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Contribution of Upper Digestive Endoscopy to the Management of Dysphagia at the Digestive Endoscopy Center of Idrissa Pouye General Hospital, Dakar: About 300 Cases

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Abstract

Introduction: Dysphagia is an alarming symptom that requires upper gastrointestinal endoscopy to determine its etiology. The aim of this study was to assess the diagnostic and therapeutic value of upper digestive endoscopy (EGD) in patients presenting with dysphagia in Senegal. **Methods**: A retrospective descriptive study was conducted from January 2017 to December 2021 at the digestive endoscopy unit of Idrissa Pouye General Hospital (HOGIP). Included patients were those whose indication for endoscopy was dysphagia. Incomplete records and ENT-related causes were excluded. **Results:** A total of 300 patients were included. The prevalence of dysphagia was 6.8%. The average age was 44 years, ranging from 1 to 88 years. The sex ratio was 0.5. Dysphagia was classified as oropharyngeal in 63.5% of cases, organic in 91.8%, and chronic in 73.6%. Endoscopy was normal in 42% of patients; among those with biopsies, findings included HPV esophagitis (33.3%), eosinophilic esophagitis (11.1%), non-specific esophagitis (7.4%), and normal histology (48.1%). The most common endoscopic abnormalities were esophageal rings (22%), suspicious malignant lesions (13.7%), candidiasis (10%), and peptic lesions (5.3%). Regarding the esophageal rings, 80.3% were related to Plummer-Vinson syndrome (PVS) and 20.8% were Schatzki rings. For malignant-looking tumor lesions, squamous cell carcinoma was found in 63% of patients and adenocarcinoma in 18.5%. Bougie dilation was performed in 20.3% of patients. **Conclusion:** EGD is an essential tool in the evaluation of dysphagia. At the diges-

tive endoscopy center of HOGIP Hospital in Dakar, the main etiologies identified were esophageal rings related to Plummer-Vinson syndrome and malignant tumors. Treatment mainly consisted of bougie dilation.

Keywords

Dysphagia, Upper Digestive Endoscopy, Plummer-Vinson Syndrome, Idrissa Pouye General Hospital, Senegal

1. Introduction

Dysphagia is defined as a sensation of discomfort during swallowing, often described as a feeling of blockage or stoppage of the food bolus along the esophageal pathway [1]-[3]. Classically, two types of dysphagia are distinguished: oropharyngeal dysphagia, affecting the initial phase of swallowing, and esophageal dysphagia, occurring during the passage of food through the esophagus. Oropharyngeal dysphagia, generally managed by otolaryngologists (ENT specialists), is caused by impaired propulsion of the bolus from the oropharynx to the esophagus, often due to neurological disorders or pharyngo-laryngeal tumors. Esophageal dysphagia, on the other hand, falls within the field of gastroenterology. It manifests as a sensation of obstruction when solids or liquids pass through the esophagus. This is the type of dysphagia addressed in our study. A common symptom in clinical practice, dysphagia affects between 5% and 20% of the general population according to various series [4] [5]. It is considered an alarming symptom, especially due to its potential link with serious conditions such as esophageal cancer. In the study by Dia *et al.* on esophageal cancer in Senegal, dysphagia was the initial symptom in 92.1% of cases [6]. Upper digestive endoscopy (EGD) is the first-line examination in the presence of dysphagia. It allows direct visualization of the esophageal mucosa, targeted biopsies, and sometimes therapeutic procedures (dilation, debulking, stent placement, etc.). In sub-Saharan Africa, and particularly in Senegal, data on dysphagia are scarce. Few studies have analyzed the diagnostic and therapeutic characteristics of dysphagia. The main objective of this study was therefore to determine the contribution of EGD in the diagnostic and therapeutic management of dysphagia, through a retrospective series of patients investigated at the digestive endoscopy unit of Idrissa Pouye General Hospital in Dakar.

2. Methods

This was a retrospective descriptive study conducted between January 2017 and December 2021 at the digestive endoscopy center of Idrissa Pouye General Hospital in Dakar (Senegal). The study population consisted of all patients who underwent upper gastrointestinal endoscopy during the study period. We included all patients for whom the indication was dysphagia. We excluded those with incomplete reports and those with ENT-related causes of dysphagia. Data collected included age, sex, indications, endoscopic and histological findings, as well as en-

doscopic therapeutic procedures. These data were analyzed using Sphinx software, version 5.

3. Results

During the study period, a total of 4568 EGDs were performed, of which 312 were indicated for dysphagia, representing a prevalence of 6.8%. Twelve reports were excluded: six due to the presence of an obstructive tumor of the oropharynx and six due to missing data on age and sex. Analysis was therefore conducted on 300 reports.

The mean age of the patients was 44 ± 18.25 years, ranging from 1 to 88 years. Patients under the age of 50 accounted for 65.4% of the sample (Figure 1). The sex ratio (male/female) was 0.5.

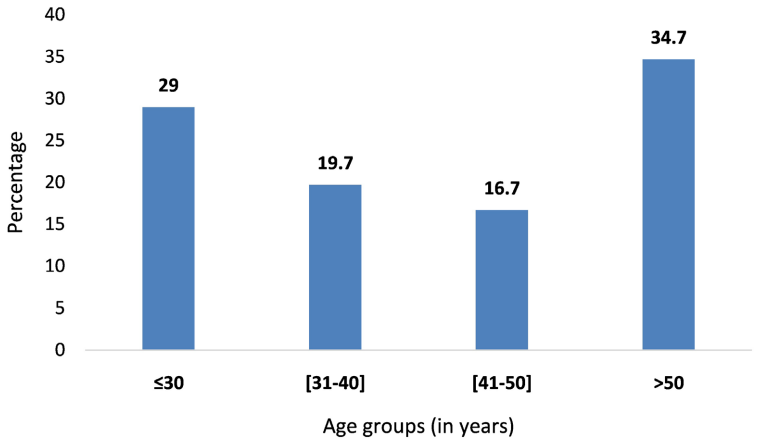

Figure 1. Distribution of patients by age group.

It was a high (oropharyngeal-type) dysphagia **in** 63.1% of cases. It was of organic origin in 91.8% of cases. It was chronic in 22.3% of patients. Associated symptoms were found in 33% of patients, mainly epigastric pain (28.3%) (Figure 2).

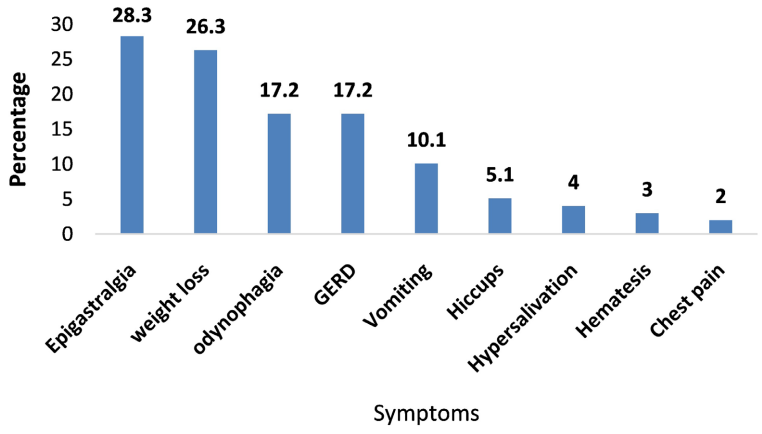

Figure 2. Symptoms associated with dysphagia.

Endoscopy was normal in 42% of cases.

Among the patients who underwent histopathological examination (55 patients), the results were normal in 48.1%, while eosinophilic esophagitis was observed in 11.1% of cases (Figure 3).

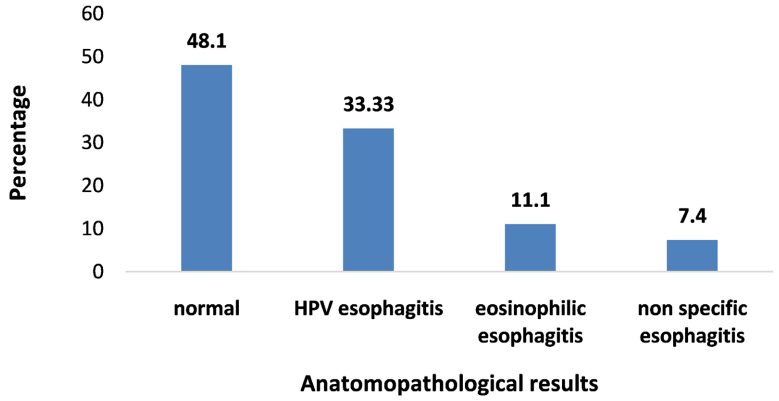

Figure 3. Anatomopathological findings in patients with normal EGD.

Endoscopic abnormalities were found in 174 patients (58%), mainly esophageal rings, which were present in 66 patients (22%) (Table 1).

Table 1. Distribution and frequency of endoscopic lesions in patients with dysphagia.

Lesion Type	Number (N)	Percentage (%)
Ring	66	22.0
Tumoral lesions	41	13.7
Esophageal candidiasis	30	10.0
Peptic lesions	16	5.3
Achalasia	13	4.3
Extrinsic compression	8	2.7
Pseudo-tracheal aspect	7	2.3
Caustic lesions	6	2.0
Ulcerated esophagitis	6	2.0
Radiation-induced lesions	4	1.3
Congenital stenosis	4	1.3
Dissecting esophagitis	4	1.3
Foreign bodies	2	0.7
Post-surgical stenosis	1	0.3
Diverticulum	1	0.3

In 90% of cases, the ring was solitary, located in the cervical esophagus in 80.3% of cases, consistent with Plummer-Vinson syndrome, corresponding to an estimated annual incidence of 10.6 cases.

A Schatzki ring was identified in 19 patients (20.8%). Some patients presented with both Plummer-Vinson-related rings and Schatzki rings.

Endoscopic dilation using Savary-Gilliard bougies was performed in 81.1% of patients, with an average of 1.5 sessions per patient (Table 2).

Table 2. Dilation session characteristics in plummer-vinson syndrome.

Variables		Number of patients (N)	Percentage (%)
Number of Dilation Sessions	1	25	58.8
	2	10	23.2
	3	6	13.9
	5	1	2
	6	1	2
Intervals between sessions (days)	15	1	5.5
	21	7	38.8
	30	9	50
	60	1	5.5

A malignant-appearing tumor lesion was found in 41 patients (13.7%), of whom 65.8% were women, with a mean age of 46 years (range: 16 to 88 years). These lesions were located in the lower third of the esophagus in 63.4% of cases, were stenosing in 80%, and impassable in 36.3% of cases. Histological examination of the biopsies revealed squamous cell carcinoma in 63% of cases (Figure 4).

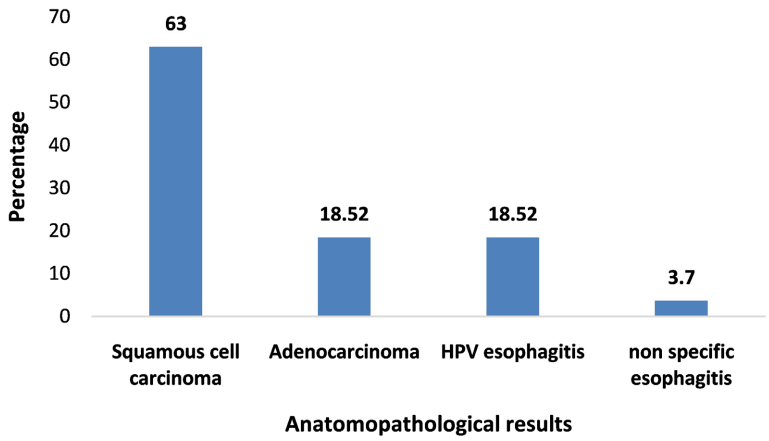

Figure 4. Anatomopathological findings in patients with tumor-like lesions.

White pseudomembranous deposits, suggestive of candidiasis, were observed in 30 patients (10%). Grades II and III were the most frequently represented, found in 38% of cases.

Peptic lesions were identified in 16 patients (5.3%), predominantly peptic esophagitis, which accounted for 81.3% of cases. It was severe (grades C and D) in 38.5% of cases, according to the Los Angeles classification.

An endoscopic appearance suggestive of achalasia was identified in 13 patients. Men represented 53.8% of the cases, and the mean age was 47 years (range: 17 to 88 years).

A caustic stricture was noted in 6 patients. In all cases, the nature of the ingested substance and the delay between ingestion and consultation were not specified. Endoscopic dilation with Savary-Gilliard bougies was performed in 4 patients, with 2 to 6 sessions per patient. A congenital esophageal stricture was diagnosed in four female patients (2%), with a mean age of 4 years (range: 2 to 6 years). One of them, aged 6, presented with impaction of a foreign body (large seed) at the level of the stricture. Endoscopic dilation using Savary-Gilliard bougies was performed after removal of the foreign body.

The endoscopic appearance suggestive of achalasia, identified in 13 patients, corresponded to an annual incidence of 2.6 cases.

A post-surgical stricture was observed in a 43-year-old man with a history of Heller myotomy combined with Nissen fundoplication. Endoscopy confirmed the surgical anatomy.

A Zenker's diverticulum was found in a 30-year-old woman.

4. Discussion

In our study, the prevalence of dysphagia was 6.8%, a figure close to that reported by Talley *et al.* in the United States, who found approximately 6% of individuals reporting swallowing difficulties in a survey on functional gastrointestinal symptoms [7].

In the general population, dysphagia is a frequent reason for consultation, with prevalence estimated between 5% and 20% according to different studies [4] [5] [8].

We observed a marked female predominance (66%), with a sex ratio of 0.5. This trend was also found in other studies: Kidambi *et al.*, Krishnamurthy *et al.* in the U.S., and Rachid *et al.* in Pakistan reported 57%, 58.1%, and 52.6% of female patients with dysphagia, respectively [9]-[11]. In contrast, some studies, such as those by Choukri *et al.* in Tunisia and Mitra T *et al.* in northern India, reported a male predominance of 60% and 63%, respectively [5].

This female predominance may be explained by several factors: greater healthcare-seeking behavior, more negative self-perception of health, and higher use of health services [12].

The mean age of patients was 44 years (range: 1 to 88 years), lower than in other studies [5] [9].

This difference may be due to our methodology, which included both children and adults, whereas most studies focused only on adults.

Dysphagia was oropharyngeal in 63.1% of cases and had an organic cause in 91.8%. However, there is no consistent correlation between the perceived site of dysphagia and the actual location of the causal lesion. Associated symptoms, mainly epigastric pain, were found in 28.3% of cases. The retrospective nature of our study

represents a limitation, particularly in the collection of clinical data and assessment of EGD indications.

Many reports were incomplete, which prevented precise characterization of dysphagia or documentation of physical examination findings.

Associated symptoms often help estimate functional impact, highlighting the importance of early assessment.

In our series, endoscopy was normal in 126 patients (42%), a result comparable to several studies reporting normal EGD rates between 30% and 45% [10] [13] [14].

However, a normal EGD does not rule out disease, particularly eosinophilic esophagitis, a common cause of dysphagia despite normal endoscopy.

This condition, once considered rare, has shown a notable increase in incidence. An American study reported a rise from 1.6% in 1999 to 11.2% in 2009, in parallel with an increase in esophageal biopsy rates, from 36.7% to 68.7% over the same period [9].

In our series, eosinophilic esophagitis was diagnosed in 11% of patients who underwent biopsy.

These data confirm the importance of systematic esophageal biopsies in cases of unexplained dysphagia with normal endoscopy.

A cervical esophageal ring suggestive of Plummer-Vinson syndrome (PVS) was found in 53 patients, corresponding to an estimated annual incidence of 10.6 cases. There was a marked female predominance (sex ratio of 0.15) and a mean age of 38 years. PVS, now rare in Western countries, is still frequently reported in Africa. In Senegal, Dia *et al.* recorded 27 cases in 21 months, an incidence of 13.5 cases per year, while Guèye *et al.* reported that PVS accounted for 70% of benign esophageal strictures [15]. In North Africa, studies also confirm the continued presence of PVS. In Morocco, Bakari *et al.* reported 135 cases over 18 years, an annual incidence of 7.5 cases [16]. PVS is a rare condition defined by the triad of dysphagia, iron-deficiency anemia, and a cervical esophageal ring.

Iron deficiency is the main etiological factor. Initially described in the West, the syndrome has become exceptional there due to improved nutritional and socioeconomic conditions, whereas it remains frequent in African countries, where poverty promotes iron deficiency.

PVS mainly affects young women, typically between the third and fourth decades of life, which corresponds to the reproductive period.

Several factors may explain this vulnerability: menstrual blood loss, closely spaced pregnancies, and prolonged breastfeeding [17]. Endoscopic dilation of the ring using Savary-Gilliard bougies was performed in 81% of female patients with a cervical ring.

In most cases (58.8%), a single session was sufficient.

This treatment is well established for esophageal rings, with or without association with PVS, as demonstrated by several studies [15] [18]-[20].

However, etiological treatment is essential when applicable, especially iron sup-

plementation in the context of PVS.

Esophageal cancer was diagnosed in 27 patients, representing 67.5% of tumor cases. In 63%, it was squamous cell carcinoma (SCC), the predominant histological type in the Global South, in contrast to the Global North, where adenocarcinoma predominates [21]. Unlike other African studies, such as Dia *et al.* in Senegal, which reported a male predominance (sex ratio of 1.9) [6], our study found a female predominance with a sex ratio of 0.2.

This could be explained by the high frequency of PVS in the female population, which is recognized as a precancerous condition [17].

Bassène *et al.*, at the Aristide Le Dantec Hospital in Dakar, reported an association between PVS and esophageal cancer, particularly in women [22]. This same observation was made by Bakari *et al.* in a cross-sectional study on PVS, in which two cases of SCC were associated with the syndrome [16]. Moreover, in their cohort followed for six years, three patients who had received optimal treatment for PVS later developed squamous cell carcinoma in the cervical esophagus, underlining the potential malignant progression of PVS. Therefore, regular surveillance of patients with PVS is recommended to enable early detection of esophageal cancer.

However, the follow-up modalities remain to be defined.

Regarding inflammatory lesions, peptic esophagitis observed in our series was severe (grade C or D) in 38.5% of cases. This high rate may be explained by the nature of our study population, which consisted exclusively of patients with dysphagia—a symptom more frequently associated with advanced stages of gastroesophageal reflux disease (GERD) [23].

Indeed, the development of severe esophageal lesions is often the result of prolonged exposure to GERD risk factors [24].

An endoscopic appearance suggestive of achalasia was identified in 13 patients, corresponding to an annual incidence of 2.6 cases.

This figure is comparable to national data.

Two Senegalese studies reported 15 cases over 7 years (2.1 cases/year) and 13 cases over 7 years (1.8 cases/year), respectively [25] [26]. These numbers remain low compared to European series:

- Salvador *et al.* in Italy recorded 200 cases over 10 years (20 cases/year)
- Alteroche *et al.* in France reported 345 cases over 19 years (18.1 cases/year) [27] [28].

In our study, the diagnosis of achalasia in the 13 reported cases was suggested based on characteristic endoscopic features, including a dilated esophagus, retained food or liquid despite fasting, and a tight, non-relaxing lower esophageal sphincter with a "bird-beak" appearance. These findings, although not confirmed by manometry, are widely accepted as suggestive of achalasia in settings where manometry is limited.

5. Conclusions

Our study highlights the etiological diversity of dysphagia in our population, pre-

dominantly due to organic causes. Upper digestive endoscopy (EGD) enabled the identification of structural abnormalities such as esophageal rings, strictures, and tumors, while also guiding the diagnosis of inflammatory or functional disorders such as eosinophilic esophagitis. Endoscopic dilation using Savary-Gilliard bougies was performed in most esophageal stricture cases, particularly in patients with Plummer-Vinson syndrome (PVS). Thus, dysphagia is an alarming symptom that may indicate serious underlying conditions requiring early diagnosis and management.

This approach relies heavily on EGD, underscoring the importance of improving access to this procedure by enhancing technical capacity and reducing costs.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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