Effect of oral fluticasone on refractory peptic esophageal stricture – a new therapeutic method

Most benign esophageal strictures are a consequence of acid-induced mucosal injury [1]. The cornerstone of the management of benign strictures is still esophageal dilation [2]. A subgroup of strictures are refractory, and an alternative approach is required. Studies have shown prolonged benefit in terms of improving dysphagia and decreasing dilation frequency among patients receiving intralesional steroid injection [3–5].

However, some patients with refractory peptic esophageal stricture require frequent esophageal dilation, even with intralesional steroid injection. Intralesional steroid injection can only be performed at intervals, during endoscopy. We prescribed fluticasone inhalers (GlaxoSmithKline, Research Triangle Park, NC, USA) for patients. The inhalers were used without a spacer to deliver 50 µg twice daily, after which patients were given water to aid in esophageal delivery of the steroid.

To avoid any possible bias, the oral steroid inhaler was given at alternate sessions of esophageal dilation with intralesional steroid injection (esophageal dilation with intralesional steroid injection was followed by esophageal dilation with intralesional steroid injection and the oral steroid inhaler, and so on). We analyzed the data from the first six sessions.

Four patients were enrolled. The mean age was 62, and there were two women and two men (**Table 1**). Eosinophilic esophagitis was ruled out by multiple sessions of esophageal biopsies. All patients in this study received a proton pump inhibitor during the study. Use of inhaled oral fluticasone significantly decreased the frequency of esophageal dilations, more than did intralesional steroid injection (**Table 2** and **Table 3**). Esophagitis and esophageal stricture healed after several months of steroid inhaler therapy. There were no side effects with the fluticasone inhaler during this period.

To our knowledge, this is the first report of using oral steroid in the treatment of refractory peptic esophageal stricture. In the future, a multiple-center study is needed to study this novel observation further.

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Table 1 Details of patients treated for refractory peptic esophageal stricture.

Parameter	Patient 1	Patient 2	Patient 3	Patient 4
Age, years	66	58	60	62
Gender	Female	Female	Male	Male
History of GERD	Yes	Yes	Yes	Yes
Other significant history	None	Radiation therapy for breast cancer	None	Esophageal perforation once after dilation
Hiatal hernia	Yes	Yes	Yes	Yes
Barrett's esophagus	No	No	Yes	Yes
Daily dysphagia	Yes	Yes	Yes	Yes
Esophagitis	Yes	Yes	Yes	Yes
Transverse stricture without dilation	No	No	No	No
Stricture location	Mid	Mid	Mid	Mid
Stricture length	Short	Short	Short	Short

GERD, Gastroesophageal reflux disease.

Table 2 Days between esophageal dilations for patients treated for refractory peptic esophageal stricture with dilation only, dilation plus steroid injection, or dilation plus steroid injection plus oral steroid.

Therapeutic modality	Time between esophageal dilations, days					*P* value	95% confidence interval[1]
	Patient 1	Patient 2	Patient 3	Patient 4	Mean ± SD		
Dilation only	35 ± 7.2	37 ± 6.1	44 ± 5.2	43 ± 6.2	39.42 ± 6.9	–	–
Dilation plus intralesional steroid injection	62 ± 5.8	74 ± 7.6	68 ± 8.0	70 ± 8.7	68.41 ± 8.2	<0.001[2]	17.54–39.95
Dilation plus steroid injection plus oral steroid	118 ± 16.1	121 ± 23.5	106 ± 15.8	113 ± 21.5	115 ± 17.6	<0.001[3]	63.54–89.95

[1] 95%CI of the mean difference in time between dilation-only intervals and the dilation plus further treatment intervals.
[2] Dilation only vs. Dilation plus intralesional steroid injection.
[3] Dilation only vs. Dilation plus intralesional injection and oral steroid inhaler.

Table 3 Days between esophageal dilations when patients were treated with dilation plus steroid injection plus one, two and three sessions of oral steroid.

Number of oral steroid inhaler sessions	Time between esophageal dilations, days				
	Patient 1	Patient 2	Patient 3	Patient 4	Mean ± SD
1	101	89	89	92	95 ± 5.5
2	120	110	110	114	116 ± 4.5
3	133	120	120	135	133 ± 10.3
Mean ± SD	118 ± 16.1	121 ± 23.5	106 ± 15.8	113 ± 21.5	

Competing interests: None

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