinoma (OAC). Oesophageal squamous cell carcinoma continues to be the most prevalent type worldwide. These cancers are prone to early metastasis given that the oesophagus does not have a serosa as well as the superficial nature of its lymphatics. Patients are often diagnosed in advance stage because oesophageal cancer lacks early specific clinical presentations [3]. A retrospective studies on OC, identified smoking, hot tea drinking, red meat consumption, poor oral health, low intake of fresh fruit and vegetables, and low socioeconomic status to be a significant risk factor of OSCC [4].

Gastroesophageal reflux disease (GORD) is a recognized risk factor for OAC. It may develop from Barrett's esophagus a metaplastic change of the oesophageal epithelium from squamous to intestinalised columnar mucosa, which is associated with chronic reflux which can be identified with of endoscopy. Few studies have investigated the association between GORD and risk of esophageal squamous cell carcinoma

(ESCC), which may also be affected by reflux. Upper gastrointestinal endoscopy and histology remains the significant factors useful for identifying patients at increased risk of OAC in clinical practice [4]. The pattern of OC is rapidly changing all over the world [5].

The study documented the endoscopic and histologic findings in oesophageal masses over a five year period in a Tertiary Hospital in Northern Nigeria with respect to the following:

To determine the demographic characteristics of oesophageal masses identified through endoscopic examinations over a five-year period.

To determine the distribution and the histological subtypes of oesophageal masses identified through endoscopic examinations over a five-year period.

To evaluate the correlation between endoscopic findings and histologic diagnosis of oesophageal masses.

These observation makes it essential that studies are made periodically in every region to describe the patterns of this disease with the view of improving interventions for better management strategies. It is on the bases of these that the authors were prompted to do the study. The study will also provide baseline local variables for future comparison.

METHODS

This was a retrospective study of patients with histologic diagnosis of oesophageal masses seen at the endoscopy unit of the Usmanu Danfodiyo University Teaching Hospital (UDUTH) Sokoto between January 2017 and December 2022.

The study population included all patients presenting to UDUTH with findings of oesophageal masses at endoscopy. The details of the patients were retrieved from hospital medical records and histopathology departments. Information was collated using a preformed questionnaire. The information collated included socio-demographic characteristics, clinical presentations, the location of oesophageal masses endoscopically identified and its histological diagnosis.

For the this study, oesophageal masses was divided into three groups based on their locations endoscopically: Upper 1/3 oesophageal masses are start 15cm from the upper incisors to 23cm from the incisors; Middle 1/3 oesophageal masses is 23cm to 32cm from the incisors while lower 1/3 from 32cm from the incisors to oesophago-gastric junction [6].

Data extracted was imputed into a computer and analyzed using IBM'S Statistical Package for Social Sciences software version 25 (SPSS, Chicago, IL). Categorical data were summarized as frequencies, proportions, and percentages while continuous data were presented as means \pm standard deviations. A p-value of less than 0.05 was accepted as statistically significant at a confidence interval of 95%.

Ethical Consideration

Approval was obtained from the Research and Ethics Committee of Usmanu Danfodiyo University Teaching Hospital before the commencement of the study.

RESULTS

Thirty-four patients were found with oesophageal masses during endoscopy at UDUTH between January 2017 and December 2021. The majority of the patients were between 41-70 years (70.6%) with a mean age of 57.26 ± 15.10 years.

The male gender predominated with 61.1% as shown in Table 1.

The commonest indication seen were dysphagia and weight loss accounting for (64.7%) of the cases.

Table III shows that about half of the masses were located at the mid oesophagus while the upper and lower oesophagus accounted for 26.5% each.

As shown in Table IV 17(50%) of the masses were Squamous cell carcinoma, 8(23.5%) were Adenocarcinoma, 7(20.6%) were Dysplasia, 1 (2.9%) were squamous cell papilloma while 1 (2.9%) could not be differentiated histologically.

Cigarette smoking as a risk factor for oesophageal cancer was seen in only 2 (11.8%) of patients with squamous cell carcinoma of the oesophagus though this was not statistically significant $p > 1.00$. None of the patients consumed alcohol as seen in Table V.

Table IV shows that 77.6% of the masses located at the upper oesophagus were squamous cell carcinoma and none was adenocarcinoma. Likewise, 56.2% of the masses at the mid-oesophagus were squamous cell carcinoma, 25% were reported as dysplasia and 12.5% were adenocarcinoma. On the contrary over two-thirds of the masses seen at the lower oesophagus were histologically confirmed adenocarcinoma. The overall results were statistically significant ($p = 0.006$).

Table I: Socio-Demographic Characteristics

Variables	Frequency (n=34)	Percentage (%)
Age(years)		
20-30	2	5.9
31-40	2	5.9
41-50	8	23.5
51-60	7	20.6
61-70	9	26.5
>70	6	17.6
Gender		
Male	21	61.8
Female	13	38.2
Mean ±SD	57.26±15.10	

Table II: Indications for the Upper Gastrointestinal Endoscopy

Variables	Frequency (n=34)	Percentage (%)
Weight loss	3	8.8
Dysphagia	10	29.4
Weight loss and Dysphagia	12	35.3
Weight loss and Anemia	2	5.9
Weight loss, Dysphagia and Odynophagia	4	11.8
Hematemesis	3	8.8

Table III: Location of the Mass in the Oesophagus

Variables	Frequency (n=34)	Percentage (%)
Upper oesophagus	9	26.5
Mid oesophagus	16	47.1
Lower oesophagus	9	26.5

Table IV: Histological Types

Variables	Frequency (n=34)	Percentage (%)
Dysplasia	7	20.6
Adenocarcinoma	8	23.5
Squamous cell carcinoma	17	50
Squamous cell Papilloma	1	2.9
Indeterminate	1	2.9

Table V: Alcohol and Cigarette Smoking as Risk Factor of Oesophageal Masses

Variables	Dysplasia (n=34) n(%)	Adenocarcinoma (n=34) n(%)	Squamous cell carcinoma (n=34) n(%)	Squamous cell Papiloma (n=34) n(%)	Indeterminate (n=34) n(%)	P value Test - statistics
Cigarrete smoking	0 (0)	0 (0)	2(11.8)	0 (0)	0 (0)	P=1.00 3.726
Alcohol consumption	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	

Table VI: Relationship Between the Endoscopic and Histologic Characteristic of Oesophageal Masses

Variables	Dysplasia (n=34) n(%)	Adenocarcinoma (n=34) n(%)	Squamous cell carcinoma (n=34) n(%)	Squamous cell Papiloma (n=34) n(%)	Indeterminate (n=34) n(%)	P value Test - statistics
Upper oesophagus	1 (11.1)	0 (0)	7 (77.8)	0 (0)	1(11.1)	P=0.006* 16.563
Mid oesophagus	4 (25)	2 (12.5)	9 (56.2)	1(6.2)	0 (0)	
Lower oesophagus	2 (22.2)	6 (66.7)	1(11.1)	0 (0)	0 (0)	



Figure 1: Endoscopic View of a Squamous Cell Carcinoma in the Middle Half of the Oesophagus

DISCUSSION

The mean age of the patients found during the recruitment period was $57.26 \pm 15-10$ years and over 70% of patients were over 40 years. These findings are similar to the systemic review and meta-analysis of oesophageal cancer in Africa by Asombang *et al.*, where they found that the incidence of oesophageal masses and oesophageal cancer rises sharply among people over the age of 40 years with peak age at about 75 years [7]. In contrast to the study done in the index country by Uchendu OJ where he studied the epidemiology of gastrointestinal cancers in Nigeria found that the mean age of oesophageal cancer are 63.2% with overall mean age of gastrointestinal cancer to be 53.4 ± 14.16 years. This could have been probably due to the study also involving other masses of the gastrointestinal tracts such as gastric and colonic masses [8].

The percentage of male gender with oesophageal masses was 61.1% as against 38.2% for female gender. This corroborate with studies in different parts of the world [1-9]. A study in Tanzania on characteristics of oesophageal cancer predominantly on African descents also revealed that 68% of the subjects were males [10]. The lower prevalence in females contribute to the hypothesis that estrogen can be an inhibitor for the oesophageal carcinogenesis and thus protective for females on the pre-menopausal stage [2].

The common presentations seen during the period of recruitment were dysphagia and weight loss accounting for 64.7% of the cases. Other indications for endoscopy in the subjects were odynophagia, hematemesis and anemia. This is in keeping with the existing literature where progressive dysphagia was stated as one of the commonest presenting complains of oesophageal masses [11]. A retrospective study by Mchambe and colleagues on endoscopic and clinico-

pathological pattern of oesophageal cancer and masses from two tertiary centers in the country over a five year period found that all the patients presenting with dysphagia and weight loss. Other findings in the study were odynophagia, hematemesis and regurgitation [5]. In another retrospective study by Anyahun and colleagues over an eleven year period at the University Teaching Hospital Nigeria, seventy six cases were seen over the period and all the patients had dysphagia as one of the main presenting symptoms, weight loss, regurgitation and chest pain were other symptoms of the presentation [6]. Dysphagia is commonly associated with bulky tumors that often obstruct the oesophageal lumen, impairing its function and causing pain especially when it occupies over 75% of the lumen [5].

The commonest risk factors for oesophageal masses such as cigarette smoking was seen in only 2 (11.8%) of patients with squamous cell carcinoma of the oesophagus but was not statistically significant. None of the patients recruited consumed alcohol. This finding was in contrast to the outcome of the study in the southern part of the country where 82% of the subjects either smoked cigarette or consumed alcohol and alcohol consumption was seen in most of the patients with squamous cell carcinoma of the esophagus [6]. A multicenter retrospective study during a fifteen year period on sex difference of oesophageal cancer in which over a thousand patients were used for analysis concluded that smoking and alcohol are the main risk factors for SCC, and these two risk factors seem to confer a synergistic risk effect. OACs are associated with Gastroesophageal reflux disease (GORD), central obesity and smoking but not alcohol. Cigarette carcinogens predispose to oesophageal cancer particularly nitrosamine when in contact with oesophageal mucosa [4-9]. The above findings in our study could be because existing evidence suggesting

some potential risk factor for OC such as low intake of fruits and vegetables, poor nutritional status, use of hot beverages, tylosis, underline gastrointestinal disease, infection and genetic factors were not studied, which could be the predisposition factor of OC in the studied environment [3].

The study demonstrates that half of the masses were located at mid oesophagus during endoscopy and 50% of the overall masses were SCC, and majority of the masses located at the upper and mid oesophagus were SCC while the masses seen at the lower esophagus were AC. The overall results was statistically significant ($p = 0.006$). A study in Tanzania by Mmbaga *et al.*, who conducted a study over three year period discovered that majority of the masses were located at mid-oesophagus which was similar to the index study [10]. Another study in the same country by Mchambe *et al.*, revealed that the middle third oesophagus (58.5%) was the most frequent anatomical site for OC followed by lower third with 27.4%. Squamous cell carcinoma (96.0%) was found to be the most common histopathological type occurring in 96.0% of the patients, of these, about two-third of the masses were in the mid esophagus. Adenocarcinoma occurred mainly in lower third (69.2%) [5]. Contrary to our findings Anyanahun and colleagues in southern Nigeria found that the commonest location of the oesophageal mass was distal third of the thoracic oesophagus in 51.9% of patients followed by middle third with 29.9%. However, the commonest histological subtype of cancer was SCC of 81.6%.⁶ Our finding is also at variant with other studies [12, 13], which reported the distal part of the oesophagus as the most common site for OC. The reason for there findings could not be found in the literature.

Limitations

1. The study was a retrospective study thus there may be missing or incomplete records, making it difficult to obtain a comprehensive view of the variables of interest.
2. The study reported that the distal part of the oesophagus was the commonest site for OC however, they do not explain why the factors that affect these relationships exist. Experimental studies are required to determine why certain factors are associated with a particular outcome

CONCLUSION

While there is a need for more comprehensive studies on oesophageal masses in Nigeria, the available data suggest that endoscopic and histologic findings are crucial for diagnosing and understanding these conditions. The findings can vary depending on the specific condition, highlighting the importance of these techniques in providing accurate diagnoses and guiding treatment strategies. Early screening and identification of oesophageal masses will likely play essential role in

the prevention and consequently reduce mortality in the future.

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