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ORIGINAL ARTICLE

Laparoscopic Appendicectomy Using "Mian Waleed's (MW) Ultragrasper

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ABSTRACT

Introduction: The two Port Laparoscopic Appendectomy (TPLA) methods sits between the single port laparoscopic surgery and traditional three port trocar. Though TPLA, the appendix is held with sutures, which creates a risk of perforation and trouble in exploration.

Objective: The paper represents our experience with the usage of needle grasper in two Ports Laparoscopic Appendectomy to manipulate and suspend the appendix.

Methods: 36 (11 women, 25 men) who endured TPLA were retrospectively analyzed in terms of duration of surgery, patient demographics, conventional laparoscopy or the need for laparotomy, complications, drain use and extent of hospital stay. The MW ultragrasper was placed just below the quadrant of abdomen at McBurney's point without giving incision to manipulate and hang the appendix.

Results: 26.80 ± 7.61 years was the mean age with 22.68 ± 3.88 kg / m2 mean body mass index (BMI). The ASA score was 1 and 2. In 34 patients, the operation was accomplished deprived of an extra trocar. 58.11 ± 3.29 mints were the mean operative time. No patient has any intraoperative complications. Drains were obligatory in three patients; They were all discharged after removing the drain. 31 subjects were discharged on the first day after surgery; 3 patients were discharged with drains on 2nd day. 1.42 ± 0.49 days were the mean stay in hospital.

Conclusion: By means of a MW ultra grasper, the appendix was suspended and held, and the meso-appendix was successfully skeletonized and cauterized in two Ports Laparoscopic Appendectomy. To manipulate the appendix, it is helpful to insert the MW ultra grasper into the cavity of abdomen at the McBurneys point and leave no visible scarring.

Keywords: Minimally invasive surgery, MW ultra grasper and laparoscopic appendectomy.

INTRODUCTION

Laparoscopic appendectomy (LA) has newly been recognized as the first line of care for complicated or simple acute appendicitis[1-2]. Improved cosmetic results, fewer post-operative infections, less post-operative pain, early recovery and shorter hospital stays are the benefits of Laparoscopic appendectomy[3-4]. The newly established single-port procedure has raised the significance of MIS. Maximum studies on appendicitis in one port did not show any benefits beyond cosmetic results and technical feasibility[5-6]. Besides reduced number of ports; increased incision diameter and increased fascia loss, increased post-operative pain, and longer operative time are all drawbacks of the single-port technique. Additional drawback of the single port technique is the high cost of operation[7]. The TPLA is a less invasive operating technique that helps in reduced pain post-operatively, shorter incisions and virtuous results of cosmesis[8]. There is a lot of research into this technique. We make TPLA with an added MW ultra grasper (devices for percutaneous organ transport). This method had better cosmetic results as it had fewer ports and fewer surgical injuries than the LA three ports[9].

The paper represents our experience with the usage of MW ultra grasper in two Port Laparoscopic Appendectomy to manipulate and suspend the appendix.

MATERIAL AND METHODS

This retrospective study was conducted in the surgery department of ?? hospital for six-months duration from July 2021 to December 2021. 36 (11 women, 25 men) who endured TPLA were retrospectively analyzed in terms of duration of surgery, patient demographics, conventional laparoscopy or the need for laparotomy, complications, drain use and extent of hospital stay. Acute appendicitis was identified by ultrasound of the abdomen (26 patients) or CT-scan (10 patients). Complicated appendicitis cases like plastron formation or generalized peritonitis were omitted. The conversant permission was gained from all subjects prior to surgery. Sex, age, weight, height, co-morbid medical conditions and body mass index (BMI) were recorded. Surgery time, length of hospital stays, complications and start of enteral nutrition were documented. Post-operative complications such as stump leakage, wound infection, intestinal obstruction, and abdominal abscess have been reported. The scar of needle grasper was examined and recorded on the 20th and 30th day after surgery. The Ethical Committee has given approval of the study.

Surgical method: The procedures were completed by an experienced surgeon and an assistant. All subjects were directed GA. In TPLA, a skin incision of 1 cm was made below the umbilicus and a Veress needle was introduced into the cavity of abdomen. For pneumoperitoneum, 14 mm Hg CO 2 pressure was created and a trocar of 10 mm in size was introduced into the intraperitoneal space. A 0 ° and optical camera of 5 mm in size is introduced via the umbilical trocar and the suprapubic area was used for 5 mm trocar insertion. The subjects were placed in the position of Trendelenburg at an angle of 15 degrees to the left. A diagnostic examination was accomplished and confirmation of acute appendicitis was done. A Mian waleed needle grasper device was introduced via the McBurney point (Figure 1A, B). The needle Mian waleed grasper was used to held the appendix. As with the endo-grasper, the appendix was efficiently and easily manipulated (Figure 2A). The meso-appendix was excised and cauterized using a LigaSure tool. The endo-loop was introduced via trocar of 5 mm and tightened from the appendix tip to the radix and appendectomy was done. The optical camera was introduced via the suprapubic port of 5 mm in size and the endo-bag via the umbilical port of 10 mm was inserted; The surgical specimen was placed in a bag and removed from the abdominal cavity. 2/0 vicryl was used to close the fascia and 4/0 intracutaneous vicryl sutures were applied to close the skin.

RESULTS

36 (11 women, 25 men) were included in the study. 26.80 ± 7.61 years was the mean age with 22.68 ± 3.88 kg / m2 mean body mass index (BMI). The ASA score was 1 and 2. In 34 patients, the operation was accomplished deprived of an extra trocar. 58.11 ± 3.29 mint was the mean operative time (minimum: 46 minutes, maximum: 64 minutes).

Table-1: Demographic Features

Males	25(69.4%)
Females	11(30.6%)
Mean age	26.80 ± 7.61 years
Mean BMI	22.68 ± 3.88 kg / m2
Mean surgery time	58.11 ± 3.29 mints
Mean stay in hospital	1.42 ± 0.49 days

Perforated plastron appendicitis was detected in two patients by laparoscopy and were omitted from the analysis. Post-operative infection developed in one subject who endured TPLA at the site of the periumbilical incision. The patient improved after appropriate antibiotics. 3 subjects needed the assortment of the Hemovac drains in a Douglas cavity or cul-de-sac due to a slight leakage of blood from the meso-appendix Drains were obligatory in three patients; They were all discharged after removing the drain. 33 subjects were discharged on the first day after surgery; 3 patients were discharged with drains on 2nd day. 1.42 ± 0.49 days were the mean stay in hospital. (Min: 1 day, max: 2 days). The needle grasper cosmetic results were remarkable both in the initial period after surgery and at the 20-day follow-up.

Fig: shows Mian Waleed Ultra grasper used to hold the appendix

Table-2: post-operative complications

Infection	1(2.8%)
Perforated plastron appendicitis	2(5.6%)
Anastomotic lekage	3(8.3%)

DISCUSSION

Technological advances have unlocked a new advancement in the treatment of acute appendicitis. After laparoscopic advances, surgeries moved quickly to SILS ports and robotic surgical procedure[11-12]. Several investigators have industrialised various methods for endoscopic transluminal surgery through natural openings, and there are reports of transvaginal LA. Though, numerous risks associated with these methods[13-14]. For laparoscopic intra-abdominal surgery; umbilical laparoscopic procedures are the standard methods. LAs are typically achieved by an access via umbilicus. There are numerous LA practices: Single Port LA, Standard Multiport LA, and two Port Laparoscopic Appendectomy are one of the trans-umbilical procedures[15-16]. The Laparoscopic Appendectomy is a 3-port operating technique. The SILS uses a single port with three or four internal cameras. For the SILS port procedure; 2 cm incision is obligatory, which may cause much ache and post-operative infection. Numerous analysis have stated a higher incidence of pain postoperatively following the port technique of SILS[17-18]. In Mayer et al study who stated reduced pain postoperatively in the group of SILS. Improved angulation is easily achieved in TPLA in comparison to traditional LA operation and SILS port.

During appendectomy, the appendix should be checked for cauterization and cutting of the appendicular artery. There are numerous precise methods to attain this situation[19-20]. Roberts described the "puppeteer technique", a seam that comes out of the RIF and hangs down from the surgeon's left hand. In this false report, 13 out of 14 cases were successfully treated with less post-operative pain and improved cosmesis outcomes. Até et al[21]. The meso-appendix was attached to the RIF with a transabdominal suture. They described improved cosmesis with this practice and few tools were used in this method. In another TPLA study, the appendix was attached to the wall of the abdomen with a loop of sutures in the anterior wall of abdomen in the lower right quadrant[22]. We have not encountered any problems, like organ perforation or perforation of appendix related to the usage of grasper clamps. We also not perceive any infection or post-operative pain at the point of entry of the grasper. The device diameter is 2.1 mm and no additional incision is required to insert the needle. The McBurney point is used because it is safe and is the perfect place to avoid infection[23]. Thanks to the light transmission from the camera, its placement in the abdominal cavity was safer and easier. The appendix was suspended and fixed with a needle grasper, and with the LigaSure tool; the appendix was cauterized and skeletonized successfully. The advantages of this technique were the reduction of pain postoperatively and the calm removal of the appendix. We believe this method can be cast-off in single port LA[22-23].

Reducing the number of trocars can lead to improved cosmesis; though, there is no consistent classification system for wound infections to evaluate cosmetic outcomes. In this analysis, we did not detect any significant scarring at the needle puncture site on 20th day postoperatively. All subjects were gratified with the cosmesis outcomes.

CONCLUSION

In our study, we detected that the needle grasper may be useful not solitary for appendectomy, but correspondingly for various types of minimally invasive laparoscopic surgeries. As a consequence, TPLA can give good results with the MW ultra grasper. By using this technique, it is possible to reduce the ports used and obtain well cosmesis outcomes. The profits of these new practices should be evaluated in randomized clinical trials.

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