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Original Article

Auto Suction Hemorrhoid Ligator

Supakij Khomvilai, MD
Arun Rojanasakul, MD

Colorectal Division, Department of Surgery, Faculty of Medicine, King Chulalongkorn Memorial Hospital, Chulalongkorn University, Bangkok, Thailand

Abstract

Background: **Rubber band ligation is the most popular ambulatory procedure for hemorrhoid treatment. Traditional ligators need two people to perform the procedure, or the suction type ligators need connection to the suction unit. It is difficult to do the procedure in a small clinic so a new hemorrhoid ligator which can easily be maneuvered by one surgeon is required. We invented a built-in-suction hemorrhoid ligator which can be used by one operator.**

Material and Method: **An auto-suction hemorrhoid ligator was invented by incorporating a small suction unit into the handle of the ligator. The auto-suction ligator was used in 20 patients and evaluated at one month follow up.**

Results: **The auto-suction hemorrhoid ligator is easy to use in clinic. All patients were clinical and anoscopically improved without complications.**

Conclusion: **The auto-suction hemorrhoid ligator was invented. The device is user friendly, economical, and would be marketed in July 2012.**

Keywords: **Haemorrhoid, Haemorrhoid treatment, Rubber band ligation**

Correspondence address : *Supakij Khomwilai, MD, Colorectal Division, Department of Surgery, Faculty of Medicine, King Chulalongkorn Memorial Hospital, Chulalongkorn University, 1873 Rama IV Road, Lumpini, Pathumwan, Bangkok 10330, Thailand; Telephone: +66 2256 4400; Fax: +66 2256 4194; Email: supakijkhomvilai@mac.com*

Background

Rubber band ligation is widely accepted as the primary outpatient therapy for bleeding and reducible prolapsed hemorrhoid, because of limited morbidity, adequate long term effectiveness, convenience, and patient acceptability[1]. Rubber band ligation was pioneered by Blaisdell[2] and popularized by Barron[3]. The conventional rubber band ligation requires two people to perform the procedure, one to maintain the anoscope in position and the other to hold the ligator and grasping forceps. The suction-type hemorrhoid ligator had been developed, such as McGowan, Lurz-Goltner and Shortshot-Saeed. The advantage of the suction type hemorrhoid ligator is that the procedure can be performed by one operator but it needs to be connected to the suction unit. We invented a built-in-suction hemorrhoid ligator which can be used by single operator, and used this in 20 patients.

Material and Method

The auto-suction hemorrhoid ligator was made by incorporating a mini vacuum apparatus in the handle of hemorrhoid ligator (Figure 1). Major parts of the device are made from stainless steel for durability and convenience of cleaning. The metallic cone was also designed for multiple rubber bands loading on the ligator drum, which can easily be pushed down for several subsequent ligations.

The device was used in 20 patients and the steps of the procedure are :

1. Anoscope insertion.
2. Clean anal mucosa with gauze swabbing.
3. Insert the device into the anoscope, and place the ligator drum to the target area just above the hemorrhoidal tissue.
4. Squeeze the lower trigger (suction trigger), which will suck the anal tissue into the ligator drum.
5. Pull the upper trigger (firing trigger), which will push the rubber ring around the target tissue.
6. If multiple rubber bandings are required, the next rubber band ring, which is preloaded on the outer ligator drum, can be pushed down to the inner drum by finger tips, and then the next rubber banding can be performed by repeating steps 2 to 5.

Results

Rubber band applications in all 20 patients were successfully accomplished. The average diameter of the ligated tissue was 1.5 cm. Our experience with the auto-suction hemorrhoid ligator seems to be associated with less patient discomfort, this is perhaps because the ligated tissues are all above the hemorrhoid tissue which is located at a higher distance from the dentate line. Another explanation is that the suction force can suck only the mucosa and submucosa tissue without the internal anal sphincter. At one month follow up, all ligated hemorrhoids were clinically and anoscopically improved.

Discussion

The new auto-suction hemorrhoid legator has many advantages, including:

1. The procedure can be performed by one operator.
2. The device does not require a suction unit.

Figure 1 The auto-suction hemorrhoid ligator

3. Multiple rubber band ligations can be easily done.

4. The device is durable because it is made from stainless steel.

5. The device is cheap because all parts are made in Thailand.

The only disadvantage of the device is that it needs cleaning and sterilization before subsequent application on new patients.

Conclusion

The auto-suction hemorrhoid ligator was invented by incorporating a small suction apparatus in the handle of the ligator. The device was used in 20 patients with impressive results. The auto-suction hemorrhoid ligator is user friendly, economical and would be marketed in July 2012.

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