Natural Behaviour of Oesophageal Strictures Dilated by Endoscope, Eder–Puestow Dilator or A Combination

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Oesophageal dilatation is a well established technique in the treatment of oesophageal benign strictures and also as a palliative method in malignant strictures. This can be achieved by using Olympus gastroscopes of different sizes (P 3 scope 9.5 mm, Q scope 12 mm and K scope 13.5 mm), Eder–Puestow dilators or using a combination. Oesophageal dilatation using three different gastroscopes can be performed under direct vision while dilatation with Eder–Puestow metal olive dilators was carried out using a guide wire placed through the stricture at endoscopy and over which the dilators were passed. The Eder–Puestow metal dilators include up to 12 olives with a maximum diameter of 18 mm.

The aim of this study was to assess the natural behaviour of the oesophageal strictures when endoscopes, Eder–Puestow dilators or a combination were used as a form of treatment.

Materials and Methods

Fifty-four patients (39 males, 15 females) were subject to this study during a period of 7 years (1983–1988). The mean age was 67. Of the 54 patients, 50 had benign strictures, 2 had malignancy and 2 patients had oesophageal strictures due to scleroderma (Table 1). Endoscopic dilatation was carried out in 37 patients (68%), Eder–Puestow (EP) method was used in 5 patients (8%) and 12 patients (24%) were subject to a combination. In each situation biopsy was taken before the dilatation for histology.

Table 1

Cause of 54 oesophageal strictures

Cause	*Number of patients*
Peptic	50
Scleroderma	2
Malignant	2

A total of One hundred and sixty nine (169) procedures were carried out during this period among 54 patients.

Of the 169 procedures gastroscope was used in 79 procedures (P scope — 4, PQ scope — 8 and PQK scope — 67), Eder–Puestow metal dilators were used in 5 patients alone and a combination of endoscope and Eder-Puestow dilators were used in 85 patients.

The dilatations were carried out using intravenous benzodiazepine and a local anaesthetic spray to the pharynx. Cardiac patients and who are over the age of 70, were subject to intra-nasal oxygen therapy. Radiological screening on patients who were subject to Eder–Puestow dilators. Most of these patients had an adequate stricture dilatation to at least 16 mm irrespective of the pre-operative diameter of the stricture. After dilatation each patient

Table 2

Number of dilatations in 54 patients according to the proceedure

Method	*No. of Patients*	*Number of proceedures*		
Eder–Puestow dilator (EP)	5			5
Endoscope	37	— P–SCOPE	4	
		— P,Q–SCOPES	8	79
		— P,Q & K SCOPES	67	
E–P–dilator of Endoscope	12			85

was re–examined endoscopically to determine whether there had been any perforation to the oesophagus, trachea or the pharynx.

It has been demonstrated in the past that dysphagia is always present if the oesophageal lumen is less than 12 mm[11] and an adequate dilatation were defined as both dilated to more than 12 mm. In our study, we always make sure that dilatations were carried out to 12 mm or more.

Patients with benign strictures were given H2 Antagonists to counteract the oesophageal reflux and to prevent continuing oesophagitis of the gastro–oesophageal junction.

Results

An obvious strictures was visualised in these 54 patients and in 52 patients (98.3%) the mucosal biopsies have demonstrated benign mucosa with oesophagitis (polymorphonuclear infiltration) and the other 2 patients showed evidence of adenocarcinoma.

In this study, a total of 169 dilatations were carried out on 54 patients. Endoscopy dilatations were carried out in 37 patients (68%). EP method alone was used in 5 patients (8%) and in situations where even P–scope could not be passed and a combination was carried out in 12 patients. Twenty–two patients had only one attempt in dilatation using endoscopes (PQK) and had adequate response without any symptoms of dysphagia (40.5%) whose follow–up for 6 months showed no evidence of recurrence. Seven patients underwent frequent dilatation every month, of these, one patient after 3 dilatations (P–scope + EP dilator) referred for Lazer therapy and another died after 13 dilatations. Fifteen patients had to have dilatation every 1–2 months and 6 patients every 3–4 months. Three patients every 5–6 months and another patient every 12 months (Table 3).

Except those 22 patients who had only one attempt of dilatation, which relieved symptoms, all the others had to have further dilatations to keep them symptom free. When we consider the results of treatment of 54 patients followed for 6 months or more, 22 patients (40.8%) had no symptoms, 4 patients had mild symptoms which did not require further dilatations. Twenty–six patients required further dilatations at frequent intervals using endoscopy, EP dilators or a combination. One had lazer therapy after a few dilatations and the other patient died. (Table 4).

Table 3

Pattern of dilatations and the response

No. of Patients	*Further dilatations*	*Interval of dilatations (months)* <1m	1-2m	3-4m	5-6m	6-12m	12-24m	*Response*
7	38	✓	—	—	—	—	—	Adequate (one patient died of malignancy, other had lazer)
15	60	—	✓	—	—	—	—	Adequate
6	28	—	—	✓	—	—	—	Adequate
3	18	—	—	—	✓	✓	—	Adequate
1	3	—	—	—	—	—	✓	Adequate
22	22	—	—	—	—	—	—	Adequate
54	**169**							

Table 4

Results of treatment of 54 patients followed for 6 months or more

Dysphagia	*Number of Patients*	*Percent*
None	22	40.8
Required continued dilatation with benefit	30	55.6
Required Lazer therapy	1	1.8
Dead	1	1.8

The major complication encountered in this study was the oesophageal perforation. This occurred in 2 patients and both recovered with conservative management.

Discussion

It was apparent, that the most common stricture of the oesophagus is of peptic origin. In our study, 52 patients had benign strictures while 2 had malignant features. The major complication of oesophageal dilatation in this study was perforation of the oesophagus in accordance with published studies[3 13]. Both perforations happened to occur on the larger diameter K-scope. Haemorrhage was not a feature in this study and no complications were experienced on the EP dilators or with other endoscopes (P and Q).

The oesophageal dilatations had been supposed to be successful in terms of improvement or relief of symptoms of dysphagia and in our study 22 patients (36%) did not require further dilatation when followed for 6 mohths or more, where as (35/50) patients with the percentage of 55.5% required further dilatation with endoscope, EP dilators or a combination. There had been various studies [5 8] where there had been an adequate response to bougies alone as far as the stricture dilatation is concerned. But it also stresses the fact that repeated and multiple dilatations are required to make patien

symptom free irrespective of the method of dilatation. Another study, had compared metal olive (Eder-Puestow) and Bougie (Savary-Gillard) in the treatment of oesophageal strictures. This study[6] shows Savary-Gilliard bougies are superior to Eder Puestow olives.

We conclude that oesophageal dilatation for benign strictures is safe, quick and effective method. This can be achieved either by endoscope, EP dilators or a combination. According to the past experience by various authors[6], not only endoscopes, olives, bougies and oesophageal balloons had also been used as a form of stricture dilatation. Whatever the method that was adopted in most situations, in addition to the medical therapy, repeated sticture dilatations are required to keep the patient symptom-free.

REFERENCES

1. Burkhart K L, Sullivan B H. Course and treatment of benign oesophageal strictures. *Am J Gastroenterol*, 1971: 58: 531–6.
2. Brunnen P L, Karmody A M, Needham C D. Severe peptic oesophagitis. *Gut*, 1969: 10: 831–7.
3. Buchin P J, Sprio H M. Therapy of oesophageal stricture: A review of 84 patients. *J Clin Gastroenterae*, 1981: 3: 121–8.
4. Bennet J R. Oesophageal strictures. *Clinic Gastroenterol*, 1978: 7: 555–69.
5. David J Patterson, D Y Graham, J L Smith — *Gastroenterology*, 1983: 85: 346–50.
6. Dupin, Merle and Dumon — Bailliere's Clinical Gastroenterology Vol. 1, No: 4 — Oct 87, 809–819.
7. Glick M E. Clinical course or oesophageal stricture managed by bougienage. *Dig Dis Sci*: 27: 884–8.
8. Hine K R, C J Hawkey, M Atkinson *Gut*, 1984: 25: 1100–1102.
9. Management of acid–peptic oesophageal strictures. *J Thorac Cardiovasc Surg*. 1976: 72: 518–24.
10. Puestow K L. Conservative treatment of stenosing disease of the oesophagus. *Postgrad Med*, 1955: in 6–14.
11. Schatzki R. The lower oesophageal ring; long-term follow up of symptomatic and asymptomatic rings. *A M J Roentgenol*, 1963: 90: 805–10.
12. Techniques, results and complications of oesophageal dilatation. Dupin B. Baillieres Clin Gastroenterol 87 1 (4) 809–20.
13. Wesdorp I C, Bartlesman J P, K Tytgat. Results of Conservative Treatment of Benign Oesophageal Strictures; a follow up study in 100 patients. *Gastroenterology*, 1982: 82: 487–93.
14. Williamson R C N. The management of peptic oesophageal stricture. *Br J Surg*, 1975: 62: 448–54.
15. Van Trappen G, Hellemans J, Geboes K. Etiology and non-surgical treatment of organic esophageal stenosis. In: Vantrappen G, Hellemans J, eds. Disease of oesophagus. New York: Springer Verlag 1974: 795–806.