

Elif TAŞKIN¹, Eray KURT¹, Meltem ELİTAŞ¹

¹FACULTY OF ENGINEERING AND NATURAL SCIENCES, Sabancı University, İstanbul, 34956, TURKEY

Program For Undergraduate Research

PROJECT INTRODUCTION

This study presents a design of a multifunctional laparoscopic appendectomy device that includes three surgical instruments commonly used in appendectomy; Endoloop, endobag and scissors. It collects these three independent surgical tool in a single device. The main reasons behind it is to avoid changing the devices several times during the operation. The presented multifunctional laparoscopic appendectomy device offers more practical use in comparison to individual devices.



(Leonid Ivanovic Rogozov, 1961)



(Laparoscopic surgery)

METHODS AND MATERIALS

Multifunctional laparoscopic device is used 1.2cm diameter and 53cm length sheath to cover whole laparoscopic instruments together. Instruments are taken out separately. Thanks to this process, other ports are free to use.

The gear mechanism that provides that edge of different instruments can be taken out whenever surgeons want in a safe manner. Thanks to that, it is prohibited problem of finding place repeatedly.

The suggested system is effective, easy to use. Also, device is single use and budget friendly based on the materials that are used in production of device.

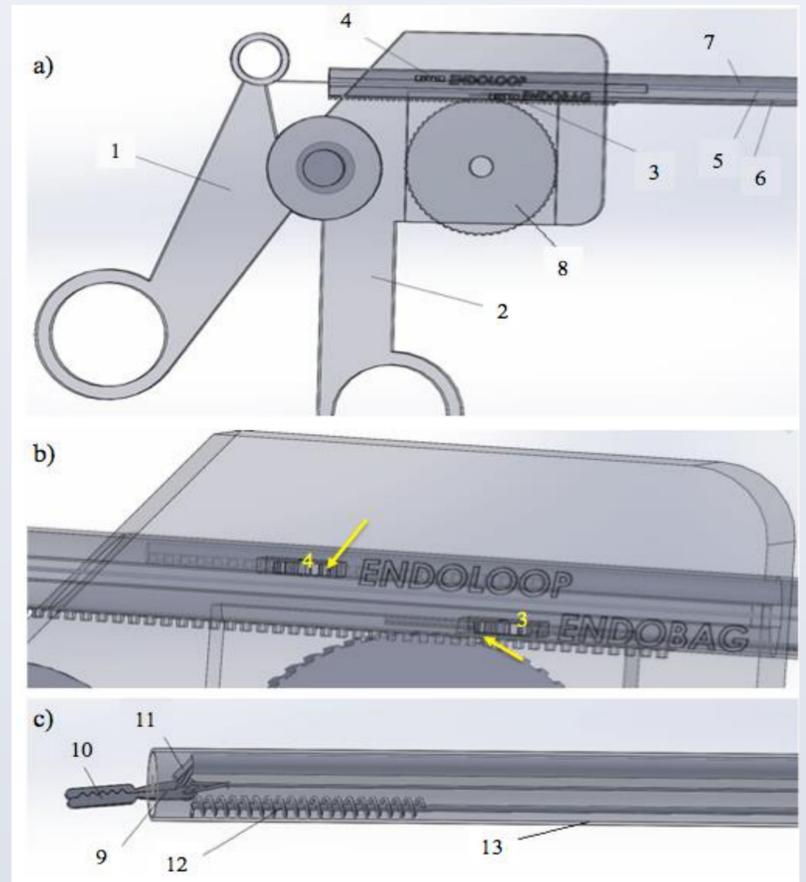


Tools	Duties	Diameter/Length (cm)
Endoloop	Separate small bowel and appendix	0.3 / 47
Endobag	Cover the appendix to	0.3 / 47
Trocar	The ports that provides tools to plug into human body	1 / 0
Scissors	Used in cutting when it is necessary.	1 / 50

Table 1. Dimentions and duties of tools

RESULTS

In the appendix surgeries, changing instruments frequently create some hardships for surgeons. That is why, we decided to design a multifunctional surgical tool for appendectomy. This new device uses only one port and after gets in the patient's body, there is no need to take it out several times. As a result, it creates free trocars for other instruments.



(1.holding area for scissors. 2.main component. 3.gear which helps to push the bag out. 4.gear which helps the endoloop out. 5.scissors tools. 6.endobag part. 7.endoloop part. 8.main gear. 9.shap scissors. 10.holding scissors. 11.endoloop. 12.endobag. 13.outside layer)

CONCLUSIONS

- Fewer number of scars on patient's body
- Recovery time of the post-operative period is rapid
- This kind of surgery reduces the risk of the infections
- This device reduces the time which is spent in the operations
- Surgeons become less tired at the end of the operations
- Creates more stabile work environment
- Operations process more safety rather than traditional surgery methods
- This device keeps surgeon's concentration high doing the operation easier.

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