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# New technique for two ports laparoscopic appendicectomy

## Abstract

**Background**: The laparoscopic approach is increasingly used nowadays for appendicectomy. Three ports are used in laparoscopic appendicectomy, sub-umbilical port and supra-pubic port in which port sites are hidden the by the natural camouflages and the third port in the right iliac fossa which is the only visible scar. The third port scar can be made invisible by using a hook for appendicular traction.

**Aim:** The aim of this study is to describe a new technique for laparoscopic appendicectomy with more cosmetic appearance.

**Materials and methods**: 85 cases were done from January 2017to July 2022. Two ports Laparoscopic Appendicectomy were done using a hook in the right iliac fossa for appendicular traction as the third port after introducing 10 mm subumbilical telescopic port and a 10mm suprapubic working port.

**Results**: All cases were done successfully, there were no post operative complications, mean operative time was 50 minutes.

**Conclusion**: This new technique with two ports laparoscopic appendicectomy is very successful with the advantage of invisible scars.

**Keywords:** laparoscopic appendicectomy, hook retraction, two ports laparoscopic appendicectomy, acute appendicitis, chronic appendicitis, invisible scars

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## Introduction

Laparoscopic Appendicectomy (LA) has the advantages of less pain, shorter hospitalization, fewer post-operative complications, better cosmesis and earlier return to work.[1–3] Recently, it has been showed that it is a safe and feasible procedure in the treatment of acute appendicitis.[4] This study presents a new instrument, the hook, that makes laparoscopic appendectomy minimally invasive, scarless and cost-effective procedure.

## Material and methods

This is a prospective study was started from January 2017 to July 2022 and was approved by the ethics committee of Fayoum University. The study included 85 patients (45 females and 40 males), 70 patients diagnosed with acute appendicitis and 10 diagnosed with chronic appendicitis. The age of the patients ranged from 20 to 44 years (mean = 30.2 years). The study included the use of the hook, which was explained to all patients, and all patients gave written consent. Patients with acute or chronic appendicitis were included in the study. Patients with appedicular mass or appendicular abscess were excluded from the study. The hook was prepared from Key wire No. 2. cm long. Its pointed tip is used to pierce the abdominal wall. The hook length was 30 cm and was 2 mm thick. The patient is asked to void before the operation. Under general anesthesia, the pneumoperitoneum is established. I used two ports (one 10-mm port directly below the umbilicus for the camera and one 10-mm suprapubic port.

### Technique

Under general anesthesia the patient is positioned in Trendlenberg position and tilted slightly to the right side, a 30-cm length of Key wire is fashioned to have a hook at one end and the other part is the straight part has small handle at the end to manipulate the hook (Figure 1). This is inserted easily through the right iliac fossa, the appendix is grasped by the grasper passed through the suprapubic port and the tip of the hook is passed through a window created in the mesoappendix (Figure 2) This retracts the appendix to the abdominal wall. With Ultracision Harmonic Scalpel (® Ethicon, Cincinnati, USA) mesoappendix is cauterized. Then the hook was used to sling the appendix through the tip of the appendix and two large clips were applied to the appendix at the base of the appendix, and another one 10mm from them, and we cut the appendix in between (Figure 3). Then the hook is removed ,the excised appendix is extracted it through the camera port. After peritoneal lavage, the two port sites are closed. Follow up for six months.

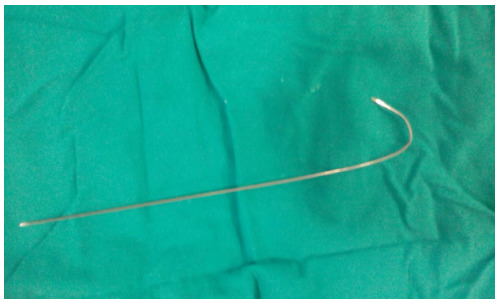

**Figure 1** The Hook.

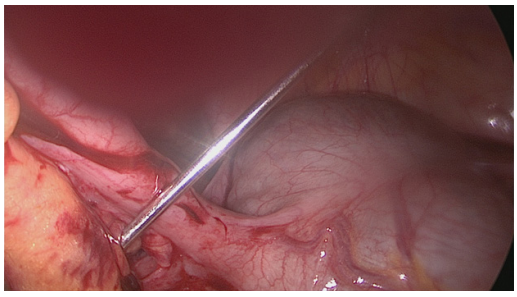

**Figure 2** The hook passed through the mesoappendix window.

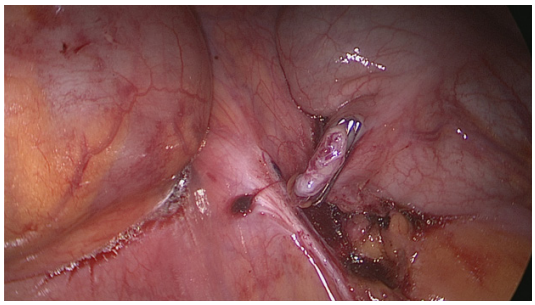

**Figure 3** The appendix is cut between the clips.

### Statistical analysis

Differences between means and the effects of treatments were determined by one-way ANOVA using Tukey's test.

### Results

The age of the patients ranged from 20 to 44 years (mean = 30.2 years and the mean hospital stay was 2 days (range 1-3 days). The operative time ranged from 45 to60 min (mean = 50 min). No post operative complications (Table 1,2).

**Table 1** Patient Demographics

| **Age(yr)** | **30.2** |
|---|---|
| Gender | 45 females |
| | 40 males |
| BMI | 22.7 |

**Table 2** Post operative clinical data

| **Operative time (min)** | **(45-60) min mean 50min** |
|---|---|
| Hospital stays (day) | (1-3) days mean |
| | 2 days |
| Complications | No |

## Discussion

The management of acute and chronic appendicitis has changed over the last years, from McBurney's simple large incision, to minimally invasive laparoscopic appendicectomy, to Single Incision Laparoscopic Surgery (SILS).[5] laparoscopic appendectomy has early ambulation, less postoperative pain and analgesia, a short hospital stay with early return to normal life and less irritation of the intestine with reduced adhesion after surgery. So, laparoscopic surgery is now widely performed.[6,7] In three-port laparoscopic appendectomy, the handling of the appendix is done by using a grasper, which may lead to rupture of the appendix, which may lead to peritoneal soiling or bleeding from mesoappendix.[8] In my technique I used only two ports, one port (10 mm) for the camera and one port (10 mm) for the working instrument in addition to the hook which is used for hanging the appendix so there is no rupture of the appendix, gives better counter traction than conventional forceps. The only drawback is that it is difficult if there are long, immobile retrocolic appendix or dense peri-appendicular adhesions, in such cases it can easily converted to conventional laparoscopic appendicectomy by an additional trocar in the right iliac fossa – "port rescue"[9] which is not occurred in this study. Compared to other studies which used prolene suture for hanging the appendix which make the appendix less fixed, move up and down during surgery,[10] in my cases the hook made the appendix more stable and easily manipulated.

## Conclusion

Two ports Laparoscopic appendectomy using this hook is safe, minimally invasive, easy, with best cosmesis and cost effective.

## Acknowledgments

None.

## Disclosures

There is no conflict of interest.

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