

# A Prospective Study Evaluating the Etiologic Spectrum in Patients with Dysphagia in Coastal Odisha Using Clinical Features and Endoscopy

Subhendu Panigrahi<sup>1</sup> Chitta Ranjan Khatua<sup>1</sup> Debakanta Mishra<sup>1</sup> Prasanta Kumar Parida<sup>1</sup>  
Shivaram Prasad Singh<sup>1</sup>

<sup>1</sup>Department of Gastroenterology, SCB Medical College, Cuttack, Odisha, India

**Address for correspondence** Prof. Shivaram Prasad Singh, Department of Gastroenterology, SCB Medical College, Cuttack 753 007, Odisha, India (e-mail: scb\_gastro\_dept@hotmail.com).

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## Abstract

**Background** There is scarcity of data on the etiological spectrum of dysphagia from India. The study was conducted to determine the etiological spectrum of dysphagia in coastal Odisha.

**Materials and Methods** Consecutive patients presenting with dysphagia to the gastroenterology outpatient department in 2017 were studied. Patients were evaluated with meticulous history, clinical examination, esophagogastroduodenoscopy, and chest X-ray. Barium study and endoscopic biopsy were done when necessary.

**Results** Of 216 consecutive patients, 122 (56.48%) were male and 94 (43.52%) were female with a mean age of  $42.3 \pm 17.4$  years. The common etiologies were benign stricture in 68 (31.48%) and esophageal carcinoma in 51 (23.62%). Other etiologies included achalasia cardia in 11 (5.09%), esophageal candidiasis in 10 (4.63%), pharyngeal cancer in 4 (1.85%), and esophageal web in 3 (1.39%). In 63 (29.17%) cases, no etiology was detected. Most of the benign strictures were due to corrosive injury in 48 (70.59%); other causes included peptic stricture (8, 11.76%), postsurgery (4, 5.88%), sclerotherapy-induced stricture (2, 2.94%), and pill-induced stricture (2, 2.94%); in 4 (5.88%) cases, the cause of stricture was not known. The most common cause of corrosive injury was acid injury in 38 (79.17%), followed by alkali injury in 4 (8.34%). In 6 (12.5%) cases, the nature of corrosive was not known. Most of the corrosive injuries were due to suicidal intake.

**Conclusion** In this study, the most common cause of dysphagia was benign corrosive stricture due to suicidal intake of corrosives. Esophageal carcinoma, achalasia cardia, and esophageal candidiasis were other significant etiologies. Uncommon causes of dysphagia included esophageal web, pharyngeal cancer, and reflux esophagitis.

## Keywords

- barium study
- benign stricture
- corrosive injury
- esophagogastroduodenoscopy

## Introduction

Dysphagia, which means difficulty in swallowing, is a common symptom involved in gastrointestinal (GI) patients. It can be an important alarm symptom, especially when associated with other upper GI symptoms such as dyspepsia, GI bleeding, progressive weight loss, persistent vomiting,

or iron-deficiency anemia. Dysphagia may be caused by a variety of conditions, ranging from benign to malignant. Although the true prevalence of dysphagia is not known, it is reported to be 16% to 22% after the age of 50 years.<sup>1,2</sup> It may be due to an anatomical or motility disorder of the esophagus. Dysphagia needs to be investigated on an urgent basis to establish a diagnosis early in the course of the patient's

management and to rule out any ongoing serious pathology such as a neoplastic process. There are very scanty data on the etiological spectrum of dysphagia from India. The present study was performed to determine the etiological spectrum of dysphagia in coastal Odisha.

## Materials and Methods

Consecutive patients presenting with a history of dysphagia to the Gastroenterology Outpatient Department of SCB Medical College, Cuttack, Odisha, were included in the study. Period of the study was January 2017 to December 2017. An informed consent was taken from each patient both in oral and written forms. Those patients, who were unwilling for informed consent, were excluded from this study. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975 as revised in 2000. Institutional Ethics Committee clearance was obtained. Patients were evaluated for dysphagia with meticulous history, clinical examination, upper GI endoscopy, and chest X-ray. Barium swallow study and endoscopic biopsy with histopathological study were done when required. Esophageal manometry was performed in cases of suspected motility disorders of the esophagus whenever necessary. All the patients were followed-up for 6 months. Data were analyzed using simple statistical mean, average, percentage, and standard deviation.

## Results

Out of 216 consecutive patients, 122 (56.48%) were male and 94 (43.52%) were female with a male:female ratio of 1.3:1. The

**Table 1** Clinical characteristics

Clinical characteristics	Frequency
Age range (y)	
1–20	5
20–40	46
40–60	24
60–80	21
80–100	4
Male (%)	56.48
Female (%)	43.52
Mean duration of symptoms (mo)	2
Weight loss (%)	46.2
Dysphagia to solids (%)	36.45
Dysphagia to both solids and liquids (%)	64.5
Nasal regurgitation of foods and liquids (%)	24.8
Chest pain (%)	32.66
Acid reflux (%)	42.56
Corrosive ingestion (%)	70.59

mean age of patients was  $42.3 \pm 17.4$  years. ► **Table 1** depicts the clinical characteristics of patients. The common etiologies were benign stricture in 68 (31.48%) and esophageal carcinoma in 51 (23.62%). Other findings included achalasia cardia in 11 (5.09%), esophageal candidiasis in 10 (4.63%), pharyngeal cancer in 4 (1.85%), upper esophageal web in 3 (1.39%), reflux esophagitis in 2 (0.93%), foreign body esophagus in 2 (0.93%), and esophageal ring in 2 (0.93%). In 63 (29.17%) cases, no etiology was detected. Most of the benign strictures were due to corrosive injury to the esophagus which was seen in 48 (70.59%) patients, followed by peptic stricture in 8 (11.76%), postsurgery in 4 (5.88%), sclerotherapy-induced stricture in 2 (2.94%), and pill-induced stricture in 2 (2.94%). In 4 (5.88%) patients, the cause was not known. Among the corrosive injuries of the esophagus, the most common cause was acid injury in 38 (79.17%), followed by alkali injury in 4 (8.34%). In 6 (12.5%) cases, the nature of corrosive was not known. Most of the corrosive injuries were due to suicidal intake (64.58%) rather than accidental exposure (33.34%). ► **Table 2** shows the different causes of dysphagia seen in our study with the numbers and percentages (%). ► **Table 3** shows the profile of benign esophageal stricture.

**Table 2** Etiology of dysphagia

Etiology of dysphagia	Number of patients (n = 216), n (%)
Benign strictures	68 (31.48)
Functional dysphagia	63 (29.17)
Esophageal carcinoma	51 (23.62)
Achalasia cardia	11 (5.09)
Candida esophagitis	10 (4.63)
Pharyngeal cancer	4 (1.85)
Esophageal web	3 (1.39)
Esophageal ring	2 (0.93)
Reflux esophagitis	2 (0.93)
Foreign body esophagus	2 (0.93)

## Discussion

Dysphagia, not the most common symptom in GI practice, can be a warning symptom of more serious disease, and hence, it must be evaluated promptly for early diagnosis. There are very scanty data on the etiological spectrum of dysphagia from India. This study was undertaken to evaluate the etiology of dysphagia in coastal Odisha. Upper GI endoscopy is the most useful investigation for the initial evaluation of the cause of dysphagia.<sup>3</sup> Besides clinching the diagnosis, many times the cause can be corrected by a simple procedure such as endoscopic dilatation of a stricture, web, ring, or achalasia. Moreover, biopsy can also be taken during endoscopy to confirm malignancy. Although barium swallow study is a valuable test for the evaluation of dysphagia, upper GI endoscopy is a better option as compared with barium study in terms of diagnostic efficacy, cost-effectiveness, and safety.<sup>4</sup>

**Table 3** Profile of benign esophageal stricture

Etiology of strictures	Number of cases (n=68), n (%)
<b>Cause of injury</b>	
Corrosive ingestion	48 (70.59)
Peptic	8 (11.76)
Postoperative	4 (5.89)
Postsclerotherapy	2 (2.94)
Drug induced	2 (2.94)
Unknown	4 (5.89)
<b>Circumstances of corrosive injury</b>	
Accidental	16 (33.34)
Suicidal	31 (64.58)
Homicidal	1 (2.08)
<b>Nature of corrosive</b>	
Acid	38 (79.17)
Alkali	4 (8.34)
Unknown	6 (12.5)

In the present study, we found that the most frequently observed cause of dysphagia was benign stricture of the esophagus in 31.48% of cases. Of these, 70.59% of cases gave an unequivocal history of corrosive intake. Among the corrosive strictures of the esophagus, 79.17% were due to acid intake as a result of attempted suicide (64.58%). Qureshi et al

reported that corrosive injuries are frequently more serious in adults who intentionally ingested chemicals and usually in large volumes which leads to lifelong debilitating conditions. Most patients who developed strictures had ingested the corrosives with the intent of deliberate self-harm.<sup>5</sup> Other uncommon causes of benign stricture were peptic, postsurgery, postsclerotherapy, and drug induced along with few unknown causes. Krishnamurthy et al have also reported that benign stricture is the most common cause of dysphagia (40.8%).<sup>6</sup> Gilani et al, however, found it in only 5% of cases; this is explained in the fact that this study was conducted in the United States where the incidence of corrosive intake is low and peptic lesions are generally treated adequately.<sup>7</sup> Gupta et al have also reported that benign esophageal strictures were the commonest cause of dysphagia even in the elderly.<sup>8</sup> **Table 4** compares the etiological profile of dysphagia in different parts of the world. In contrast to our study, Kidambi et al from the United States, Qureshi et al from the United Kingdom, and Saad Gouda et al from Egypt found that reflux esophagitis was the most common cause of dysphagia.<sup>9-11</sup> Khan et al from Pakistan have reported that carcinoma esophagus (27.3%) was the most common cause of dysphagia, but functional dysphagia (20.9%) and reflux esophagitis (18%) were other common etiologies.<sup>12</sup>

We did not find any abnormality in 29.17% of cases. Gilani et al found normal esophagus in 32.5% of cases.<sup>7</sup> Krishnamurthy et al too found normal esophagus in 32.1% of cases.<sup>6</sup> Kidambi et al from the United States have reported an unspecified diagnosis accounted for 21.0% of cases.<sup>9</sup> Of the 63 (29.17%)

**Table 4** Comparison of etiological spectrum of dysphagia in different regions of the world

Patient demography and etiology of dysphagia	India (present study)	US <sup>9</sup>	UK <sup>10</sup>	Egypt <sup>11</sup>	Pakistan <sup>12</sup>
Year	2017	2009	2007	2015	2014
Number of patients	216	675	913	127	139
Age	42.3 ± 17.4	52.3 ± 16.8	NA	49.5 ± 16.4	52.4 ± 16.4
Sex ratio (male:female)	1.3:1	1:1.45	1.04:1	1:1.35	1.4:1
Benign strictures (%)	68 (31.48)	43 (6.3)	NA	22 (17.3)	12 (8.6)
Functional (%)	63 (29.17)	NA	NA	20 (15.7)	29 (20.9)
Carcinoma esophagus (%)	51 (23.62)	15 (2.2)	74 (8.1)	21 (16.5)	38 (27.3)
Achalasia cardia (%)	11 (5.09)	27 (4)	NA	12 (9.4)	7 (5)
Candida esophagitis (%)	10 (4.63)	19 (2.8)	NA	NA	NA
Pharyngeal cancer (%)	4 (1.85)	NA	NA	NA	NA
Esophageal web (%)	3 (1.39)	NA	NA	5 (3.9)	NA
Esophageal ring (%)	2 (0.93)	25 (3.7)	NA	NA	14 (10.1)
Reflux esophagitis (%)	2 (0.93)	163 (24.1)	182 (19.9)	25 (19.7)	25 (18)
Foreign body esophagus (%)	2 (0.93)	NA	NA	2 (1.6)	NA
Others (%)	NA	88 (13.0)	NA	NA	14 (10.1)

Abbreviation: NA, not available.

patients in whom no etiology was found, 14 were lost to follow-up and the remaining 49 patients were treated with anti-psychotic medications for anxiety/depression as indicated, and all of them were responded symptomatically to therapy.

Carcinoma esophagus, achalasia cardia, esophageal web, esophageal ring, pharyngeal cancer, reflux esophagitis, and esophageal candidiasis were other significant etiologies. Out of 51 cases of carcinoma esophagus, 32 (62.75%) cases were squamous cell carcinoma (SCC) and 19 (36.54%) cases were adenocarcinoma as diagnosed by histopathology. Among the carcinoma esophagus, nine were from the upper esophagus, 26 from the midesophagus, and 16 from the lower esophagus. SCC is the predominant histologic type of esophageal cancer worldwide.<sup>13-15</sup> Cherian et al 2007 also stated in their study that SCC was the most common malignancy seen in 912 (92%) patients.<sup>16</sup> Out of 11 cases of achalasia cardia, 6 cases have type 2 achalasia and two cases have type 3 achalasia diagnosed by esophageal manometry. Three cases did not have manometric study, and achalasia was diagnosed based on typical clinical, radiologic, and endoscopic features. ►Figs. 1 to 4 show the endoscopic view of candida esophagitis, esophageal ring, esophageal web, and carcinoma esophagus, respectively. ►Figs. 5 and 6 show the barium swallow radiograph of cases of esophageal stricture and achalasia cardia, respectively.

## Conclusion

This study shows the most common cause of dysphagia was benign corrosive stricture due to a high incidence of suicidal intake of corrosives in the young. Carcinoma esophagus, achalasia cardia, esophageal web, pharyngeal cancer, reflux esophagitis, and esophageal candidiasis were other significant etiologies. Measures should be undertaken for the prevention of corrosive injuries by creating public awareness about corrosive injury to the esophagus and ensuring storage of corrosive in distinct containers. Besides, there is a need for injury prevention advocacy and legislative intervention on the sale of corrosives.



Fig. 1 Candida esophagitis.

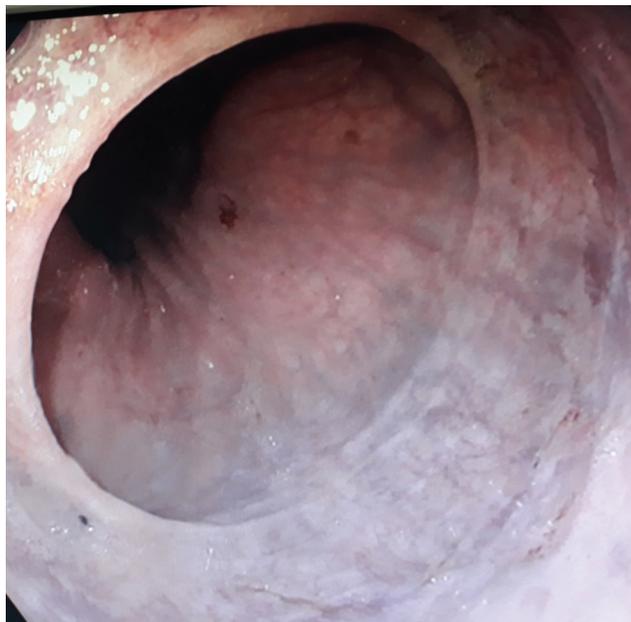


Fig. 2 Esophageal ring.

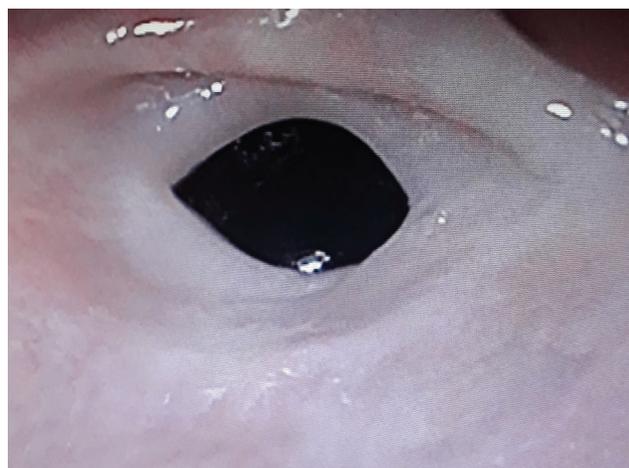


Fig. 3 Esophageal web.



Fig. 4 Carcinoma esophagus.

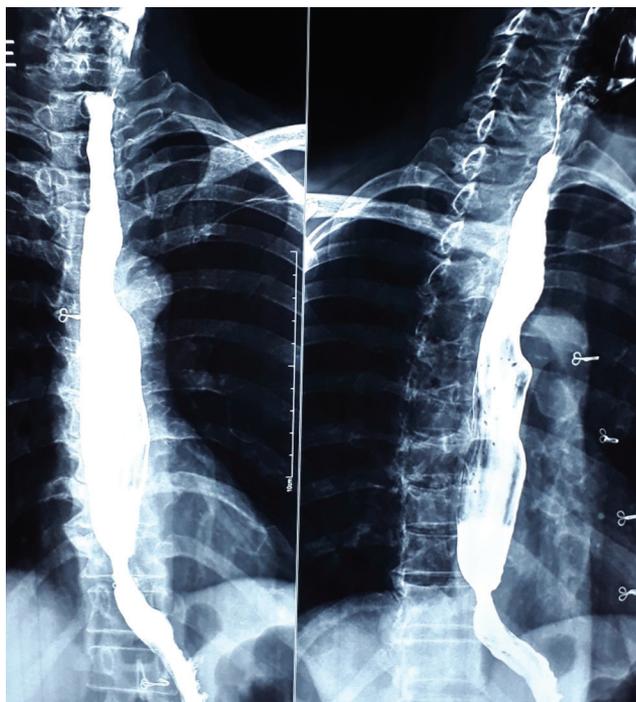


Fig. 5 Esophageal stricture.

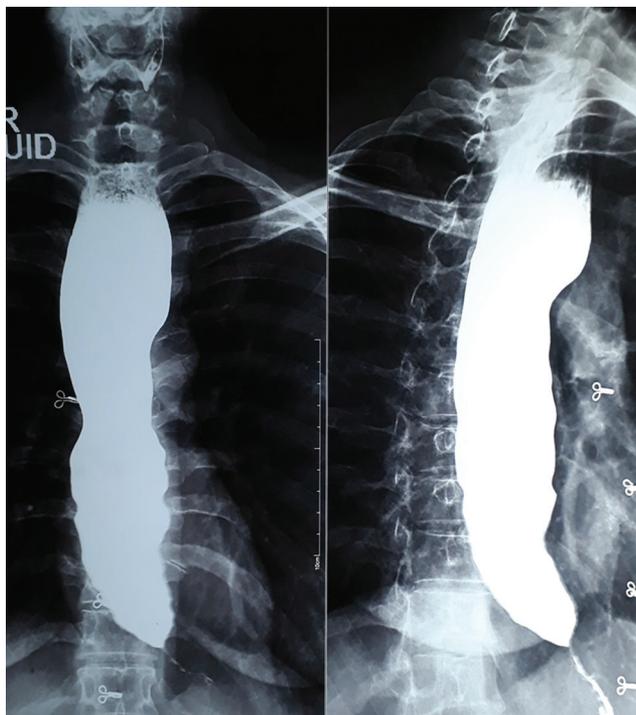


Fig. 6 Achalasia cardia.

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#### Conflicts of Interest

None.

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