Use of Esophagostomy in the Management of Corrosive Esophageal Strictures

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Abstract
Thirty six cases of corrosive esophageal strictures seen over a period of ten years are presented. The primary treatment modalities followed included antegrade dilatation per oral (11 cases), retrograde followed by antegrade dilatation with endless string per oral (12), retrograde followed by antegrade dilatation with endless string through esophagostomy (12), and surgery (1). Per oral dilatation with endless string was not well tolerated by 15 patients due to friction of the string against the posterior 1/3rd of the tongue, and hence compliance was poor. Dilatation through esophagostomy was easy, and patient compliance was good. Furthermore, patients could be trained to do self bougienage easily through the esophagostomy. Esophagostomy closed within 4-6 weeks after successful distal dilatation was achieved.

Key words: Endless string, bougienage

Introduction
Corrosive strictures of the esophagus require early and effective treatment, since untreated they may lead to slow death resulting from dysphagia, malnutrition and respiratory complications. Strictures are treated either by dilatation or surgery.1 Dilatation is effective in the management of a majority of these cases but suffers from poor patient compliance due to the fear of procedure-related pain and trauma. Esophagostomy to achieve easy access for dilatation has been found to be useful in the management of these cases.1 We believe that teaching patients self bougienage is important to maintain adequate esophageal lumen after successful dilatation therapy.

We conducted this study to assess the safety, ease and patient compliance of string guided dilatation therapy through esophagostomy.

Material and Methods
We treated 36 cases (26 males, 10 females; age range 18 to 61 years) with corrosive esophageal strictures between January 1981 and December 1989. Twenty three strictures were caused by ingestion of acids and 13 were due to alkalis. They presented to us one to five months (median 13 weeks) following ingestion of the corrosive agent with features of weight loss and dehydration. Barium study showed upper 1/3rd stricture in eight cases and lower 2/3rd stricture in 27 cases. Stricture of the entire esophagus was present in one case and associated pyloric stenosis in two cases. Water and electrolyte deficiency was corrected by giving parenteral fluids or by gastrostomy feeds.

Dilatation modalities
Antegrade dilatation: Five cases with upper 1/3rd strictures and six cases with lower 2/3rd strictures were dilated using gum elastic bougies with the aid of an endoscope.

Gastrostomy with establishment of nasogastric endless string: This was done in 12 cases with lower esophageal strictures when the lumen was small. Endless string was established either by asking the patient to swallow a thread and retrieving it through a gastrostomy or by passing a ureteric catheter with the aid of fiberoptic endoscopy. The aim of endless string was to get a thread across the stricture for further string guided dilatations. Retrograde (via gastrostomy) followed by antegrade (per oral) dilatations were carried out in all 12 patients with the help of dilators prepared by us from simple India rubber urethral catheters.

At the end of each dilatation the thread was delivered through the nostril and secured to the cheek.

Esophagostomy and gastrostomy with esophago-gastric endless string: This procedure was followed in 12 cases who had poor compliance to per oral dilatation. Cervical loop esophagostomy was done and after one week dilatations were carried out first retrograde and then antegrade through the esophagostomy.

Dilatation Program
All dilatations were carried out under topical anesthesia. The frequency of dilatation was twice a week initially and once a week later, till sufficient esophageal lumen, ie 32-34 Fr was established. Whatever the modality of dilatation, the patients were taught self bougienage with nasogastric tube initially and later with gum elastic bougie (32 Fr). At discharge, they were advised to do self bougienage every day for the first 3 months, followed by at least once a week lifelong.

Results
The policy of initial retrograde dilatation followed by antegrade dilatation was followed in 24 patients. Antegrade dilatation through esophagostomy was far better tolerated than retrograde dilatation with
endless string or per oral dilatation. Compliance for per oral and retrograde dilatations was not satisfactory because of pain and bleeding intra orally and at the site of gastrostomy due to friction by the thread. This problem was not encountered intra orally with esophageostomy.

All our patients required on an average 4 to 5 weeks of dilatation sitting before they could be taught self bougienage. An average of 4 to 6 weeks and 12 dilatation sessions were required to achieve 32–34 Fr lumen. During this period, patients who had an esophageostomy were fed through a feeding gastrostomy. After the esophageostomy closed (4–6 weeks after successful dilatation was achieved), the patients continued per oral self bougienage.

Significant relief from dysphagia, as judged clinically and on barium studies, was obtained in all cases except one who required secondary surgical intervention. In another patient, surgery was done as the primary therapy as the entire esophagus was strictured.

Six (17%) patients developed significant chest pain following dilatation therapy. These included 3 cases from the antegrade dilatation group, 2 from the oral plus gastrostomy group, and one from the esophageostomy plus gastrostomy group. This was treated conservatively as mediastinitis with analgesics and antibiotics. None of the patients developed perforation of the esophagus.

Fifteen patients followed up regularly and are continuing self bougienage. Follow up period ranged from 6 months to 5 years and there was no difference in duration of follow up between the groups. Repeat barium studies show adequate lumen.

Discussion

Ingestion of acids (23/36 cases) with suicidal intent (22/36) was the commonest cause of corrosive injury in the present study. Unlike in the West, accidental or suicidal ingestion of acids is a common type of corrosive injury here, and contrary to popular belief, esophageal involvement is common. All the cases in the present study came to us with established strictures.

Although the role of dilatation in the management of corrosive strictures of the esophagus is well established, this procedure is associated with the risk of esophageal perforation. Jackson and Jackson recommend retrograde esophageal dilatation using a string or fishline guided bougie as they feel that it is the safest method. Per oral antegrade string dilatation has been advocated by others. Mercury filled Hurst bougies were used for minimal or moderate strictures.

Appleberg used retrograde dilatations in 22 patients and reported good results in 17 and fair response in two. Similarly, others have expressed satisfactory results with retrograde bougienage. In our series, all patients except one had relief from dysphagia when treated with any of the three modalities of dilatation. One patient with upper 1/3rd stricture required local reconstructive surgery to excise a non resilient fibrotic segment.

The role of esophageostomy has been stressed before. It is helpful in patients who have drifted from one surgeon to the other due to poor tolerance to per oral or retrograde (through gastrostomy) dilatations. The procedure and management of esophageostomy are simple. Dilatation through esophageostomy was easy, painless and comfortable; hence patient compliance was good. There were no complications associated with this method in our study. Esophageostomy closure on its own once sufficient esophageal lumen is established. Further, we were able to teach patients the method of self bougienage, which they carried out confidently at home.

Imre and Kopp have recommended surgery as the primary mode of therapy. They reported 42 cases treated with intra-thoracic esophageal replacement with an overall mortality of 2–4%. We recommend surgical intervention only when (i) the dilatation program fails, (ii) the esophagus is markedly irregular and pockeeted, or (iii) complications develop during dilatation. One patient in our series who underwent surgery did so at 12 weeks for failure of dilatation program and another for stricture of the entire esophagus.

We highlight the advantage of esophageostomy in string guided retrograde dilatation therapy and self bougienage.

References


Received October 19, 1990 Accepted July 26, 1991

ESOPHAGEOSTOMY IN ESOPHAGEAL STRICTURES

—BAPAT ET AL.