

ANAL TRAINER FOR HEMORRHOIDAL MUCUS PROLAPSE SURGERY (ANALTRAP)

KEYWORDS

- ☐ ANAL TRAINER
- ☐ PROCTOLOGY
- ☐ ANAL SURGERY
- ☐ RECTAL PROLAPSE
- ☐ EDUCATION

AREA

- ☐ BIOMEDICAL

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Patent Type

Patent for invention.

Ownership

Sapienza University of Rome 100%

Inventors

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Industrial & Commercial Reference

Market target are producers of medical simulator devices for training.

Time to Market

The prototype has already been used to simulate the mucoprolapsectomy procedure for educational purposes. TRL has been estimated as 4 level.

Availability

Cession, Research, Development e Experimentation.

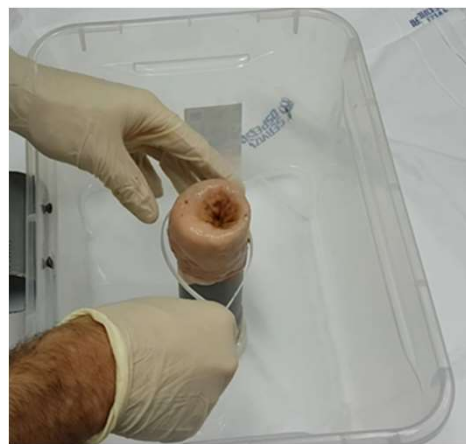


Fig. 1 Anatomic preparation placement



Fig. 2 Trainer assembled



Abstract

The Anal Trainer is a prototype of a low budget portable surgical simulator which allows to the learner to gain a pre-clinical experience with the proctological surgical techniques required for a correct and safe execution of the trans-anal mucoprolapsectomy, this technique needs the fashioning of a purse-string suture and the use of a circular mechanical stapler. The simulator also allows the placement of hemostatic stitches and the fashioning of handmade trans-anal anastomoses, reproducing the anatomical conditions encountered in the endoluminal anal surgery



Fig. 3 Purse-string suture fashioning

Fig. 4 Circular stapler placement into the trainer.



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Technical Description

The device consists of a transparent plexiglass box (L38 H19 D 26.5 cm) inside which is placed a tube of rigid plastic material (diameter 4 cm, length 26 cm), on which the anatomical preparation (porcine rectum) or an alternative synthetic tissue (silicone, polyurethane or combination) is housed and fixed simulating realistically the anatomy of the anal canal. On the front face, around the orifice of the metal tube, there is a cover of Velcro fabric, fixed with adhesive, which provides the substrate for the anchor points of the anal retractor of the circular stapler



Fig. 5 Procedure outcome check.

Technologies & Advantages

The designed simulator is absolutely innovative in the field of proctological surgical training, a sector in which no specific trainers have currently been developed. Various analog and digital simulators for laparoscopic intraperitoneal surgery are commercially available, but devices able to simulating endoluminal surgery of the anal canal and rectum have not been marketed. These kinds of techniques are usually taught using the animal model or, alternatively, using cadaveric preparations with consequent problems both of ethical, economic and legal nature. The simulators used for pre-clinical endoscopic training, although can reproducing the endoluminal anatomy of the colorectal do not allow the execution of surgical maneuvers typical of proctological surgery. Therefore, the anal trainer ANALTRAP constitutes a real innovation in the field of proctological training, also resulting in an extremely low budget product. The device also has a low weight and can be easily transported and placed according to the different training needs.

Applications

The main field of application is the sector relating to surgical training in the healthcare and academic institutions, therefore the application areas of competence fall within the sector of biomedical production and merchandising. The reference market is recognized in the provider of devices and simulator for surgical training and education. The main users of the simulator include the companies and institutions which organize and manage surgical training in both the public and private sectors, including universities, healthcare institutions, training centres and research institutions where teaching and surgical improvement programs are carried out.

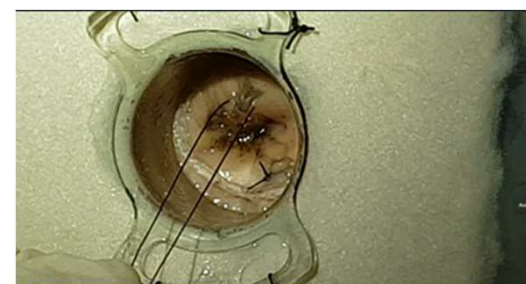


Fig. 6 Placement of stitches.

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