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By Yasuhiro Ishiyama, Yasumitu Hirano, Reiko Akiyama, Kenji Douden,
Masakazu Hattori & Yasuo Hashidume

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Results: In this retrospective study, the data of 9 consecutive patients with a mean age of 70 years were analyzed. Pathological findings is 6 LAMN, 1 appendiceal cancer, and 2 appendicitis. The median operative time was 152 minutes, and the median blood loss was little.

Keywords: single incision laparoscopic ileocecal resection, low-grade appendiceal mucinous neoplasm, single incision laparoscopic surgery.

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Single Incision Laparoscopic Ileocecal Resection for Low Grade Appendiceal Mucinous Neoplasm

Yasuhiro Ishiyama ^α, Yasumitsu Hirano ^σ, Reiko Akiyama ^ρ, Kenji Douden ^ω, Masakazu Hattori [¥]
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In conclusion, it is thought that minimally invasive procedures, including single incision laparoscopic ileocecal resection, for LAMN.

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I. INTRODUCTION

Appendiceal mucocele is an uncommon pathology of the appendix (0.08 %-0.15%) that is characterized by the accumulation of mucus in the appendiceal lumen (1). Recently, there are few case reports in the literature, in which single incision laparoscopic surgery was accepted as a treatment modality for the low grade appendiceal mucinous neoplasm (LAMN) (2,3)

This study aimed to evaluate short-term outcomes of single incision laparoscopic ileocecal resection for LAMN.

II. MATERIAL

This study represents a single-center, retrospective, observational case series analysis. Between January 2011 and July 2015, 9 patients with preoperative appendiceal mucinous neoplasm underwent SILS at our institution. The parameters examined were sex, age, BMI, ASA classification grade,

pathological findings, surgical procedure, blood loss, conversion to laparotomy, hospital stay, perioperative mortality and morbidity, and rate of readmission within 30 days. All patients were evaluated before surgery by clinical investigations, including total colonoscopy, chest X-ray, and thin-section helical CT. (Figure.1) All patients gave informed consent for their data to be used in future analysis.

III. SURGICAL PROCEDURE

Under general anesthesia, the patients were placed in the modified lithotomy position. First, a Lap Protector (LP; Hakko Co. Ltd., Nagano, Japan) was inserted through a 2.5cm transumbilical incision, the wound was protected. Next, an EZ-access (Hakko Co. Ltd., Nagano, Japan) was mounted to LP and two 5-mm ports and one 10-mm port were placed in EZ-access. Almost all the procedures were performed with usual laparoscopic instruments such as the LCS (Laparoscopic Coagulating Shears), and the operative procedures were much the same as in usual laparoscopic colectomy using a flexible 10mm scope.

First, right colon was mobilized using a medial approach. The ileocolic vessels were divided at the root of them and all of the soft tissue anterior to the superior mesenteric vein was completely removed. All of the soft tissue around the ileocolic artery and vein was completely removed (D3 lymph node dissection). After performing mobilization of the colon without touching tumor, the specimen was extracted through the small incision. Resection was achieved following extracorporealization, and the anastomosis was performed extracorporeally using staplers.

IV. RESULTS

The clinical characteristics and surgical outcomes of the patients are shown in Table 1. In this retrospective study, the data of 9 consecutive patients (8 men, 1 women) with a mean age of 70 years (range, 61–88) were analyzed.

Pathological findings is 6 low-grade appendiceal mucinous neoplasm (LAMN) (Figure 2), 1 appendiceal cancer, and 2 appendicitis.

Author ^α: e-mail: cesarishimar1215@yahoo.co.jp

The median operative time was 152 minutes (range, 74–213 minutes), and the median blood loss was little. No conversions to open surgery or intraoperative complications occurred. No cases necessaries additional port.

All procedures were completed laparoscopically without perioperative mortality. Postoperative complication is one anastomosis of leakage, one case need to percutaneous gastric forming due to oral feeding difficulty. The mean length of the umbilical incision was 3.0 cm (range, 2.5–3.5 cm). Most patients were discharged on postoperative day 13 (range, 9–56). With regard to postoperative complications, one patient developed pneumonia. No cases were readmitted within 30 days. Regarding the oncologic outcome, no patient developed disease recurrence.

V. DISCUSSION

Appendiceal tumors are rare entities, occurring in less than 2% of all appendectomies. (4) Surgical techniques have traditionally been performed for these tumors to prevent dissemination of the mucocele into the peritoneal cavity.

The previous study have published our series of 8 patients with appendiceal mucocele who successfully underwent laparoscopic resection at theirs institute. (2) The case report study reported that appendiceal mucocele underwent laparoscopic right hemicolectomy. (5)

However, laparoscopic dissection, by grasping of the mucocele and pneumoperitoneum, and transporting the specimen through the abdominal wall, may contribute to peritoneal dissemination of an appendiceal mucinous tumor (6).

Recently, single-incision laparoscopic colectomy (SILC) for colon cancer has been preliminary described by Bucher P et al in 2008(7). Since then many surgeons have attempted to reduce the number and size of ports in laparoscopic surgery to decrease parietal trauma and improve cosmetic results. Single incision laparoscopic colectomy is less possible than conventional laparoscopic surgery not grasping of appendix, cecum (Figure.3), we hypothesis that SILS is suitable for LAMN than conventional laparoscopic surgery. This is because that assistant is none in SILS, it is reduction of touch organ.

Appendiceal mucocele itself dose not have typical clinical features; more than two -thirds of patients have their appendiceal mucocele removed based on incidental findings. It is difficult to diagnosis LAMN preoperative. (8)

We have encountered 9 cases of appediceal neoplasm (Table1) ; six cases were low-grade appendiceal neoplasm, one case was appendiceal cancer, two cases were appendicitis. In these cases, we chose cecectomy with lymph node dissection, due to be

suspected malignancy. All 9 patients are doing well, without recurrence for 22 (7–60) months after surgery.

The previous study in dry box that even though single incision laparoscopic surgery is difficult, experienced laparoscopic surgeons would be able to adapt their training and experience to this new technique. (9) Our institution that only experienced surgeons or surgeons which have Endoscopic surgical skill qualification system in Japanese society for endoscopic surgery performed single incision laparoscopic colectomy for cancer.

In conclusion, it is thought that minimally invasive procedures, including SILS ileocecal resection, for LAMN. Single incision laparoscopic colectomy for LAMN should not grasping of appendix and cecum, however, it is difficult for inexperienced surgeon to perform it.

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