endoscopic procedures as medicine continues to move from an inpatient to an outpatient discipline. When a potential complication commonly occurs within several hours of a procedure, it is usually appropriate and cost effective to observe the patient in a recovery area and avoid an overnight hospitalization. For example, witness the recent trend of performing liver biopsy as an outpatient procedure. Within the last year, even cholecystectomy has been performed as an outpatient procedure! In most cases, we believe it is difficult to establish absolute inpatient or outpatient guidelines following a procedure such as pneumatic dilation. Certainly an elderly patient or a patient with selected medical problems should be admitted for at least overnight observation. It is our policy to perform the procedure on an outpatient basis only at the discretion of the attending physician and with an observation period of several hours (usually a minimum of 4 hours). Even then, as stated in our article outpatients are required to stay overnight in the local area so that rapid follow-up is possible if complications occur.

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# Perforation rate in achalasia with polyethylene balloon dilators

### To the Editor:

The pneumatic dilator is currently considered the initial therapy of choice for achalasia.<sup>1</sup> A number of types of dilators have been used over the years, including the Browne-McHardy dilator<sup>2</sup> (which consists of a mercury tube with a silk bag at the distal end), the Mosher bag (a similar device), the Sippy dilator (which requires the use of a guidewire), and, more recently, the Microvasive Rigiflex Achalasia dilator (Microvasive/Boston Scientific Corp., Watertown, Mass.)<sup>3</sup> (a polyethylene balloon similar to the type used in coronary angioplasty). Currently, only the latter is commercially available. Most centers prefer it because of its long shelf-life, availability in different sizes, and ability to be placed over a wire.

We undertook a retrospective study of patients who underwent balloon dilation for achalasia at the Beth Israel Hospital in Boston over the last 6 years. A total of 94 dilations in 72 patients were identified. Of these, 58 were performed with the Browne-McHardy dilator, 22 with the Rigiflex, and 12 with the Mosher bag (2 dilations were performed without reference to the type of dilator in the chart). In the 94 dilations, 5 perforations occurred (5.3%) (defined as extravasation of contrast on Gastrografin<sup>®</sup> swallow after the procedure). As a matter of course, all patients who have undergone balloon dilation are admitted to the hospital, an immediate post-procedure chest film is obtained, and a Gastrografin<sup>®</sup> study is performed 4 to 6 hours later.

The striking finding was that four of the five perforations occurred after dilation with the Rigiflex balloon, two of which required thoracotomy. There were no procedure-related deaths. Only one perforation occurred after dilation with the Browne-McHardy or Mosher bag. No other factor could be identified as an independent variable, including number of dilations, size of dilator, duration of inflation, or other factors such as Candida esophagitis, paraesophageal diverticula, or hiatal hernia.<sup>4</sup> This observed high perforation rate could be related to the fact that, at least in our experience, there is considerably more blood coating the Rigiflex balloon than observed with the even larger diameter Browne-McHardy dilator.

To date, there is no other report of a higher perforation rate with the newer balloons. Richter et al.<sup>5</sup> compared 11 patients dilated with Rigiflex balloons prospectively and found no difference with matched controls dilated with Browne-McHardy dilators in terms of efficacy and complications. Gelfand and Kozarek<sup>3</sup> examined 24 patients treated with Rigiflex dilators and had no complications. A recent study by Barkin et al.<sup>6</sup> had two perforations in 50 patients dilated exclusively with Rigiflex balloons.

The reasons for the higher perforation rate and bleeding with the Rigiflex dilator are not known. We think that the rigidity of the polyethylene balloon of the Rigiflex dilator compared with that of the rubber balloon of the Browne-McHardy may somehow play a role in the observed complication rate.

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#### REFERENCES

- 1. Vantrappen G, Hellmans J. Treatment of achalasia and related motor disorders. Gastroenterology 1980;79:144-54.
- Browne DC, McHardy G. A new instrument for use in esophagospasm. JAMA 1939;113:1963-4.
- Gelfand MD, Kozarek RA. An experience with polyethylene balloons for pneumatic dilation in achalasia. Am J Gastroenterol 1989;84:924-7.
- Reynolds JC, Parkman HP. Achalasia. Gastroenterol Clin North Am 1989;18:223-55.
- 5. Richter JE, Stark GA, Wu WC, et al. Randomized comparison of Browne-McHardy and Microvasive Rigiflex dilators in the treatment of achalasia. Am J Gastroenterol 1988;83:1024.
- Barkin JS, Guelrud M, Reiner KD, Goldberg RJ, Phillips RS. Forceful balloon dilation: an outpatient procedure for achalasia. Gastrointest Endosc 1990;36:123-6.

## Endoscopic removal of a large gastric polyp

#### To the Editor:

Endoscopic snare resection of adenomatous gastric polyps has been routinely performed since the early 1970s because of the high incidence of malignant changes (1.4 to 66.5%). Some endoscopists consider the size of the polyp to be a limiting factor. We successfully performed the endoscopic removal of a very large sessile gastric adenoma.

A 74-year-old woman presented with dyspeptic symptoms and iron deficiency anemia (hemoglobin, 10 g/dl). X-ray examination of the upper gastrointestinal tract revealed the