

Self-Expanding Stainless Steel Stent Application in Rectosigmoid Stricture

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In recent years, several reports on the experimental and clinical applications of the Gianturco stent (self-expanding stainless steel stent) have been published. However, to our knowledge, the use of stents in rectosigmoid strictures has not been reported. We used self-expanding stainless steel stents to dilate rectosigmoid strictures caused by nonresectable recurrent neoplasm. Insertion and dilation (sigmoid colon and rectum) in two patients were successful. Accordingly, these patients were able to maintain bowel activity and avoid palliative loop colostomy. We believe that this procedure is effective for nonresectable rectosigmoid stricture due to recurrent neoplasm. [Key words: Self-expanding stainless steel stent; Gianturco stent; Rectosigmoid stricture; Local recurrence of rectosigmoid cancer]

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The self-expanding stainless steel stent for intravascular use was devised by Gianturco and reported by Wright *et al.*¹ in 1985. In recent years, several reports on the experimental and clinical applications of the stent in vessels,² the tracheobronchial tree,³ the biliary tree,⁴ and the upper gastrointestinal tract⁵ to dilate stenosis and prevent its recurrence have been published. However, to our knowledge, the use of stents in rectosigmoid strictures has not been reported.

We used self-expanding stainless steel stents to dilate rectosigmoid strictures caused by nonresectable recurrent neoplasm.

Two patients experienced successful insertion and dilation (sigmoid colon and rectum). Accordingly, both patients were able to avoid palliative loop colostomy.

DESCRIPTION OF THE STENT AND THE DILATOR

Stent

Gianturco Self-Expanding Stainless Steel Z-Stent. The outside diameter of the double stent is 40 mm, and it is 50 mm long (Fig. 1).

Dilator

Ureteral Dilator. The outside diameter of the balloon is 10 mm, and it is 80 mm long; the maximum pressure is 20 psi (Fig. 2, top).

Rectosigmoid Dilator. The outside diameter of the balloon is 40 mm, and it is 60 mm long; the maximum pressure is 20 psi (Fig. 2, bottom).

TECHNIQUE

The site, length, and severity of the malignant strictures were evaluated by barium enema before dilation (Fig. 3).

Marking the Stricture

The anal side of the stricture was marked with a clip under endoscopic guidance.

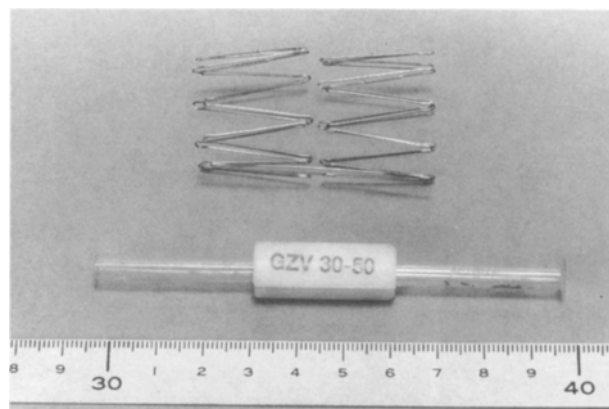


Figure 1. Self-expanding stainless steel stent.

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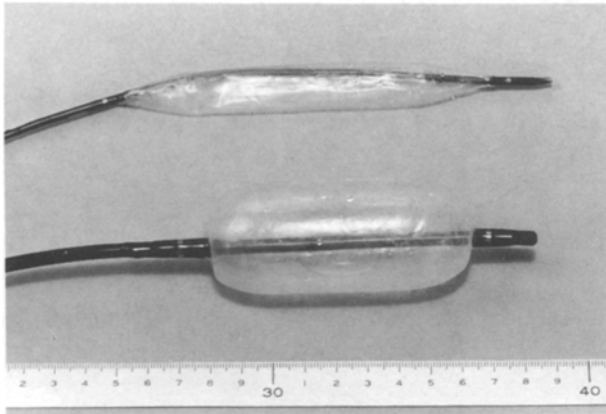


Figure 2. Top: ureteral dilator. Bottom: rectosigmoid dilator.



Figure 3. Barium enema prior to dilation, showing circular sigmoid stricture.

Dilation

A guide wire was passed through the working channel of the endoscope and inserted into the stricture under endoscopic and fluoroscopic guidance.

The ureteral balloon dilator was passed over the guide wire. (The dilator has radiopaque markers distal and proximal to the balloon.) When the balloon was properly positioned in the stricture, it was inflated with diluted contrast media (Fig. 4). When dilation was complete, the balloon was deflated by applying suction to the balloon lumen.

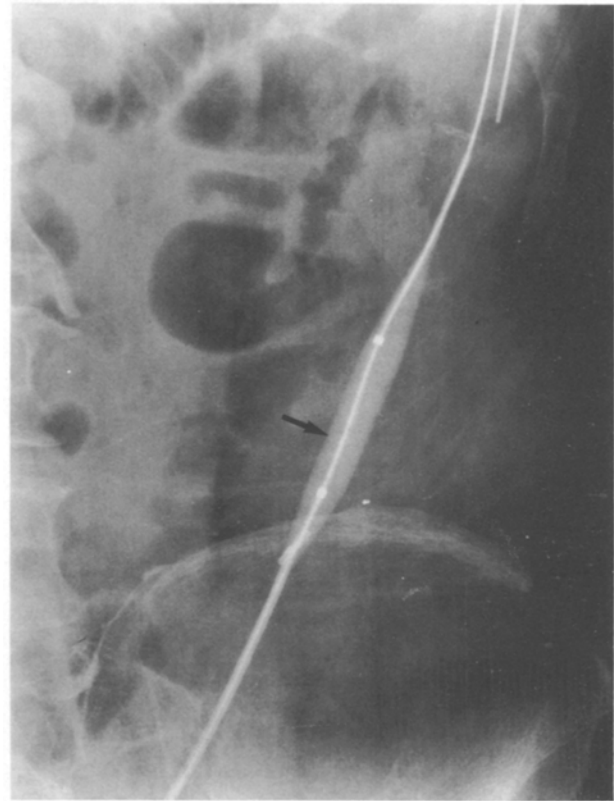


Figure 4. The ureteral balloon dilator inflated in the stricture (arrow) with diluted contrast medium.

The ureteral balloon dilator was then removed, leaving the guide wire in place.

Immediately after removal of the ureteral balloon dilator, the rectosigmoid dilator was then advanced over the guide wire and into the area to be dilated under fluoroscopic guidance. (The dilator has radiopaque markers distal and proximal to the balloon.)

When the balloon was properly positioned in the stricture, it was inflated with diluted contrast media (Fig. 5). When dilation was complete, the balloon was deflated by applying suction to the balloon lumen. The rectosigmoid dilator was then removed, leaving the guide wire in place.

Intubation

Using fluoroscopic guidance, the whole assembly (the introducing tube and the compressed, expandable, metallic stent tube) was passed over the guide wire into the rectum and advanced until the distal tip of the stent tube was 1 to 2 cm beyond the stricture area. From the introducing tube, a pusher catheter was placed within the introducing tube. When the pusher catheter reached the prox-

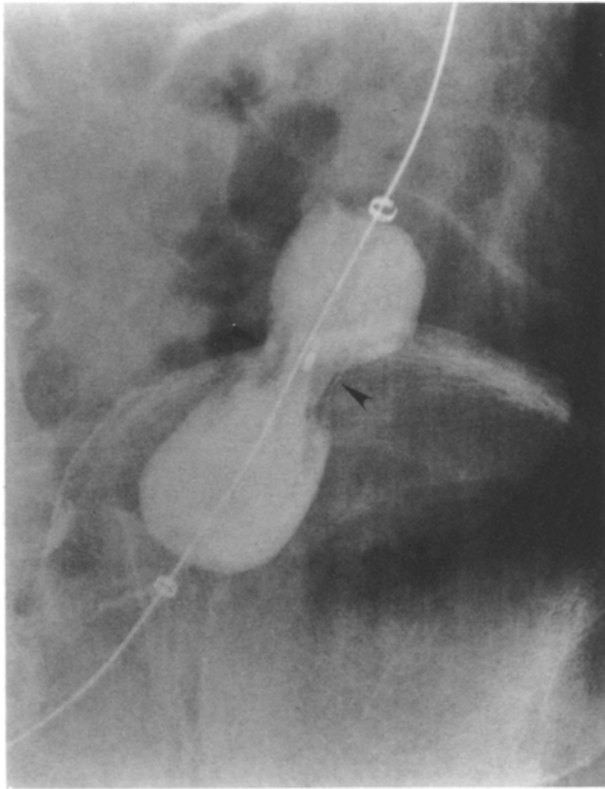


Figure 5. The rectosigmoid dilator inflated in the stricture with diluted contrast medium. Arrowheads point to narrow segment.

imal end of the stent tube, it was held in place while the introducing tube was withdrawn. This freed the stent, allowing it to expand and to lie within the stricture (Fig. 6).

Within the stricture, the stent continued to exert an expansile force until it reached the preset expanded diameter.

Care After Intubation

A Gastrografin® (E.R. Squibb & Sons, Inc., Princeton, NJ) enema was administered immediately after the procedure to verify the position and patency of the stent and to detect any colonic perforation.

DISCUSSION

No technical failures or procedural complications occurred, and the stents were placed accurately in both patients. Both patients felt dull lower abdominal pain for three to five days after the procedure. Neither migration of the stent nor blockage by food occurred in either patient.

Follow-up ranged from two to three months. One of the two patients was examined by endoscopy

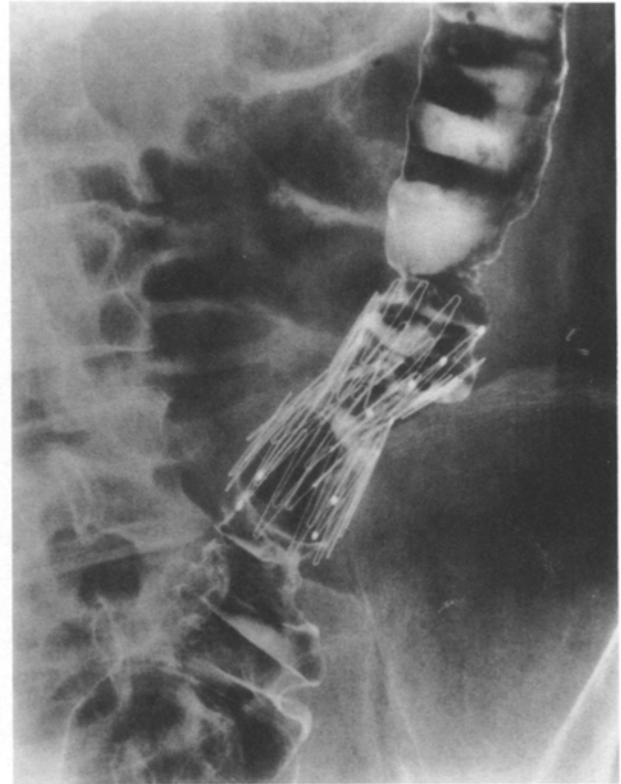


Figure 6. The opened stricture after dilation and insertion. The contrast medium passed into the stricture easily.

during the follow-up period. We found that the stents were patent and that the endoscope passed through the stents without difficulty.

Indications

Site of the Stricture. The stricture is present on the anal side of the splenic flexure.

Length of the Stricture. Several stents can be placed one after another, with partial overlap. However, it is difficult to position three or more stents properly; the limitation on length appears to be 10 cm.

Severity of Stricture. A guide wire can be passed through the rectosigmoid stricture under endoscopic guidance.

Complication

Acute stent-related complications include bleeding, perforation, and pressure necrosis of the colonic mucosa. Moreover, chronic complications are stent migration and erosion of the colonic mucosa. No technical failures or procedural complications occurred in our patients. However, careful and gentle techniques are a definite requirement.

Self-expanding stainless steel stent application

has significant advantages over palliative loop colostomy. The most significant advantage is that, with the use of stents, the patient can avoid a palliative colostomy, ensuring greater comfort and maintaining his/her quality of life. When resticture is revealed, several stents can be easily placed one after another, with overlap between stents.

Although the number of patients we have treated is small and further long-term study is needed, this self-expanding stainless steel stent seems to be easy to insert, safe, and reasonably effective for palliative treatment of rectosigmoid strictures caused by recurrent neoplasm.

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