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Original article

Transumbilical extraction of 151–300-g myomas without morcellator versus conventional laparoscopic myomectomy with power morcellator

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ABSTRACT

Study objective: The aim of this study was to compare the surgical outcomes, particularly the specimen retrieval time, between two methods of laparoscopic myomectomy: transumbilical retrieval of the myoma without a morcellator and conventional retrieval of the myoma using a power morcellator via the left lower quadrant.
Design: Retrospective study.
Setting: Public hospital.
Patients: Seventy-four women undergoing laparoscopic myomectomy.
Interventions: Laparoscopic myomectomy followed by myoma retrieval via transumbilical extraction or electric motorized morcellator extraction.
Measurements and main results: Seventy-four patients undergoing laparoscopic myomectomy followed by myoma retrieval via transumbilical extraction or electric motorized morcellator extraction were studied. Significant differences were observed in the average weight of the retrieved myomas between the transumbilical and morcellator groups (141.0 vs. 262.8 g, respectively; $p < 0.001$). Therefore, we chose 27 patients whose total specimen weight was 151–300 g; 13 patients were in the transumbilical extraction group and 14 were in the electric motorized morcellator group. No significant differences were observed in patient characteristics between the two groups. The operative time, blood loss volume, and myoma retrieval time were similar between the two groups.
Conclusion: Laparoscopic myomectomy with transumbilical extraction for myoma retrieval is a feasible method for specimens weighing up to 300 g.

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Introduction

Laparoscopic myomectomy (LM) is a common procedure. The technique with which the myoma is retrieved after LM is very important because it strongly influences the operative time.

Historically, it was common to use an electric motorized morcellator to retrieve the myoma. However, intracorporeal morcellation is associated with potentially severe complications[1] including parasitic myoma and abdominal wall-related injuries. Additionally, the Food and Drug Administration (20140417) stated that intracorporeal morcellation can inadvertently spread cancerous tissue beyond the uterus and into other parts of the body.[2,3]

After this warning from the Food and Drug Administration, several myoma retrieval procedures were reported, such as in-bag morcellation,[4,5] transvaginal extraction,[6] transumbilical extraction,[7–11] and lower abdominal incision.[12] Before this warning, a power morcellator was commonly used in our institution. When the myoma was very small, it was retrieved from the umbilical scar without an electric motorized morcellator. The myoma was contained in a bag and morcellated by scissors and a scalpel. After the warning, we began to retrieve the myoma from the umbilical scar without an electric motorized morcellator during reduced-port

Conflicts of interest: The authors have no conflicts of interest relevant to this article.

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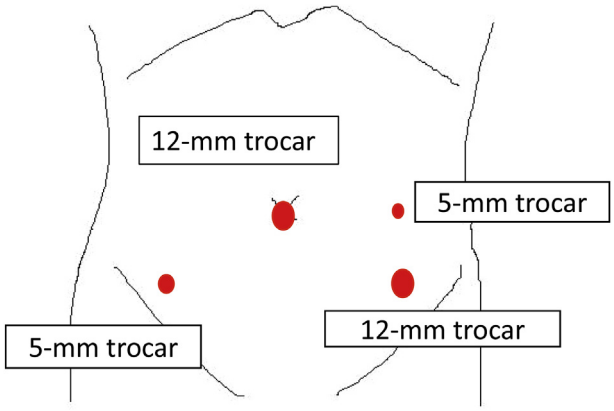

Fig. 1. Conventional laparoscopic myomectomy.

surgery. The umbilical scar created during reduced-port surgery is longer (2.5–3.0 cm) than that created during conventional LM.

A few reports have compared the surgical outcomes of reduced-port LM using transumbilical myoma extraction without an electric motorized morcellator with the outcomes of conventional LM.[8,9] We believe that the specimen retrieval time is important for comparison of these two methods. To the best of our knowledge, only one study has compared the time required for transumbilical extraction without a power morcellator versus extraction with a power morcellator.[9] Therefore, in the present study, we compared the surgical outcomes of these two methods with a special focus on the myoma retrieval time.

Aim

The aim of this study was to compare the surgical outcomes of LM using two myoma retrieval techniques: reduced-port transumbilical extraction without a morcellator and conventional extraction with a power morcellator. We paid special attention to the time required for myoma retrieval in each technique. Our goal was to determine whether transumbilical extraction without a morcellator can replace the use of an intracorporeal power morcellator.

Materials and methods

All patients who underwent LM in the Department of Obstetrics and Gynecology at Minoh City Hospital from January 2011 to December 2014 were included in this retrospective study. Institutional review board approval was waived because of the retrospective nature of the study. Informed consent was obtained from all patients prior to surgery and included permission to collect surgical information and use the patients' specimens for the purpose of any study. The study protocol complied with the Declaration of Helsinki.

Estimation of myoma size

The largest diameter of each myoma was measured immediately before the operation by transvaginal ultrasonography.

Surgical technique

For conventional LM, two 12-mm trocars were placed in the umbilicus and left lower quadrant, and two 5-mm trocars were placed in the right lower quadrant and left upper quadrant. All resected myomas were morcellated and retrieved via the left lower quadrant trocar using the power morcellator (Ethicon Inc., NJ, USA) (Fig. 1).

For transumbilical retrieval, we used an EZ Access (Hakko Medical, Nagano, Japan), which has a silicon cap for the wound retractor (LAP PROTECTOR™; Hakko Medical) that makes it possible to insert multiple trocars without air leakage. The skin incision for insertion of the LAP PROTECTOR™ was 20–30 mm long. In single-port LM, three 5-mm trocars were inserted through the EZ Access; in two-port LM, two 5-mm trocars were inserted through the EZ Access and a 5-mm trocar was inserted in the left lower quadrant; and in three-port LM, two 5-mm trocars were inserted through the EZ Access and two 5-mm trocars were inserted in the right and left lower quadrants (Fig. 2).

The detached myomas were contained in a specimen bag (EZ Purse; Hakko Medical) that was exteriorized at the umbilicus, morcellated with scissors and a scalpel, and retrieved through the umbilical incision.

The retrieval time was obtained from the nurse records and surgical videos. For morcellator extraction, it was defined as the

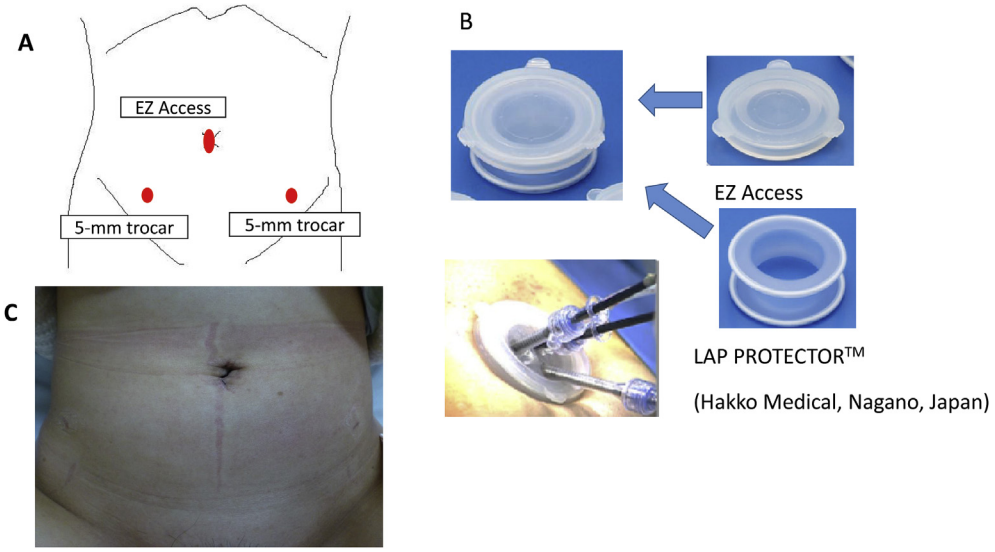

Fig. 2. Single-, two-, or three-port laparoscopic myomectomy. (A) Trocar positions. (B) The LAP PROTECTOR™ is a wound retractor that requires a skin incision of 20–30 mm. The EZ Access (Hakko Medical, Nagano, Japan) is a silicon cap for the LAP PROTECTOR™ that makes it possible to insert multiple trocars without air leakage. (C) The umbilical and right and left lower quadrant incisions 1 month after laparoscopic myomectomy.

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