

# ENDOSCOPIC DILATATION FOR CAUSTIC ESOPHAGEAL STRICTURES

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## ABSTRACT

**Objective:** To determine the outcome of esophageal dilatation in caustic esophageal strictures in our patients

**Material and Methods:** This descriptive study was conducted in the department of Gastroenterology and Hepatology Hayatabad medical complex from 1999 to 2007. Patients with caustic esophageal strictures and above 03 years of age were included. Patient with caustic stricture and fistulae or diverticulae, peptic stricture and malignant stricture were excluded. Patients were initially evaluated with barium swallow and meal. Consenting patient were asked to come in the morning after over night fasting. Guide wire was positioned across the strictures with the help of the endoscope (GIF-140/GIF-N130). SavouryGilliard plastic dilators of increasing sizing were employed. Repeated sessions were performed fortnightly till a 15mm (45Fr) lumen size was achieved. Follow up session were arranged whenever dysphagia developed.

**Results:** Out of 20 patients, 11 patients (55%) were more than 12 years of age. Mean age is 19.25 ranging from 3 years to 65 years. There were ten males (50%) and ten females (50%). Total dilatations were 442. Successful dilatation up to a lumen size of 15mm could be achieved in twelve patients (60%). In six patients (30%) satisfactory dilatation could not be achieved and were referred for surgery. Two patients (10%) had perforation with an incidence rate of 0.45%.

**Conclusion:** Caustic Stricture is more common in adolescent and adults in our population. Endoscopic dilatation is modestly effective in achieving adequate dilatation and relieving dysphagia

**Key Words:** Caustic Esophageal Stricture, Endoscopic Dilatation, Outcome, Perforation.

## INTRODUCTION

Caustic esophageal injury results from accidental ingestion of corrosive in children and intentional in adults.<sup>1,2</sup> The commonest causes are ingestion of strong alkali and highly concentrated acids. The extent and severity of injury depends on corrosive properties, amount, concentration, physical form and duration of contact of the agent with the mucosa.<sup>3-6</sup> Acute injury may result in esophageal, gastric or duodenal ulceration/perforation, mediastinitis, peritonitis and death.<sup>7</sup> Initial management is in intensive care unit focusing on volume resuscitation, airway management and looking for complications. Long-term sequelae include esophageal stricture formation and esophageal squamous cell carcinoma.<sup>8</sup> Once a stricture is identified, esophageal dilatation is initiated and gradually advanced to relieve dysphagia and dilate the esophageal lumen to 15 mm. Elective esophageal

resection with esophago-gastric anastomosis or colonic interposition is required in severe cases.<sup>10,11</sup>

This study was conducted to determine the outcome of esophageal dilatation in caustic esophageal strictures in our patients.

## MATERIAL AND METHODS

This descriptive study was conducted in the department of Gastroenterology and Hepatology Hayatabad medical complex from 1999 to 2007. Patients with caustic esophageal strictures and above 03 years of age were included. Patient with caustic stricture and fistulae or diverticulae, peptic stricture and malignant stricture were excluded. Patient presenting with dysphagia and history of caustic ingestion were initially evaluated with barium swallow and barium meal. Consenting patient were asked to come in the morning after over night fasting. Xylocain spray was used as local anesthesia. Medazolam was used before the

**BASE LINE CHARACTERISTICS**

Variable	Frequency (n=20)	%Age
<b>Age:</b>		
≤ 12 years	09	(45%)
> 12 years	11	(55%)
<b>Sex:</b>		
Male	10	(50%)
Female	10	(50%)
<b>No. of strictures</b>		
Multiple stricture	13	(65%)
Single stricture	7	(35%)

Table 1

procedure. Fluoroscopy was used where necessary. Guide wire was positioned across the strictures with the help of the endoscope (GIF-140/GIF-N130). SavouryGilliard plastic dilators of increasing sizing were employed. Starting from 5mm (15Fr) with an aim to achieve at least 15mm (45Fr) lumen size. Up to 4-8 dilators were employed in each session depending on the tolerance of the patient and stricture size. Repeated sessions were performed fortnightly till a 15mm (45Fr) lumen size was achieved. High dose PPI were given after each session.

**RESULTS**

A total of 20 patients were included in this study. Table 1 shows base line characteristics of the patients. Mean age is 19.25 years, with age ranging from 3 years to 65 years. Eleven patients (55%) were more than 12 years of age. There were ten males (50%) and ten females (50%). Thirteen patients (65%) had multiple strictures. Table 2 shows outcome of the endoscopic dilatation. Total dilatations were 442. Successful dilatation up to a lumen size of 15mm could be achieved in twelve patients (60%). In six patients (30%) satisfactory dilatation could not be achieved and were referred for surgery. Two patients (10%) had perforation with a procedure related incidence of perforation 0.45% and were managed accordingly. All perforations occurred in patients with long, tortuous and eccentric strictures.

**DISCUSSION**

Esophageal stricture and squamous cell carcinoma are the two late complications of caustic esophageal injury. For early detection of esophageal stricture, patients with grade 2 and 3 injury should have barium swallow at 2,4,6 and 8 weeks. Endoscopic surveillance for esophageal squamous carcinoma should begin 15 to 20 years after caustic injury and should not be conducted more frequently than every 1 to 3 years. Although endoscopic dilatation effectively relieves dysphagia

in benign esophageal stricture, there is little information on its efficacy and safety in caustic esophageal stricture. After analyzing data of 95 patients over the span of 28 years, Tohda G et al recommended that after caustic ingestion, upper gastrointestinal endoscopy should be performed early to define the extent of injury and guide appropriate therapy. Grade I injuries heal spontaneously and do not require surgery. Grade II injuries may be treated conservatively but repeat endoscopy helps define when intervention is needed. Grade III injuries ultimately require surgical intervention. Our study shows that a relatively younger population is affected with majority of the patients above 12 years. This is in contrast to international literature where majority of the population affected is young children. In another study by Mihalache C et al in majority of patients the 4th decade of age (24.13%) prevailed. Todha G et al showed the average age of 37.2 years where caustic ingestion was due to a suicide attempt in majority of patients. This is an interesting observation because caustic ingestion is mostly accidental in children and suicidal in adults. Whether this reflects a suicidal trend in our population will be difficult to discern as ours is a small study. We recommend an appropriately designed large study to clarify this observation. Successful dilatation up to 15mm that could relieve dysphagia was achieved in majority of the patients. A local study by Shabaz et al has reported successful dilatation in only 25% of cases of corrosive induced stricture. However in a large series of 52 cases of caustic stricture by Broor SL et al, initial dilatation was adequate in 94% of patients. Other researchers have also reported endoscopic dilatation as successful and a quite effective method in managing caustic esophageal strictures. Hamza AF et al showed 60% to 80% success rate with dilatation in caustic esophageal stricture in children, describing dilatation as the first line of treatment unless contraindicated. Colonic replacement of the esophagus is the ideal treatment in cases of caustic esophageal strictures after failure of dilatation.

Procedure related incidence rate of complications is low and is comparable to other researchers.

**OUTCOME OF ENDOSCOPIC DILATATION**

Variable	Results (n=20)
Successful dilatation (15mm)	12 patients (60%)
Unsuccessful dilatation (< 15mm)	6 patients (30%)
Perforation	2 patients (10%)
Total Number of dilatations	442
Incidence rate of complications	2/442 (0.45%)

Table 2

**CONCLUSION**

1. Caustic Stricture is more common in adolescent and adults in our population.
2. Endoscopic dilatation is modestly effective in achieving adequate initial dilatation and relieving dysphagia.

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