Gynecology and Minimally Invasive Therapy xxx (2016) 1–6

Contents lists available at ScienceDirect

Gynecology and Minimally Invasive Therapy

journal homepage: www.e-gmit.com

Original article

Safety of total laparoscopic modified radical hysterectomy with or without lymphadenectomy for endometrial cancer

Masakazu Kitagawa [a, *], Kayo Katayama [a, b], Atsuko Furuno [a], Yukiko Okada [a], Asuna Yumori [a], Hideya Sakakibara [a], Hiroyuki Shigeta [b], Hiroshi Yoshida [a, b]

[a] Department of Gynecology, Yokohama City University Medical Center, Yokohama, Japan
[b] Department of Obstetrics and Gynecology, Yokohama Municipal Citizen's Hospital, Yokohama, Japan

ARTICLE INFO

Article history:
Received 9 December 2015
Received in revised form
30 March 2016
Accepted 6 April 2016
Available online xxx

Keywords:
endometrial cancer
extrafascial hysterectomy
surgical complications
total laparoscopic modified radical hysterectomy

ABSTRACT

Study objective: In order to reduce the risk of vaginal recurrence, we have chosen total laparoscopic modified radical hysterectomy instead of extrafascial hysterectomy in the treatment of endometrial cancer. The aim of this study was to assess the safety of this method.
Design: Retrospective study of gynecological patients.
Setting: Yokohama City University Medical Center, Yokohama, Japan.
Patients: Forty-nine patients who underwent total laparoscopic modified radical hysterectomy for the treatment of endometrial cancer at our hospital between December 2011 and September 2015.
Interventions: Total laparoscopic modified radical hysterectomy + bilateral salpingo-oophorectomy ($n = 20$), total laparoscopic modified radical hysterectomy + bilateral salpingo-oophorectomy + pelvic lymphadenectomy ($n = 18$), or total laparoscopic modified radical hysterectomy + bilateral salpingo-oophorectomy + pelvic and para-aortic lymphadenectomy ($n = 11$).
Measurements and Main Results: The surgical outcomes were analyzed and compared to previous reports. The median operative time was 204 minutes (range, 99–504 minutes) and the median intraoperative blood loss was 150 mL (range, 0–680 mL). No patients needed a blood transfusion, conversion to laparotomy, or reoperation. Intra- and postoperative complications were observed in three patients and nine patients, respectively. The amount of blood loss and the incidence of complications in our study were almost identical to previous reports of laparoscopic hysterectomy. The operative time in our study was equivalent to previous reports of total laparoscopic modified radical hysterectomy.
Conclusion: Total laparoscopic modified radical hysterectomy is safe and feasible for the treatment of early stage endometrial cancer. This procedure can be an alternative to total laparoscopic hysterectomy, especially when the uterus must be removed completely.

Introduction

Endometrial cancer is the most common gynecological malignant neoplasm, and its standard treatment is surgical removal of the uterus. Total abdominal hysterectomy and bilateral salpingo-oophorectomy with or without bilateral pelvic/para-aortic lymphadenectomy has been the standard surgery for early stage endometrial cancer. However, recent advances in laparoscopic surgery have enabled it to be utilized for the treatment of early stage endometrial cancer as a less invasive surgical option than laparotomy. Most previous studies that compared laparoscopic surgery to laparotomy showed a comparable or significantly lower incidence of treatment-related morbidity, a shorter hospital stay, less blood loss, less pain, and a faster recovery with the laparoscopic approach.[1] For this reason, we have also adopted laparoscopic surgery for the treatment of early stage endometrial cancer. While extrafascial hysterectomy is usually recommended to remove the uterus thoroughly, we have chosen total laparoscopic modified radical hysterectomy (TLmRH; equivalent to Piver-

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

* Corresponding author. Department of Gynecology, Yokohama City University Medical Center, 4-57 Urafune-cho, Minami-ku, Yokohama City, Kanagawa 232-0024, Japan.
E-mail address: gaichi.northriver@gmail.com (M. Kitagawa).

http://dx.doi.org/10.1016/j.gmit.2016.04.001

Rutledge class II hysterectomy) as a highly effective procedure to reduce the risk of vaginal recurrence after surgery. We included the operated cases with or without lymphadenectomy in order to investigate the feasibility of these procedures comprehensively.

Aim

The aim of this study was to assess the safety of TLmRH, because very few studies describing this technique have been reported thus far.

Materials and Methods

We retrospectively reviewed the operated cases with endometrial cancer at the Department of Gynecology, Yokohama City University Medical Center, Yokohama, Japan between December 2011 and September 2015. General consent was obtained from all patients preoperatively, and the Yokohama City University Medical Center Institutional Ethics Committee approved this study. Preoperative histological diagnosis was made via uterine cavity curettage. The extent of muscle invasion was based on preoperative examination using enhanced magnetic resonance imaging. Metastases were evaluated with computed tomography (CT) scan. TLmRH + bilateral salpingo-oophorectomy (BSO) + pelvic lymphadenectomy (PLA) + para-aortic lymphadenectomy (PALA) was undertaken fundamentally for the patients with endometrial cancer. It has been reported that para-aortic lymph node metastasis was found to be 10–17% in the endometrial cancer when muscle invasion was > 50%.[2–4] It has also been reported that PALA is not necessary when cytological examination is negative and pelvic lymph node metastasis is not found by pelvic lymphadenectomy.[5] Based on these observations, PALA was excluded and TLmRH + BSO + PLA was undertaken for patients with Grade 1 endometrioid cancer when superficial muscle invasion was suspected to be < 50%. Because it has been reported that lymph node metastasis is seen in only 1–2% of endometrial cancer patients when muscle invasion is not found,[6,7] lymphadenectomy was excluded and TLmRH + BSO was undertaken for patients with Grade 1 endometrioid cancer with no obvious muscle invasion.

Table 1
Characteristics of the patients and surgical results.

	All	Breakdown of surgical procedure		
		TLmRH	TLmRH+PLA	TLmRH+PLA+PALA
	($n = 49$)	($n = 20$)	($n = 18$)	($n = 11$)
Age (y)	57.0 (39–77)	56.5 (39–73)	55.0 (46–70)	61.0 (46–77)
BMI (kg/m^2)	23.7 (17.7–39.4)	23.8 (17.7–39.4)	22.9 (18.3–32.9)	23.9 (18.1–30.8)
No. of nulliparous	13 (26.5)	6 (30.0)	3 (16.7)	4 (36.4)
No. of patients with any abdominal surgical history	12 (24.5)	7 (35.0)	4 (22.2)	1 (9.1)
Histological diagnosis (postoperative)				
G1	33	18	13	2
G2	10	2	5	3
G3	3	0	0	3
Others	3	0	0	3
FIGO staging 2008 (postoperative)				
1A	44	20	16	8
1B	2	0	1	1
2	1	0	0	1
3C1	2	0	1	1
Operative time (min)	204 (99–504)	143 (99–211)	214.5 (165–274)	435 (328–504)
Estimated blood loss (mL)	150 (0–680)	100 (0–325)	200 (0–680)	200 (50–520)
No. of intraoperative transfusions	0	0	0	0
Weight of uterus (g)	140 (85–375)	155 (85–325)	145 (85–375)	100 (85–180)
Length of cervical cuff (mm)	20.0 (10.0–27.5)	20.5 (13.5–27.5)	19.5 (10–25)	19.0 (15–25)
Time to make cervical cuff (min)	15.0 (3–30)	15.0 (3–30)	12.5 (8–21)	18.0 (12–26)
No. of dissected pelvic lymph nodes	29 (7–56)	—	28 (15–47)	33 (7–56)
No. of dissected para-aortic lymph nodes	37 (14–57)	—	—	37 (14–57)
Time to remove all drains (d)	3 (2–10)	2 (2–7)	3 (2–10)	4 (2–7)
Postoperative Hb value (g/dL)	10.4 (8.4–11.8)	10.8 (8.4–11.8)	10.3 (8.7–11.3)	10.8 (8.9–11.4)
Postoperative CRP value (mg/dL)	1.609 (0.131–10.577)	1.092 (0.194–2.414)	1.675 (0.131–10.577)	3.837 (1.686–7.117)
Time to walk (d)	1 (1–2)	1 (1–2)	1 (1–2)	1 (1–2)
Time to passage of flatus (d)	1 (0–3)	1 (1–2)	1 (1–3)	1 (0–1)
Time to hospital stay after surgery (d)	6 (3–14)	6 (3–9)	6 (4–14)	6 (5–9)
Complications				
Overall (No. of patients)	10 (20.4)	2 (10.0)	7 (38.9)	1 (9.1)
Intraoperative (No. of patients)	3 (6.1)	1 (5.0)	1 (5.6)	1 (9.1)
Bladder injury	1 (2.0)	1 (5.0)	0	0
Ureter injury	1 (2.0)	0	0	1 (9.1)
Nerve injury	1 (2.0)	0	1 (5.6)	0
Postoperative (No. of patients)	9 (18.4)	1 (5.0)	7 (38.9)	1 (9.1)
Ureter–vagina fistula	1 (2.0)	0	1 (5.6)	0
Urinary dysfunction requiring intervention	2 (4.1)	1 (5.0)	1 (5.6)	0
Neurological disorder requiring intervention	1 (2.0)	0	1 (5.6)	0
Lymphedema requiring intervention	1 (2.0)	0	1 (5.6)	0
Pelvic infection requiring intervention	1 (2.0)	0	1 (5.6)	0
Chylous ascites	1 (2.0)	0	0	1 (9.1)
Atelectasis	1 (2.0)	0	1 (5.6)	0
Vein thrombosis	1 (2.0)	0	1 (5.6)	0

Data are expressed as median (range) or *n* (%).
BMI = body mass index; PALA = para-aortic lymphadenectomy, PLA = pelvic lymphadenectomy; TLmRH = total laparoscopic modified radical hysterectomy.

Please cite this article in press as: Kitagawa M, et al., Safety of total laparoscopic modified radical hysterectomy with or without lymphadenectomy for endometrial cancer, Gynecology and Minimally Invasive Therapy (2016), http://dx.doi.org/10.1016/j.gmit.2016.04.001