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ENDOSCOPIC EVALUATION AND MANAGEMENT OF PATIENTS PRESENTING WITH DYSPHAGIA

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Abstract

Objective: *Dysphagia is a commonly encountered complaint with which patients present to the Gastroenterology clinic. Endoscopy serves as the primary diagnostic tool to identify the underlying cause and guide appropriate treatment. Therefore, this study was aimed to assess the prevalence of different endoscopic findings in patients with dysphagia and evaluate their association with gender and age groups.*

Methodology: *This prospective, cross-sectional study was conducted at Patel Hospital, Karachi, over one year (October 2023–October 2024) using consecutive non-probability sampling. 173 dysphagia patients above 18 years undergoing upper GI endoscopy were included, while those with a history of upper GI surgery or unfit for the procedure were excluded. After informed consent, patients underwent history-taking, physical examination, and endoscopic evaluation, with findings documented and tissue samples sent for histopathology if needed. The chi-square test was performed to evaluate the association between endoscopic findings and age, gender, and clinical symptoms, keeping p-value of <0.05 as significant.*

Results: *The study findings showed that, out of 173 patients, a mean age of 49.79 ± 18.3 years, with a male predominance (56.6%). Patients were categorized into young (18–30 years, 18.5%), middle-aged (31–50 years, 31.8%),*

and older (≥51 years, 49.7%). Vomiting 32(18.5%) was the most common symptom, followed by weight loss 25(14.5%), and heartburn 23(13.3%), while food bolus impaction was least reported 2(1.2%). The most frequent endoscopic findings included esophageal growth 46(26.5%), benign stricture 27(15.6%), and esophagitis 18(10.4%), with malignancies more common in older males. Therapeutic interventions included SEMS placement for growth 17(9.8%), dilatation for benign stricture 24 (13.8%) and web 11(6.3%), and PEG tube placement 4(2.3%), with significant associations (p<0.0005).

Conclusion: *This study found a higher prevalence of malignant etiology in older individuals, with esophageal growth being the most common endoscopic finding in males, and benign esophageal strictures in females. A significant association was observed between clinical symptoms and endoscopic findings.*

INTRODUCTION

Dysphagia can be defined as an impairment causing difficulty in swallowing affecting any part of the upper gastrointestinal (UGI) tract, from the mouth to the lower esophageal sphincter [1]. Dysphagia can present as oropharyngeal dysphagia, characterized by difficulty during the initial stages of swallowing, or esophageal dysphagia, where there is a sensation of food or liquids becoming stuck as they move from the mouth to the stomach. In the adult population, the prevalence of dysphagia was found to be around 17% in a recent population-based investigation [2]. It is a typical presenting symptom of upper gastrointestinal (GI) conditions, including esophagitis, benign and malignant strictures of the esophagus, fibrous rings or webs inside the esophagus, and extrinsic compression of the esophagus [3].

There is a considerable correlation between dysphagia and morbidity and mortality. Dysphagia that is left untreated can result in starvation, dehydration, respiratory infections, or even death [2]. Sequelae of Dysphagia, such as aspiration pneumonia, are more common in elderly individuals. Patients suffering from dysphagia have significant social and psychological repercussions related to their swallowing difficulties, such as nervousness during meals or avoiding dining with others [1,3].

According to a study by Dantas RO, the upper gastrointestinal endoscopic findings in patients with dysphagia were as follows: benign esophageal stricture (5%), reflux esophagitis (10%), malignant esophageal stricture (22.5%), and Schatzki's ring (25%) [4]. In another study, of the individuals presenting with dysphagia, 21% had benign esophageal stricture and 14% had achalasia. Geographical variations exist in the prevalence of disorders leading to dysphagia, with distinct patterns observed across Western Europe, North America, South Asia, the Middle East, and Africa. In addition, the incidence of various etiological disorders varies based on the patient's age, gender, and other symptoms [5].

Dysphagia should always be investigated due to its detrimental effects on a patient's health and, more importantly, because of its frequent association with premalignant and malignant conditions like Barrett's esophagus and esophageal cancer. For individuals with dysphagia, upper GI endoscopy, namely esophago-gastro-duodenoscopy or EGD, is the preferred diagnostic technique because it enables direct visualization of the esophageal lesion [6]. Moreover, diagnostic, or therapeutic intervention, such as biopsy or dilatation of the questionable strictures or lesions, may be performed [7]. With a complication rate of about 1 in 1000 operations, upper GI endoscopy is generally a safe procedure. Bleeding, infection, perforation, heart issues, and drug side effects are rare consequences [8-10].

The aim of this study is to identify the frequency of various endoscopic findings encountered in patients presenting with dysphagia in our setting and to evaluate their association with gender, age and their clinical presentation, to evaluate the frequency of benign vs. malignant nature of the lesions, and to evaluate various endoscopic modalities used in the management of dysphagia.

METHODOLOGY

This was a prospective, cross-sectional study conducted at the Department of Gastroenterology, Patel Hospital, Karachi, using a consecutive non-probability sampling technique. An ethical approval was obtained from the institutional review board, with the reference # (ERC# PH/IRB/2023/029). The study duration was 1 year, from 31st October 2023 – 30th October 2024. A total of 173 patients above 18 years of age of both genders presented with dysphagia who were planned to undergo Upper GI Endoscopy and were willing to be part of the study and agreed to undergo advised investigations, were included in the study. Whereas patients who had a previous history of upper GI surgery and/or unfit for the endoscopic procedure owing to their comorbidities or general state of health were excluded from the study.

After successful approval from the IRB, an informed consent form in the language of understanding was given to potential patients. Patients who presented with complaints of dysphagia were assessed in the OPD, thorough history and physical examination were performed, and results were documented. Patients having indications for OGD were directed to the endoscopy suite for the procedure of upper gastrointestinal endoscopy under the standard protocol. Findings of the procedure were documented, along with any adverse events related to the procedure. A pre-structured performa was used to gather all necessary information, and where indicated, tissue samples were sent to a designated laboratory for histopathological analysis. Patients were advised on the pertinent plan of management, including therapeutic options or any further specialized tests, if needed.

The data was entered and analyzed using Statistical Package of the Social Sciences (SPSS) version 22.0. For continuous variables such as age, mean and standard deviation were used, while categorical variables were analyzed and presented as frequencies and percentages. The chi-square test was performed to evaluate the association between endoscopic findings and age, gender, and clinical symptoms, keeping p-value of <0.05 as significant.

RESULTS

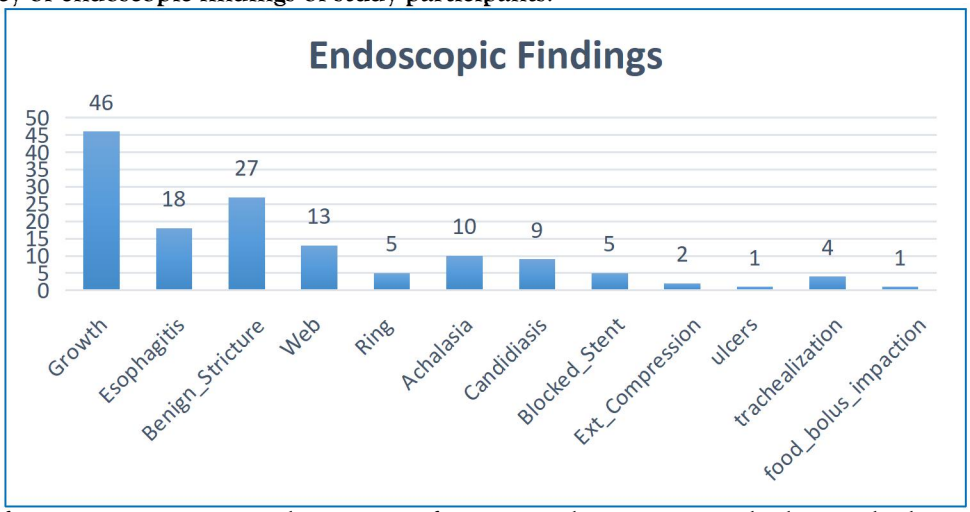
A total of 173 patients were recruited in the study, with the mean age of 49.79 ± 18.3 years, the gender distribution indicated male dominance with 98 (56.6%) and a female population of 75 (43.4%). Age was categorized as young age (18 – 30 years), middle age (31- 50 years) and old age (≥51 years) with 32 (18.5%), 55 (31.8%) and 86 (49.7%) patients in each category, respectively. The presenting complaints along with dysphagia ranged from vomiting 32 (18.5%), as the most frequently reported symptom followed by weight loss 25 (14.5%) and heartburn 23 (13.3%), while the least reported symptom was food bolus impaction 2(1.2%). The radiological investigations used for identification were CT scan, Manometry and Barium in 13 (7.5%), 7 (4%) and 7 (4%) patients, respectively, while the remaining patients did not have any radiological investigations at the time of the procedure, as presented in Table I.

Table I: Demographic details of patients with dysphagia (n=173).

Variables		Mean ± SD n(%)
Mean Age (years)		49.79 ± 18.3
Age groups	18 – 30 years	32 (18.5%)
	31- 50 years	55 (31.8%)
	≥51 years	86 (49.7%)
Gender	Male	98 (56.6%)
	Female	75 (43.4%)

The reported endoscopic findings included esophageal growth 46 (26.5%), benign stricture 27 (15.6%), esophagitis 18 (10.4%), web 13 (7.5%), and achalasia 10 (5.7%), while candidiasis, blocked stent, ring, trachealization, external compression, ulcer, and food bolus impaction were reported in 9 (5.2%), 5 (2.8%), 5 (2.8%), 4 (2.3%), 2 (1.1%), 1 (0.5%) and 1 (0.5%) respectively. (Fig. I)

Fig. I: Frequency of endoscopic findings of study participants.



Association of age categories with type of malignancies reported higher frequency of diagnosis in older age with 11(6.3%) Adenocarcinoma, 15 (8.6%) SCC and 4 (2.3%) non-specific histology. Male patients had a higher frequency of Adenocarcinoma and SCC as compared to female patients, with 9(5.2%) and 18(10.4%) respectively, as presented in Table II.

Table II: Association of age and gender.

Variables		Histopathological Diagnosis					p-value
		Adeno CA	SCC	non specific histology	Esophagitis	EOE	
age group	Young age	0	2 (1.1%)	2 (1.1%)	0	0	0.156
	middle age	5 (2.8%)	8 (4.6%)	4 (2.3%)	0	0	
	old age	11 (6.3%)	15 (8.6%)	4 (2.3%)	4 (2.3%)	1 (0.5%)	
Gender	Male	9 (5.2%)	18 (10.4%)	2 (1.1%)	3 (1.7%)	1 (0.5%)	0.100
	Female	7 (4%)	7 (4%)	8 (4.6%)	1 (0.5%)	0	

Esophageal growth was frequently reported in old age in 29 (16.7%) patients as compared to middle 13 (7.5%) and young age in 4 (2.3%), an increased frequency of web was reported in middle age patients with 7 (4.0%), while achalasia was higher in middle age patients at 8 (4.6%). The association of endoscopic findings with variables intimated that male patients had a higher frequency of growth 29 (16.7%), esophagitis 13 (7.5%), ring 3 (1.7%), achalasia 7(4%) and blocked stent 3(1.7%) as compared to female patients, while benign stricture 16(9.2%) and, web 9(5.2%) were high in female patients, with an insignificant difference among them (p=0.31). History of reflux was reported in esophagitis 11 (6.3%) and ring 2 (1.1%), while weight loss was reported frequently in growth 22 (12.7%), while vomiting was reported in growth 8 (4.6%), web 6 (3.4%), achalasia 4(2.3%) and blocked stent in 4 (2.3%) respectively, chest pain was reported in growth 5 (2.8%), heartburn in esophagitis 7 (4%) and anemia in web 5 (2.8%) and corrosive ingestion as benign stricture 12 (6.9%) respectively, with a significant difference among them (p<0.005). Therapeutic interventions were employed, including SEMS in 17 patients with malignant growths (9.8%), esophageal dilatation in 24 patients with benign strictures (13.8%) and 11 patients with esophageal webs (6.3%), and Peg tube placement in 4 patients with malignant growths (2.3%), with a significant difference between them (p<0.0005), as presented in Table III.

Table III: Association of endoscopic findings with demographics and therapeutic intervention.

Variables		Association of endoscopic findings with demographics and therapeutic intervention.								P-Value
		Growth	Esophagitis	Benign Stricture	Web	Ring	Achalasia	Candidiasis	Blocked Stent	
Gender	Male	29(16.7%)	13(7.5%)	11(6.3%)	4(2.3%)	3(1.7%)	7(4.0%)	6(3.4%)	3(1.7%)	0.31
	Female	17(9.8%)	5(2.8%)	16(9.2%)	9(5.2%)	2(1.1%)	3(1.7%)	3(1.7%)	2(1.1%)	
History	reflux	0	11(6.3%)	0	0	2(1.1%)	0	1(0.5%)	0	<0.0005
	weight loss	22(12.7%)	0	0	0	0	0	1(0.5%)	0	
	vomiting	8(4.6%)	0	3(1.7%)	6(3.4%)	1(0.5%)	4(2.3%)	2(1.1%)	4(2.3%)	
	Chest Pain	5(2.8%)	0	0	0	0	2(1.1%)	1(0.5%)	0	
	Heartburn	0	7(4.0%)	3(1.7%)	0	2(1.1%)	0	1(0.5%)	0	
	anemia	3(1.7%)	0	0	5(2.8%)	0	0	1(0.5%)	0	
	Corrosive Ingestion	0	0	12(6.9%)	0	0	0	0	0	
Therapeutics	SEMS	17(9.8%)	0	0	0	0	0	0	0	<0.0005
	Dilatation	0	0	24(13.8%)	11(6.3%)	4(2.3%)	9(5.2%)	0	0	
	Peg Tube	4(2.3%)	0	1(0.5%)	0	0	0	0	0	

DISCUSSION

Dysphagia encompasses a wide range of conditions, from functional disorders to malignant esophageal lesions, both of which manifest as swallowing difficulties in clinical practice. Esophageal dysphagia is commonly observed in clinical settings, and if left untreated, it can lead to considerable morbidity and mortality, emphasizing the need for timely diagnosis and management [11]. Therefore, this study demonstrated the frequency of various types of endoscopic findings in patients with dysphagia.

One of the studies evaluated 200 patients with dysphagia, with a mean age of 53.8 ± 15.4 years, with most of the patients (49%) in the age group of 56–65 years, and a nearly equal distribution of mechanical 96(48.0%) and non-mechanical 104(52.0%) causes of dysphagia. The most common mechanical cause was esophageal growth (70.8%), with squamous cell carcinoma (SCC) being the predominant malignancy (67 cases) [12]. The age-related trends observed in this study align with findings from other Indian studies [13, 14], indicating that this condition becomes more prevalent with advancing age. These findings were consistent with the present study, showing SCC as the leading malignancy in dysphagia patients, particularly among the older population. Similarly, adenocarcinoma was more frequent in middle-aged and older adults, while SCC was observed across all age groups. Moreover, the endoscopic findings in the present study also align with prior research, with esophageal growth being the most common pathology among males 29(16.7%), whereas benign stricture was more frequent in females 16(9.2%).

Likewise, another study found that foreign body sensation and chest pain were the most frequently reported symptoms, with over 90% of patients experiencing a combination of these complaints. These findings were expected as patients in clinical practice have a combination of symptoms. [12] The various other studies have also shown the concomitant presence of dyspeptic symptoms [15] a reduced body weight, and a lack of appetite, heartburn, and vomiting [16]. These findings were partially consistent with the above-mentioned studies and indicated that vomiting 32 (18.5%), was the most frequently reported symptom, followed by weight loss 25 (14.5%) and heartburn 23 (13.3%).

The present study showed that after endoscopic evaluation, the most frequent endoscopic finding was esophageal growth 29(16.7%) cases, followed by esophagitis 13(7.5%) cases and benign stricture 11(6.3%) cases in males. In females, benign stricture was the most common finding 16(9.2%) cases, followed by growth 17(9.8%) and web formation 9(5.2%) cases. These findings get the strength from the various other previous studies from India reporting esophageal growth as the main cause of dysphagia [17-19].

Another study reported that among the sixty-eight patients with esophageal growth, 38(55.9%) exhibited ulceroproliferative growth, while 26(38.2%)

had ulcerated lesions. Additionally, eight patients presented with both stricture and growth. Histopathological examination (HPE) revealed that 67 (88.2%) had squamous cell carcinoma (SCC), while six patients had dysplasia, and three showed hyperplastic stratified squamous epithelium, though the prevalence of SCC was notably high (>85%) [12]. These results were consistent with previous studies [17, 13]. In contrast, other studies did not observe any cases of adenocarcinoma [14, 15]. As far as the present study is concerned, among younger individuals, only 2(1.1%) cases of SCC and 2(1.1%) cases of non-specific histology were observed, with no cases of adenocarcinoma (Adeno CA), esophagitis, or eosinophilic esophagitis (EOE). In the middle-aged group, adenocarcinoma was present in 5(2.8%) cases, SCC in 8(4.6%) cases, and non-specific histology in 4(2.3%) cases, while esophagitis and EOE were not observed. In the older age group, adenocarcinoma was recorded in 11(6.3%), SCC in 15(8.6%) cases.

A population-based survey conducted by Adkins et al. found that about 16% of the US population experienced dysphagia. The most reported causes were gastro-esophageal reflux disease (GERD), eosinophilic esophagitis, and esophageal strictures, accounting for 30.9%, 8%, and 4.5%, respectively. Other causes, such as diffuse esophageal spasm, esophageal infection, achalasia, and scleroderma, were also reported [20]. These findings were dissimilar with the present study and indicated that the most frequent endoscopic finding was esophageal growth 29(16.7%) cases, followed by esophagitis 13(7.5%) cases and benign stricture 11(6.3%). In females, benign stricture was the most common finding 16(9.2%), followed by growth 17(9.8%) cases in dysphagia.

A study conducted by Mitra et al. found that malignancy was responsible for 35% of dysphagia cases, with squamous cell carcinoma of the esophagus being the most prevalent (71.7%), followed by esophageal adenocarcinoma (25.7%). Additionally, all patients diagnosed with malignancy in their study were habitual tobacco users, suggesting tobacco use as a potential contributing factor to dysphagia [13]. In contrast, in the present study, adenocarcinoma was recorded in 11(6.3%) cases, SCC in 15(8.6%) cases, non-specific histology in 4(2.3%) cases in the older age group.

Another study reported a mean patient age of 56.9 ± 17.44 years, with a nearly equal gender distribution (47.4% males and 52.6% females). Most patients were middle-aged (31–60 years) or older (61–80 years). The most common endoscopic findings included esophageal stricture (18.2%), achalasia cardia (14.6%), esophageal mass (8.8%), and reflux esophagitis (5%). No significant association was found between age, gender, symptom duration, and endoscopic findings. Esophageal stricture was more frequent in middle-aged patients (10.2%) and males (10.2%) compared to females (8.0%) [21]. Another study showed similar gender-related findings but reported a higher prevalence of esophageal stricture in patients over 50 years old. [22]. The present study was partially consistent with the above-mentioned studies and indicated that the mean age was 49.79 ± 18.3 years, with the male predominance 98 (56.6%) and female population of 75 (43.4%). Most of the patients were in middle age (31- 50 years) and old age (≥51 years) with 55 (31.8%) and 86 (49.7%) patients in each category, respectively. Moreover, the reported endoscopic findings included esophageal growth 46 (26.5%), followed by benign stricture 27 (15.6%), with an insignificant association with age group, gender, and endoscopic findings.

Endoscopic dilation (ED) remains the primary treatment approach for managing benign esophageal strictures (BESs). A recent retrospective study by Vermeulen et al. examined the outcomes of 59 patients with post-endotherapy esophageal strictures, who underwent an average of 3.8 ± 2.7 endoscopic dilations for treatment [23]. These findings were similar to the present study that revealed that a dilatation was performed in benign stricture 24(13.8%) cases, web 11(6.3%), ring 4(2.3%) cases, and achalasia 9(5.2%) cases.

This study has some limitations, including cross-sectional study design results in selection bias. Another limitation is small sample size of the study and the lack of follow-up of patients. As this is a single center study, another multi-center study with a bigger sample size and follow-up is recommended. Strengths of this study are patients' management, identification tool used for diagnosis, and a complete referral system for necessary cases. Further studies should explore additional risk factors such as lifestyle

and environmental influences to improve prevention and management strategies.

CONCLUSION

This study concluded that the older individuals with dysphagia had a higher prevalence of esophageal malignancy, while benign strictures and esophagitis were also noted. Gender-wise, esophageal growth was more common in males, whereas benign stricture was frequent in females. A significant association was found between clinical history and endoscopic findings, particularly reflux with esophagitis and weight loss with esophageal growth. These findings emphasize the importance of targeted endoscopic diagnostic and treatment strategies for the management of dysphagia.

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