# Palliative Dilation for Dysphagia in Esophageal Carcinoma

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**We retrospectively reviewed our experience with palliative dilation for dysphagia in esophageal carcinoma. During a 3-year period 26 patients with squamous-cell carcinoma of the esophagus underwent peroral esophageal dilation for relief of dysphagia. Twenty-four were able to resume a soft or regular diet after dilation. This improvement was accomplished with low morbidity and no mortality. Dilations were done without additional risk in patients with malignant tracheoesophageal fistulae and in patients undergoing radiation therapy. We conclude that esophageal dilation can be done safely and effectively in patients with squamous-cell carcinoma of the esophagus. Palliative dilation can significantly improve the quality of life for these patients and should be considered an important part of their management plan.**

DYSPHAGIA is the most common presenting symptom of carcinoma of the esophagus. If the patient is not a surgical candidate (as occurs in about two thirds of the cases) (1), his inability to swallow will quite early in the course of his disease necessitate either severe dietary restriction or a surgical procedure such as a feeding gastrostomy. As such, patients who could otherwise function well at work or home must spend significant time in the hospital because of failure to maintain oral nutrition.

In view of the dismal prognosis of carcinoma of the esophagus (5-year survival rate, 5%) (2), palliation of dysphagia takes on critical importance in the care of these patients. A simple and safe method of achieving relatively normal swallowing (especially during the period when other aspects of the disease have not yet taken their toll) would permit more time at home, continuation of daily activities, and extended enjoyment of oral alimentation.

Peroral dilation of malignant esophageal strictures is a potentially effective but vastly underused method of achieving such palliation, probably due to fear of perforation. We report here on the safety and effectiveness of this procedure in 26 patients with dysphagia due to carcinoma of the esophagus.

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## Patients

Twenty-nine patients with squamous-cell carcinoma of the esophagus were seen at Walter Reed Army Medical Center over a $3\frac{1}{2}$-year period (January 1973 to July 1976). Dysphagia was the initial complaint in 28 of the 29 and was present an average of 12 weeks (range, 2 to 31 weeks) before the patient sought medical attention. Two of the patients presented moribund and died shortly after admission before any dilations could be started, and one did not have dysphagia. This study examines the remaining 26 patients. Dysphagia causing significant dietary modification was the indication for beginning dilation.

## Materials and Methods

Esophageal dilations were done under fluoroscopic control by multiple physicians according to techniques previously described (3). Two types of esophageal dilators were used: mercury-filled rubber bougies, either the blunt-tipped Hurst (Pilling Co., Fort Washington, Pennsylvania) or the tapered-tipped Maloney (Pilling Co.); or Eder-Puestow dilators (Pilling Co.), which are metal olives passed over a guidewire that has been fluoroscopically placed in the stomach. The latter was used only when the stricture was too narrow to permit effective dilation with the mercury-filled dilators. The diameter of all dilators was expressed in French units (1 mm = 3 French units), and each pass of the dilator was counted as one dilation. When radiotherapy was used, dilations were done before, during, and after radiotherapy, depending on when the patient experienced dysphagia.

## Results

A total of 616 dilations were done in 26 patients. The Maloney dilator was used 532 times, the Eder-Puestow dilator 56 times, and the Hurst dilator 28 times, achieving a mean lumen size of 17 mm (range, 12 to 20 mm). Twenty-four of 26 patients noted improvement in swallowing to the point of being able to resume a soft or regular diet. Only two of 26 patients required placement of a gastrostomy feeding tube late in the course of their disease. The remainder were able to continue oral intake until shortly before death.

Two hundred twenty-two dilations (in 23 patients) were done during the period of radiotherapy, and 60 dilations (in four patients) were done before placement of esophageal prosthetic tubes used in palliation of malignant tracheoesophageal fistulae (4). There was no morbidity or mortality associated with dilation in either group.

Only three complications were noted during the 616 dilations. One patient had a closed perforation of her



 

esophagus following a dilation 2 years after completion of radiotherapy. She was treated with nasogastric suction and antibiotics, did not require operative intervention, and lived 12 months after this complication. Two patients had one episode each of fever after dilation that resolved within 24 h without antibiotics. There were no operative interventions or deaths associated with esophageal dilation in our series.

The mean survival in the 26 patients who were dilated was 6 months (range, 1 to 33 months). Only six of 29 were alive at the time of this review; 13 had died of cardiopulmonary complications (aspiration pneumonia, cardiac arrhythmias); four had died from massive gastrointestinal hemorrhage; and six had died from the complications of carcinomatosis.

### Discussion

The results of our retrospective review show that dysphagia, the predominant symptom in squamous-cell carcinoma of the esophagus, can be safely treated by esophageal dilation. Dysphagia will result when esophageal lumen size diminishes to 12 mm or less (5). Through dilation we were able to achieve a mean lumen size of 17 mm in our patients, which enabled them to eat a soft or regular diet with minimal or no dysphagia. In addition, they were spared the discomfort and morbidity of additional hospitalizations and surgical procedures while being given increased time at home with their families.

We believe that palliation of dysphagia by esophageal dilation is not done more routinely for malignant strictures because of fear of perforation. This unsubstantiated concern has resulted in the limited use of a potentially effective maneuver and is the factor that prompted us to document our experience.

In our series of 616 dilations in 26 patients, there was only one perforation, less that 0.01%. This risk of esophageal perforation is minimal compared with that of routine fiberoptic esophagoscopy. (0.093%) (6). Two patients had fever after dilation, suggesting a bacteremia. Bacteremia has been shown to occur immediately after dilation and may be prevented by cleansing the dilators with 7.5% povidone-iodine immediately before use (7). Our review does not support the fear that properly performed dilation of malignant strictures is associated with a significant morbidity. This is particularly pertinent when one considers the high degree of symptomatic improvement that was achieved.

Esophageal dilation has been generally acknowledged to be contraindicated during radiation therapy of squamous-cell carcinoma because of potential tissue necrosis facilitating perforation. We believe that esophageal dilation is advisable during radiation therapy, for we have observed dysphagia to worsen during this period (probably from further occlusion of the lumen secondary to edema). Our study showed that in 222 dilations during radiotherapy, there was no associated morbidity or mortality. The fear of perforation of esophageal malignancies from dilation during radiation therapy was not substantiated in our study, and radiation therapy does not appear to be a contraindication to esophageal dilation.

Those patients with malignant strictures and tracheoesophageal fistulae need to be dilated before the insertion of polyvinyl prosthetic tubes. Palmer (8) has shown that patients with malignant tracheoesophageal fistulae can be dilated safely. Our experience confirms this observation: four patients with tracheoesophageal fistulae safely received 60 dilations before the insertion of a prosthetic tube. Three of the four patients obtained relief from incessant coughing and were able to resume oral feedings. Tracheoesophageal fistulae complicating squamous-cell carcinoma also do not appear to be a contraindication to esophageal dilation.

The Maloney dilator was the easiest to pass through both the cricopharyngeal sphincter and the tumor because of its tapered tip and was therefore used most frequently. The blunt-tipped Hurst dilator was more difficult to pass through the cricopharyngeal sphincter (as well as through the malignant stricture) and was used less often. The Eder-Puestow dilator was reserved for strictures in which the rubber dilators proved unsuccessful; it was used for 9% of the dilations. Fluoroscopic guidance of all dilators was considered essential to the procedure and, we believe, contributed to the low complication rate in our series. Esophageal carcinoma produces irregularities of the wall that create a hazard to the blind passage of a dilator. Fluoroscopy allows proper orientation of a guidewire or rubber dilator for safe passage through the narrowed lumen.

Only two patients required a feeding gastrostomy tube and only did so late in their disease. A gastrostomy feeding tube provides caloric intake but does not solve the problem of aspiration of salivary secretions. We believe this is a poor substitute for a patent esophagus and should be used only as a last resort.

Esophageal dilation of malignant strictures with the attendant improvement in dysphagia does not prolong life despite the improved oral intake. Our patients lived about 6 months after the onset of the presenting symptoms and subsequently died from the well-known complications of this illness. However, we believe that the quality of life during the patients' remaining time was significantly improved. Palliation of dysphagia through dilation afforded them prolongation of oral alimentation, physiologic disposal of salivary secretions, and maintenance of a relatively normal life style for at least some additional time, while sparing them some of the discomfort and inconvenience of the alternatives. Equally important were the psychologic benefits accrued from this maintenance of normal physiology. We have documented the safety with which these goals can be accomplished and encourage more widespread use of this procedure.

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