



An alternative linear stapling technique for performing Roux-en-Y anastomosis

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Abstract

Background: The use of stapling devices for performing gastrointestinal anastomosis has gained wide acceptance in the last decade. Linear cutting devices have been used routinely during gastrointestinal operations in our hospital since 1992. However, we still have shortage of stapling devices due to cost reduction politics.

Methods: We propose a modification of the standard technique in order to reduce the number of devices used. Our technique employs a single stapled including the section of the jejunum and the side-to-side jejunoanastomosis.

Results: We have used this technique for 1 year without complications related to the stapled anastomosis.

Conclusions: This technique may reduce the time of reconstruction of Roux-en-Y anastomosis without interfering in its final result. This modified technique may be useful in hospitals with reduced economic resources. © 2002 Excerpta Medica Inc. All rights reserved.

Keywords: Anastomosis; Roux-en-Y; Surgical stapling

The use of stapling devices during gastrointestinal anastomosis has gained wide acceptance in the last years. Since 1992, we have been using routinely linear cutting devices for performing the Roux-en-Y anastomosis, transection of the duodenum, and gastroenteroanastomosis during gastrectomies, and for the closure of the jejunal stumps. However, we still have shortage of stapling devices due to cost reduction politics. For this reason we propose a modification of the standard technique in order to reduce the number of devices used. Our technique employs a single staple including the section of the jejunum and the side-to-side jejunoanastomosis.

Methods

Technique

The procedure starts with opening of the jejunal mesenteric 20 cm from Treitz angle (Fig. 1). At the same time two openings are made with a diathermic scalpel (Force 2; Valleylab, Boulder, Colorado): one adjacent and the other about 40 cm from the point of future transection of the Roux limb (Fig. 1). The 75-mm linear stapler device (Ethicon Endo-Surgery, Cincinnati, Ohio) is then inserted through the mesenteric opening and the jejunum is slightly twisted and both jaws of the linear stapler are inserted through the jejunal openings at the same time (Fig. 2). The device is fired and the Roux-en-Y is completed (Fig. 3). The latero-lateral jejunoanastomosis is then completed by standard fashion and the Roux limb is now ready to be used for esophagojejunostomy, gastrojejunostomy, or hepaticojejunostomy depending on the surgery.

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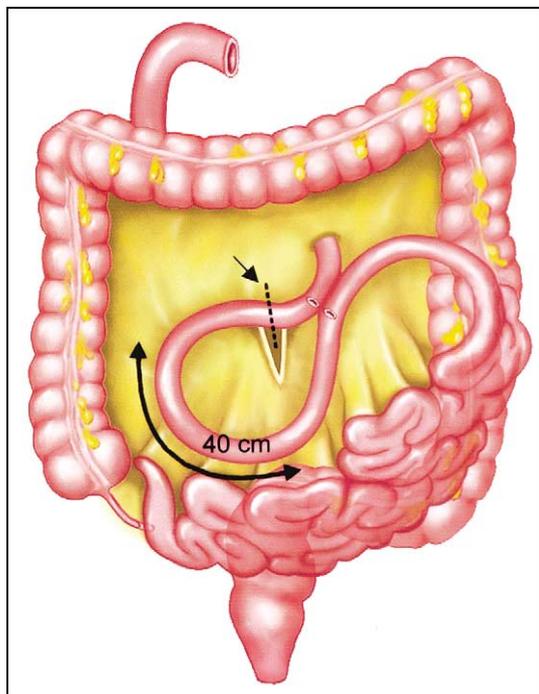


Fig. 1. Schematic view of the Roux-en-Y anastomosis: the jejunal mesenteric is opened 20 cm from Treitz angle (**small arrow**). At the same time two openings are made: one adjacent (1 cm, proximal) and other about 40 cm (distal, **large arrow**) from the point of future transection (**small arrow**) of the Roux limb.

Results

We have successfully used this technique in 15 consecutive patients (10 men and 5 women, aged 46 to 75 years, mean 58) operated on for gastric cancer or malignant obstructive jaundice with reconstruction of the alimentary tract using Roux-en-Y anastomosis between January and December 2001. Compared with historical controls using the con-

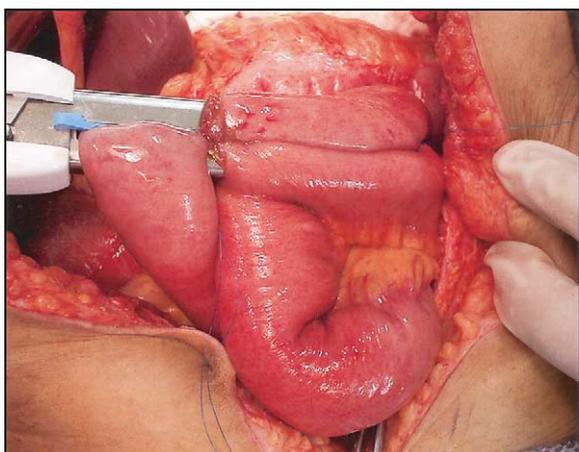


Fig. 2. Intraoperative view of the technique: the linear stapler device is already inserted through the mesenteric opening and both jaws of the linear stapler are inserted through the jejunal openings at the same time.



Fig. 3. Intraoperative view: the device is already fired and the Roux-en-Y is completed.

ventional stapling method, the operative time was shortened by about 25 minutes. The relative cost difference between using this technique with one stapler with one cartridge versus one stapler using two cartridges was 27.86% (one 75-mm stapler with one cartridge versus one 55-mm stapler with two cartridge reloads) and 41.29% (one 75-mm stapler with one cartridge versus one 75-mm stapler with two cartridge reloads). There was no postoperative morbidity related to the Roux-en-Y anastomosis.

Comments

The first surgical stapler was developed in 1909 [1]. Nearly 100 years later modern stapling devices are available in all sizes and shapes. The gastrointestinal stapler is primarily used for dividing and anastomosing bowel segments [1]. Roux-en-Y anastomosis is the gold standard reconstruction technique after many surgical interventions such as bilioenteric anastomosis and subtotal or total gastrectomy. After the introduction of stapling devices in current practice, they became very useful in reducing operative time of many gastrointestinal interventions. However, in some centers, specially in developing countries and in public hospitals such as ours, access is limited owing to its higher cost. Given the real benefits from the use of stapling techniques, we keep using them whenever staplers are available. In order to reduce costs and time during the surgical procedure involving a Roux-en-Y anastomosis, the proposed technique was developed. With only one firing, it's possible to create the Roux limb and an enteroanastomosis at the same time.

As the cost of staplers is not negligible, their use should promote any advantage in the operating time, morbidity, or mortality rates [2]. Although there is no difference in mor-

bidity or mortality rates between hand-sewn and stapled techniques [2,3], clinical studies has shown that operative time may be reduced by up to 30 minutes for each stapled anastomosis [4].

This technique may reduce the time of reconstruction of Roux-en-Y anastomosis without interfering in its final result. In conclusion, sometimes it is possible to supplant the high cost of stapling devices by rationing their use. This technique may spread the use of staplers among centers with low economic resources.

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