NEW TECHNIQUES

Self-dilatation of oesophageal strictures

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Abstract

A new technique for the management of upper and mid-oesophageal benign strictures is reported. A deflated oesophageal balloon catheter coated with steroid paste is passed by the patient through the stricture, the balloon is inflated and then withdrawn. This technique can be used for both strictures caused by tablet or corrosive damage that recur rapidly and where stricturing is the result of a chronic disease not amenable to medical or surgical treatments. Three patients in who this technique has been used with satisfactory patient tolerance and compliance and good relief of symptoms are reported.

Benign oesophageal strictures usually occur at the lower end of the oesophagus and are mainly caused by gastro-oesophageal acid reflux. Management involves medical or surgical control of the acid reflux while oesophageal patency is maintained by antegrade dilatation at oesophagoscopy.¹

Proximal and mid-oesophageal strictures are less common and the causes include peptic

damage above a segment of Barrett's change, tablet or corrosive injury, radiation, systemic inflammatory disease affecting the oesophagus, or foreign body trauma.

A technique of retrograde self-dilatation using an oesophageal balloon catheter is reported and has been found useful in the management of selected patients with benign upper and mid-oesophageal strictures. This has advantages over the more standard self-dilatation method of antegrade bouginage (Maloney or Hurst) because the dilator is much narrower and easier to introduce and dilatation occurs on withdrawal of the inflated balloon.

There is experimental² and clinical³⁻⁵ evidence to suggest that intralesional steroid, usually introduced by injection, reduces the amount of cicatricial stenosis in both the oesophagus^{2,3} and other epithelial surfaces.^{4,5} To introduce steroid into the tissues at the level of the stricture the deflated balloon is coated in a mixture of triamcinolone (steroid) cream and orobase. Orobase is a cellulose derivative that adheres to mucosal membranes promoting high local concentration and absorption of the steroid. Experience with three patients suggests that this

Figure 1: Balloon dilator used for self-dilatation of oesophageal strictures.

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Figure 2: Technique of retrograde self-dilatation of oesophageal strictures.

preparation may limit the rate and degree of recurrence of the stricture.

Methods

The balloon dilator (William Cook) (Fig 1) may be 11, 14, or 19 CH. The balloons are all 6 cm in length but may be 15 or 22 mm across (depending on the diameter of the stricture) when fully inflated with the appropriate volume of saline.

Routine antegrade dilation of the stricture is performed at endoscopy undertaken as an outpatient procedure. The patient is then given instruction in passing the balloon dilator himself. The technique (Fig 2) is well tolerated and quickly learnt during a two to three day stay in hospital. Pharyngeal anaesthesia with xylocaine spray is used initially but this is omitted when the patient becomes confident about the procedure.

The tip of the balloon dilator is lubricated and the deflated balloon is coated with triamcinolone in orabase paste. The dilator is introduced by the patient. Markings on the catheter indicate that the tip and balloon have passed beyond the stricture. Coiling of the catheter above the stricture is a theoretical difficulty and this problem has not arisen in practice with these proximal strictures.

Case reports

CASE 1

A previously healthy 16 year old girl presented with dysphagia that developed after acute pain on swallowing which had been attributed to local damage from a paludrine tablet (malaria prophylaxis). A barium swallow showed an oesophageal stricture at 22 cm, which was confirmed at oesophagoscopy and found to be associated with localised oesophagitis and oesophageal ulceration. The stricture was dilated to 49 FG.

Six further oesophagoscopies with antegrade oesophageal dilatation were performed over the next four months. The stricture recurred within two weeks on each occasion. All dilatations were performed under general anaesthetic as the procedure could not be tolerated under local sedation. The patient was then taught how to perform the dilatation technique herself. She did

this twice daily for four weeks, daily for four weeks, twice weekly for four weeks, and, finally, weekly for four weeks. Eight years later she remains free of symptoms.

CASE 2

A 15 year old asthmatic boy had had lifelong feeding problems. As a baby, he regurgitated daily, and he could not swallow solids as a small child. At presentation he described difficulty swallowing solid food and he avoided meat completely. He denied regurgitation or heartburn. A barium swallow showed an upper oesophageal stricture. At endoscopy a 5 mm diameter stricture was seen at 22 cm, with macroscopically normal mucosa beyond and no hiatus hernia. Biopsy specimens from an area distal to the stricture showed changes compatible with mild reflux oesophagitis but no evidence of Barrett's oesophagus. Despite heavy sedation he was unable to tolerate dilatation and was therefore admitted for antegrade endoscopic dilatation under general anaesthetic. The stricture was dilated and he was taught retrograde self-dilatation 10 days later during a two day stay in the ward. For the first week, self-dilatation took place daily, then weekly for a month, and now monthly. At six months follow up he is swallowing all food normally and has recently stopped self-dilatation.

CASE 3

A 63 year old man known to suffer from cicatricial pemphigoid, a rare disease characterised by the presence of bullous lesions and erosions of the mucous membranes with associated scarring, presented with a two year history of worsening dysphagia. A barium swallow showed a narrow stricture in the middle third of the oesophagus. This was confirmed at endoscopy and dilated to 43 FG. Because of the chronicity of his condition and its known poor response to available medical and surgical measures he immediately started retrograde self-dilatation.⁶ Over the past seven years he has continued to perform the procedure about twice weekly. He has had a recurrence of dysphagia on three occasions in all, after complete freedom from dysphagia had led him to stop the self-dilatation.

On each occasion, a single antegrade endoscopic dilatation followed by a return to regular self-dilatation with the balloon has restored satisfactory swallowing. In contrast to the control of his dysphagia, the other manifestations of his disease (eye and mouth changes) have shown a relentless progression, and if untreated, the oesophageal lesions would have progressed in the same way. At follow up two years after his last antegrade dilatation he is self-dilating weekly and swallowing normally.

Discussion

We believe that retrograde self-dilatation using a balloon catheter is indicated in the management of benign upper and mid-oesophageal strictures in two situations:

(1) Where stricturing has occurred after tablet or corrosive damage, with rapid recurrence of the stricture after initial dilatation (case 1);

(2) Where stricturing is a result of an underlying chronic disease that is difficult to control (case 3).

It has been suggested by Graham and Lacey Smith that 'the main disadvantage to the balloon method of dilatation is that it requires guide wire placement ... and ... is not feasible for the patient who is trained to dilate himself at home'.⁷ Our experience suggests that a guide wire is not needed in mid- and upper strictures and that this method is ideal for self-dilatation. The technique is not suitable for the management of distal oesophageal strictures because of coiling of the catheter above the stricture. This problem has not arisen in these proximal strictures, probably because of the straighter course of this oesophageal segment. Finally, the application of triamcinolone in orobase to the deflated balloon and its resultant absorption into the scar tissue of

the stricture during dilatation may possibly reduce the rate and degree of recurrence.

We recommend use of this technique in the management of selected patients with mid- and upper oesophageal strictures.

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