

Prevalence of Dysphagia among Patients at Sohag University Hospital, Southern District of Egypt.

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Abstract:

Objectives: To study the prevalence of dysphagia and its epidemiology, among patients admitted to the otorhinolaryngology department, Sohag University Hospital along a year, measure the approximate size of the problem in our community, and review the different modalities of treatments given.

Study design: A case series study.

Methods: This study included all patients with dysphagia who had been admitted in our department, between 1st of May 2012 and 30th of April 2013. All patients had been submitted to a thorough history taking of dysphagia, complete ENT and neurologic examination. Investigations included water swallow test, radiologic, endoscopic and laboratory ones.

Results: Among 1861 patients, 346 patients had dysphagia (18.6%). with a mean age of ± 25.8 years. The largest age group was below 10 years, Foreign Body swallowing was the main cause in 218 patients (63%), and number of surgically treated patients was 69% of total.

Conclusions: Dysphagia represents a main complaint in a significant number of patients admitted to ENT department allover a year. A large number of our patients required tube feeding or gastrostomy, reflecting the increasing underlying chronic and advanced pathologies.

1-Introduction:

Dysphagia is defined as the difficulty or impossibility to swallow liquids, food or medication and can occur during the oropharyngeal or the esophageal phase of swallowing¹.

In older population, dysphagia has a significant impact on deglutition efficacy and safety. Impairment in deglutition efficacy may cause malnutrition and/ or dehydration while compromised safety increases the risk of aspiration pneumonia².

Approximately 7% of the population will experience dysphagia with risk equal

between genders and incidence increasing with age³. The prevalence of dysphagia can reach over 50% in hospitalized patients with acute illnesses e.g stroke or in nursing home residents aged 65 and older^{4, 5}.

Signs and symptoms that commonly motivate patients to seek medical care include coughing, choking, drooling, breathlessness, and gurgling between meals, dry oral mucosa, and feeling something is stuck in the throat. By analyzing these, health care providers can identify which phase of the swallowing process is involved⁶.

According to World Gastroenterology Organisation (WGO) Guidelines 2007. Oropharyngeal dysphagia, in young patients is most often caused by inflammatory, muscle diseases, webs, and rings. In older people, it is usually caused by central nervous system disorders, including stroke, Parkinson disease, and dementia. While three types are most likely to cause esophageal dysphagia:

- Mucosal (intrinsic) diseases, e.g Peptic stricture secondary to gastroesophageal reflux disease, esophageal rings and webs, and tumours.
- Mediastinal (extrinsic) diseases, which obstruct esophagus by direct invasion, e.g lung cancer, or through lymph node enlargement.
- Neuromuscular diseases affecting esophageal smooth muscle and its innervation, e.g Achalasia, postsurgical after fundoplication, antireflux devices.

In addition to Intraluminal foreign bodies as a cause of acute dysphagia⁷.

Foster et al. 2011, proposed a screening and diagnostic algorithm for dysphagia. The first step is based on observation by nurses or caregivers during mealtime, combined with swallow test and oxygen saturation. After positive screening, a clinical validation of dysphagia by speech and language therapist (SLT) is performed, followed by specific evaluation, like Video Fluoroscopic Swallowing Examination (VFSE) or Flexible Endoscopic Evaluation of Swallowing (FEES). After that a comprehensive assessment is done by multidisciplinary team⁸.

On this paper, all the data of patients with dysphagia who had been admitted to the otorhinolaryngology department at Sohag University Hospital was investigated. Sohag University Hospital is a tertiary referral center in Sohag Governorate, a southern district of Egypt (with a population over 4 millions). This research was designed to:

- Study the prevalence of dysphagia and its epidemiology, among patients admitted to our department over a year.
- Measure the approximate size of the problem in our community, and review the different modalities of treatments given.

Patients and Methods:

This study included all patients who had been presented with dysphagia whether at our outpatient clinics or been admitted in our department, between 1st of May 2012 and 30th of April 2013. They were 346 patients of total number of admitted patients 1861, with a percentage of 18.6%.

All patients had been submitted to through history taking of dysphagia with concentration on, location, types of foods or liquids, progressive or intermittent, and duration of symptoms. History taking also included any chronic illnesses, medications received.

Complete ENT and neurologic examination had been done. Apart from acute causes of dysphagia, chronic ones have been diagnosed by

- Water swallow test, with the patients drinking 150 ml of water, with recording time taken and number of swallows.
- Flexible Endoscopic Evaluation of Swallowing (FEES) was done in the Phoniatic Unit at Sohag University Hospitals.
- Radiological evaluation with plain X ray ± Barium swallow.

The diagnosis of patients with Gastro Esophageal Reflux Disease (GERD) was based on:

- 1) Typical symptoms of heartburn and regurgitation, foreign body sensation in throat which improved with proton pump inhibitors (PPI) treatment and diet modification (100% of cases).
- 2) Naso-fiberoptic laryngeal examination revealed interarytenoid granulations which improved with PPI treatment and diet modification (12 patients 70.6%). PPI was given at the maximal dose for 8 weeks then maintenance once daily dose (according to guidelines for diagnosis and management put by Katz et al.2013⁹).

While diagnosis of Plummer Vinson Syndrome depends on clinical findings, low HB level, and low iron binding capacity, we classified patients according to the cause of dysphagia, age, gender, residence, treatment received.

3-Results:

Among 1861 patients who had been admitted to ENT department, Sohag University Hospital, between May 2012 and end of April 2013, 346 patients had dysphagia as main complaint, with a percentage of (18.6%).

Males represented 204 (59%) of patients, while females were 142 patients (41%). The youngest patient was 1.5 months while the oldest one was 82 years, with a mean of ± 25.8 years. The largest age group was below 10 years, forming 48.8% of total (Table 1).

According to their residence, 230 (66.5%) patients were from rural areas, while 116 patients (33.5%) were from urban areas.

Regarding etiology of dysphagia, foreign body FB swallowing was the main cause in 218 patients, with a percentage of 63%, neoplasms (whether benign or malignant) were the cause in 72 patients (20.8%), and third frequent cause was post irradiation in 20 patients (5.8%; Table 2).

Analyzing the main causes of dysphagia:

(1) FB swallowing:

Patients below 10 years represented the majority with 161 patients, and patients of 50 years old or more were the second frequent group with 22 patients.

The hypopharynx was the main site of impaction, in 212 cases, while esophageal impaction happened in 6 patients only. The nature of FB swallowed is demonstrated in Fig.1. Seven cases presented with FB swallowing on top of chronic conditions: four cases were on top of Plummer Vinson Syndrome (PVS), two cases were on top of post corrosive strictures and one case was on top of congenital esophageal stricture.

(2) Neoplastic Causes

Dysphagia due to neoplasia was the cause in 72 patients (20.8%). Males were 50 patients (69.4%) while female were 22 patients (30.6%). Most of the patients were of 60 years old or more (43%), followed by the patients in their 6th decade of life (27.8%), Mean age was 54 years old. Malignant lesions were found in 70(97.2%) cases, while benign growths had been in 2 cases (2.8%).

Regarding the predisposing factors for malignant cases; 50 patients (71.4%) were smokers whether positive or negative smokers. 4 patients (5.7%) had preexisting PVS. Three patients (4.2%) were diagnosed to have associated GERD.

According to the site of the mass, the vast majority of cases were hypopharyngeal or laryngeal cancer with hypopharyngeal extension (82%) followed by external compression in (11%) of cases (table 3).

(3) Dysphagia due to neck radiotherapy:

Twenty patients presented with dysphagia due exposure to neck radiotherapy (5.8% of patients included in the study). Males were 15 of them. Most of the patients were of 60 years old or more (45%), followed by patients at their 6th decade of life (40%) with mean age 57.7 years old.

Ten cases received radiotherapy for laryngeal carcinoma, five cases had hypopharyngeal carcinoma, two cases with nasopharyngeal carcinoma, two cases with lymphoma and one case received radiotherapy for thyroid cancer.

(4) Dysphagia due to GERD

This group was composed of 17 patients (4.9% of total). Females were 15 patients (88.2%), and two male patients (11.8%).

Six patients (35.3%) were in their 5th decade of life, six patients (35.3%) were in their 4th decade while the remaining patients were in younger age groups. The mean age was 40 years old.

(5) Dysphagia due to Plummer Vinson Syndrome

14 patients (4% of total) had been presented with PVS. Most of them were females (11 patients; 78.6%), while male patients were 3 (21.4%). 6 patients (42.9%) were in their 5th decade of life, 5 patients (35.7%) were in their 4th decade of life, while 3 patients (21.4%) were in their 6th decade of life with mean age 41.7 years old. Regarding their residence; 11 patients (78.6%) were rural while 3 patients (21.4%) were urban.

Eight patients (57.1%) of them presented with complications, 4 patients presented with absolute dysphagia due foreign body impaction above the cricopharyngeal narrowing. The other 4 patients had presented with hypopharyngeal carcinoma.

(6) Dysphagia due to neurologic diseases

Twelve patients (3.5 % of total) had dysphagia due to neurologic disorders. Male patients were 9 of them. Four cases (33.3%) were 60 years old or more, 3 cases (25%) were in their 6th decade of life, 2 cases (16.7%) were in their 5th decade of life, 2 cases (16.7%) were teenagers and 1 case was

1.5 years old. The mean age was 43.6 years old.

Five patients of them (41.7%) were diagnosed to have cerebro-vascular accident, 3 patients (25%) were diagnosed to have multiple cranial neuritis, 3 patients (25%) had generalized myopathy and one patient had encephalitis.

(7) Dysphagia due to post corrosive esophageal stricture

Nine patients had presented with dysphagia due post corrosive esophageal stricture. They were 5 females and 4 males.

Vast majority of cases were children below 10 years old (7 cases; 77.8%), while the other 2 cases; one of them was in his 4th decade of life and the other in the 7th decade of life. The mean age was 13.7 years.

Patients' outcome:

Table.4 shows the management given to patients. Cases of malignancy needed the most prolonged management plans. Most of patients preferred radiotherapy± chemotherapy rather than the surgical procedures. About way of feeding in our series, 37 cases (10.7%) required nasogastric tube feeding, while 14 (4%) patients required feeding gastrostomy. Ten patients (2.9%) of patients included in the study died, 7 of them were diagnosed to have malignant masses and 3 were diagnosed to have recurrent stroke.

Table 1. Classification of patients according to their age and sex.

Age group	Number		Percentage
<10 ys	169		48.8%
	Male	Female	
	119(70%)	50(30%)	
10-19ys	21		6.1%
	Male	Female	
	9(43%)	12(57%)	
20-29ys	10		2.9%
	Male	Female	
	5(50%)	5(50%)	
30-39ys	20		5.8%
	Male	Female	
	4(20%)	16(80%)	
40-49ys	34		9.8%
	Male	Female	
	13(38%)	21(62%)	
50-59ys	41		11.8%
	Male	Female	
	21(51%)	20(49%)	
>60ys	51		14.7%
	Male	Female	
	33(64%)	18(46%)	

Table 2. Classification of patients according to the cause of dysphagia.

F.B Swallow	218 (63%)
Neoplasms	72 (20.8%)
Post irradiation	20 (5.8%)
GERD	17 (4.9%)
PVS	14 (4%)
Neurologic	12 (3.5%)
Post corrosive stricture	9 (2.6%)
Congenital	2 (0.6%)
Psychogenic	2 (0.6%)
Others	16 (4.6%)
Rheumatological dis.	4
Spine dis.	5
Oropharyngeal ulceration	4
Angioneuritic edema	1
Pharyngeal pouch.	1
Achalasia	1

Table 3. Site of neoplasms causing dysphagia.

Site	Number	Percentage
Hypopharyngeal carcinoma	30	41.7%
Laryngeal cancer with hypopharyngeal extension	29	40.3%
Esophageal carcinoma	1	1.4%
Gastric carcinoma	2	2.8%
Tonsillar lymphoma	2	2.8%
External compression:	8	11%
Cervical lymphadenopathy	4	
Mediastinal mass	3	
Malignant Thyroid	1	

Table 4: Treatments modalities provided to the patients

Diagnosis	Treatment modality	Number of cases	Percentage
Foreign body swallowing	Endoscopic guided removal.	218	100%
Mass	patients preferred to receive radiotherapy &\or chemotherapy, patients were advised for surgical procedures but they missed their follow up, patients died before any intervention after diagnosis, Patients chose the surgical option.	55	76.4%
		5	6.9%
		5	6.9%
		7	9.8%
Post irradiation	Medical treatment in the form steroids and anti-edematous	20	100%
GERD	Medical treatment in the form of proton pump inhibitors	17	100%
PVS	Endoscopic guided dilatation + parenteral iron therapy.	14	100%
Neurological	Medical treatment in the form of neurotonics, steroids and \or anti- ischemic measures.	12	100%
Post corrosive stricture	cases presented in the acute stage who received medical treatment with follow up; Cases presented in the late stage and advised for endoscopic guided dilatation but they missed their follow up.	7	77.8%
		2	22.2%
Spine diseases	Medical treatment in the form of analgesic, anti-inflammatory + diet modifications.	5	100%
Rheumatologic diseases	Medical treatment in the form of steroids +\- immunosuppressants.	4	100%
Oropharyngealulceration	Medical treatment mainly with steroids.	4	100%
Congenital stricture	patients were advised for surgical correction after removal of F.B but they missed their follow up.	2	100%
Psychogenic diseases	Medical treatment+ psychotherapy.	2	100%
Angioneuretic edema	Medical treatment with steroids and anti-allergic drugs.	1	100%
Hypopharyngeal pouch	Was advised for surgical correction but refused.	1	100%
Achalasia	Was advised for surgical correction but refused.	1	100%

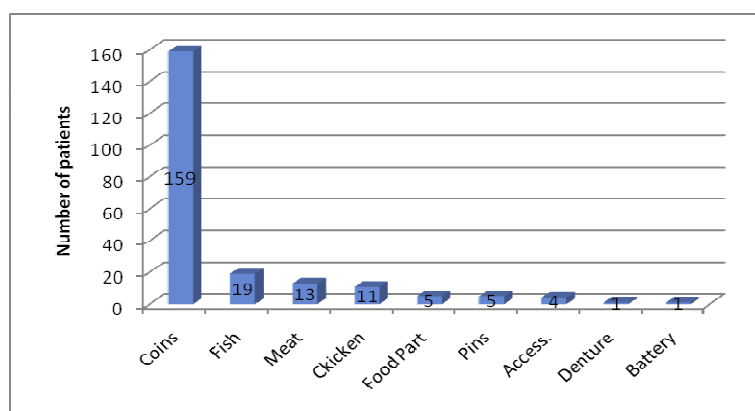


Fig.1: Type of impacted FB.
Data no.5: Food particles, data no.7: Accessories

Discussion:

Dysphagia is a common problem. For example, the incidence of dysphagia in acute care centers has been put as high as 33%, and studies in nursing home have shown that 30-40% of patients have swallowing disturbances⁷.

On the other hand, epidemiological data cannot be provided on a global basis; since the base rate of most diseases that may cause dysphagia tends to differ between countries⁷.

In this study patients presented with dysphagia over a year, constituted 18.6% (346 patients) of total number of patients admitted to ENT department at Sohag University Hospital. Dysphagia was reported by 16% (n=110) in a random sample of 1000 individuals in Sydney, Australia, who were mailed a validated self-report questionnaire to assess dysphagia, from them responders were 672 patients¹⁰.

In this work, the most affected age group was children below 10 years old (48.8%) with mean age of 25.86 years. This is attributed to high number of acute cases specially with FB impaction in our series, generally dysphagia occurs in all age groups but its prevalence increases with age, as the population ages, so does the incidence of conditions that predispose an individual to dysphagia, such as cerebral vascular accident, Parkinson's disease, dementia, GERD, tumors and strictures¹¹.

The current study estimated foreign body swallowing to be the most common cause of dysphagia representing 63% of cases (218 cases) with male to female ratio about 2:1 and children below 10 years old to be mostly affected (74% of cases). The most common patient group that unintentionally ingests foreign bodies is children, with most occurring between 6 months and 3 years^{12, 13}. Coins were the most common FB swallowed 72.9% of cases.

No much difference regarding the nature of FB swallowed, fish bones represented 8.7% of cases while meat lumps represented 6% of cases. In the

United States, meat such as hot dogs, pork, beef, and chicken are the most common foods that result in impaction¹⁴.

Seven of 56 of our patient who presented with food impaction, had chronic condition, while in study of Lacy P, et al. (1997), most patients (75-100%) who present with a food impaction have some type of predisposing esophageal pathology¹⁵.

This work showed that neoplasms are the 2nd most common cause for dysphagia (20.8%) with predominance of malignant lesions. About of 71% of patients were of 50 years old or more. Most of cases were hypopharyngeal or laryngeal with hypopharyngeal extension cancers (82%). 71 % of patients were smokers with variant degrees. Oropharyngeal dysphagia was present in 50.6% of patients with head and neck cancer treated by surgery and radiotherapy or chemotherapy, mostly to solid foods (72.4%) , studied by Garcia-Peris et al. in 2007¹⁶.

Radiotherapy to head and neck region caused dysphagia in 5.8% of our cases .According to Stone et al.(2003), Patients treated with chemoradiotherapy presented higher rates of dysphagia than the other groups due to the side effects of this treatment (xerostomia, mucositis, odynophagia, dysgeusia, etc)¹⁷.

Gastro-esophageal reflux in this study represented 4.9% of cases presented with dysphagia with female predominance (88%). A systematic review found that prevalence of GERD to be 10-20% of the western world with a lower prevalence in Asia¹⁸. Sharma et al, found that the prevalence of GERD was 16.2% in his study upon 4039 employees of a tertiary care center in India¹⁹. On other side, Plummer Vinson Syndrome represented 4% of cases with female predominance 78.6% and 78.8% of them were in their 4th and 5th decades of life. This number reflects low socioeconomic levels and nutritional deficiencies of our patients.

In a series of 1000 consecutive patients who underwent a cineradiographic examination of the hypopharynx and cervical esophagus, webs were found in

5.5% of the cases but only six patients had dysphagia attributable to the webs, and none of the patients fulfilled the criteria for Plummer-Vinson syndrome²⁰.

Neurologic diseases represented 3.5% of causes of dysphagia in this study with male predominance (75%). About 58.5% of patients were 50 years old or more. This small number doesn't represent the actual size of this category, as many patients are managed in other departments, or care homes. In cerebrovascular diseases, divergent prevalence of dysphagia was reported between 20-50%^{21, 22}.

Corrosive swallowing represented 2.6% of causes of dysphagia in this study with most cases (77.8%) children below 10 years old. The most common problem worldwide can lead to stricture formation in small children is ingestion of caustic liquids from around the household that range from bleach to hair care products²³.

As regard treatment provided, 239 patients (69%) underwent surgery, this reflects high number of acute cases in our series. 14.7% of patients needed assisted feeding through nasogastric tube or gastrostomy, this shows significant number of chronic cases in our study, while in the study of Garcia-Peris et al. on 87 patients with head and neck cancer treated with surgery and radiotherapy or chemotherapy, only 2 patients required tube feeding¹⁶.

Limitations:

This study gives approximate values about different causes of dysphagia in our locality, many causes may be underestimated. To get a more definite number about prevalence of dysphagia in our community, a survey should include all hospitals in Sohag governorate, or cover larger number of people to represent whole population.

Conclusions:

- Dysphagia represents a significant number of patients admitted to ENT department over a year.
- Foreign body swallowing is the main cause of dysphagia in our series, so this

raises number of surgically treated patients to 69% of total.

- Significant number of our patients required tube feeding or gastrostomy, reflecting the increasing underlying chronic and advanced pathologies.

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