



A Retrospective Analysis of Surgery for Cervical Stump Carcinoma at Early Stage (IA2-IIA2)

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Abstract

Purpose: Although supracervical hysterectomy is becoming a rare procedure, there are still many women with retained cervical stump. The purpose of this study was to assess the clinical outcomes of patients with cervical stump carcinoma treated with surgery.

Material and Methods: A retrospective review was performed of all patients with cervical stump carcinoma treated with surgery in the Obstetrics & Gynecology Hospital of Fudan University from January 2000 to June 2018. Clinical characteristics, complications, pathological features, and follow-up data were retrieved from our database.

Results: A total of 72 patients were included. The mean interval between supracervical hysterectomy and the diagnosis of carcinoma of the cervical stump was 10.5 years (range: 1 year to 35 years). In 84.7% of cases, symptoms drove the patient to seek medical attention and abnormal vaginal bleeding or discharge was the main reason. Histologic subtypes included squamous carcinomas (88.9%), adenocarcinomas (5.6%), adenosquamous carcinomas (4.2%), and neuroendocrine carcinomas (1.3%). The FIGO stage distribution was as follows: IA2 (2.8%); IB1 (68.1%); IB2 (8.3%); IIA1 (13.9%); IIA2 (6.9%). The patients received a radical trachelectomy and pelvic lymphadenectomy (58 *via* laparoscopy and 14 *via* laparotomy). Four cases received neoadjuvant chemotherapy. There were 5 parametrial infiltration (6.9%), 4 resection margin in filtration (5.6%), 18 lymph node metastasis (25%), 31 Lymph Vascular Space Invasion (LVSI) (43.1%), and 38 deep stromal invasion (52.8%) in all patients. Thirty eight cases (52.8%) received concurrent chemoradiotherapy after surgeries. Compared with laparotomy group, there was significantly less blood loss ($P < 0.001$), shorter operative time ($P = 0.01$), lower complication rate ($P = 0.002$) and higher hospitalization fee ($P < 0.001$) in laparoscopy group. There was no significant difference in the duration of hospital stay ($P = 0.312$) between two groups. The median follow-up time was 50.5 months (range: 9 to 171 months). Eight patients were lost and 7 patients died. The median survival time was not shown both in laparoscopy and laparotomy group due to the minimum survival rates (0.862 and 0.917) were greater than 0.05.

Conclusion: Surgery for cervical stump cancer at an early-stage is a viable and safe procedure. A longer follow-up period was needed to compare the impact of laparoscopy surgery and traditional laparotomy on survival.

Keywords: Cervical stump cancer; Complications; Laparoscopy

Introduction

Carcinoma of the cervical stump rarely occurs in patients who have previously received a supracervical hysterectomy, and accounts for 2% to 5% of all cervical cancer cases worldwide [1-3]. The majority of gynecological tumor experts conform to existing strategies of radiotherapy or laparotomic abdominal (or laparoscopic) radical surgery [4,5]. Radiation therapy frequently results in severe radiation injuries because critical organs lack the protection after subtotal hysterectomy [6-8]. Surgery is usually recommended. However, with modified anatomy in these patients, the incidence of operative complications increase with the performance of radical trachelectomy. Fortunately, supracervical hysterectomies are now rarely performed. In the present study, we retrospectively analyzed the clinical characteristics, treatment outcomes, complications, histopathological and follow-up data in patients with cervical stump cancer treated with surgeries. Meanwhile we compared the above factors between laparoscopy group and laparotomy group.

Materials and Methods

Seventy-two patients were treated with surgery for cervical stump carcinoma in the Obstetrics &

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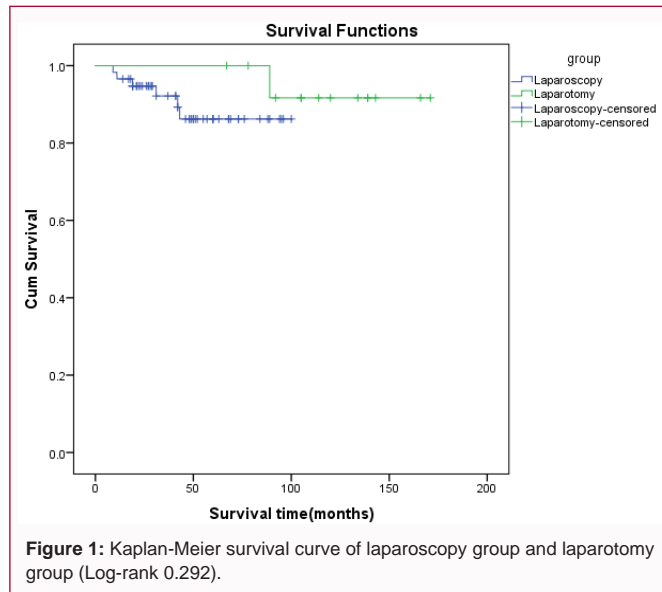
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Gynecology Hospital of Fudan University from January 2000 to June 2018. The medical records of each of these patients were reviewed to obtain clinical characteristics, complications, pathological data and follow-up results. This retrospective study was approved by the Ethics Committee of the Obstetrics & Gynecology Hospital of Fudan University.

SPSS 20.0 was used for statistical analysis. Continuous variables were described as mean and rang. Categorical variables were described as NAND percentage.

Comparisons of selected characteristics between laparoscopy and laparotomy group were made using the χ^2 test for categorical variables and t test for continuous variables. The long-term survival was analyzed according to Kaplan and Meiers method. Log-rank test was used for the comparison of outcomes between two groups.

A P value of <0.05 in a two-sided test was regarded statistically significant.

Results

The clinical characteristics of the cervical stump cancer cases

The mean age was 50.5 years (range: 36 years to 67 years). Reasons for previous supracervical hysterectomy were as follows: uterine myomas (60, 83.3%), adenomyosis (7, 9.7%), abnormal uterine bleedings (1, 1.4%) and hemorrhage during cesarean section (4, 5.6%). All the above operations were performed in other hospitals, including 70 cases of laparotomy and 2 cases of laparoscopy surgery. Nineteen (26.4%) of these patients underwent regular cervical screening following surgery, and 53 (73.6%) of them did not pay attention to the examination. The mean interval between supracervical hysterectomy and the diagnosis of carcinoma of the cervical stump was 10.5 years (range: 1 year to 35 years). In 84.7% of cases, symptoms drove the patient to seek medical attention and abnormal vaginal bleeding (51, 70.8%) or discharge (10, 13.9%) was the main reason (Table 1).

Clinicopathologic characteristics of the cervical stump cancer cases

Of 72 cervical stump carcinoma cases, histologic subtypes included squamous carcinomas (64, 88.9%), adenocarcinomas (4,

Table 1: The clinical characteristics of the cervical stump cancer cases.

Mean age at diagnosis, years, (range)	50.5	(36-67)
Reason for initial surgery, n, (%)		
Uterine myomas	60	-83.3
Uterine adenomyosis	7	-9.7
Abnormal uterine bleeding	1	-1.4
Hemorrhage during cesarean section	4	-5.6
Previous surgery, n, (%)		
Laparotomy	70	-97.2
Laparoscopy	2	-2.8
Regular cervical screening follow surgery, n, (%)		
Yes	19	-26.4
No	53	-73.6
Clinical symptoms, n, (%)		
No symptoms found at routine examination	11	-15.3
Abnormal vaginal bleeding	51	-70.8
Abnormal vaginal discharge	10	-13.9
Mean delay between SHT and cancer, years, (range)	10.5	(1-35)

5.6%), adenosquamous carcinomas (3, 4.2%), and neuroendocrine carcinomas (1, 1.3%). Clinical staging was performed according to the FIGO classification for cervical cancer (2009). The stage distribution was as follows: IA2 (2, 2.8%); IB1 (49, 68.1%); IB2 (6, 8.3%); IIA1 (10, 13.9%); IIA2 (5, 6.9%) (Table 2).

The patients with a cervical stump carcinoma diagnosed at stage IA2-IIA2 were treated with a radical trachelectomy and pelvic lymphadenectomy. Four cases (including 2 cases of IB2 and 2 cases of IIA2) received neoadjuvant chemotherapy before surgery. A total of 58 cases (80.6%) were treated using a laparoscopic procedure and the remaining 14 cases (19.4%) by laparotomy. The pathological characteristics of the patients are presented in Table 2. There were 5 parametrial infiltration (6.9%), 4 resection margin in filtration (5.6%), 18 lymph node metastasis (25%), 31 Lymph Vascular Space Invasion (LVSI) (43.1%), and 38 deep stromal invasion (52.8%) in all patients. Overall, 38 cases (52.8%) received concurrent chemoradiotherapy after surgeries.

Comparison of perioperative data between laparoscopy group and laparotomy group

There was no significant difference in the mean age (51.4 vs. 49.3, $P=0.234$) and duration of hospital stay (15.5 vs. 17.1, $P=0.312$) between laparoscopy group and laparotomy group. Compared with laparotomy group, there was significantly less blood loss (300.9 vs. 925.0, $P<0.001$), shorter operative time (216.6 vs. 262.1, $P=0.01$) and higher hospitalization fee (4690.6 vs. 2874.7, $P<0.001$) in laparoscopy group (Table 3).

The complication rate was much higher in laparotomy group than in laparoscopy group (64.3% vs. 19.0%, $P=0.002$). In laparoscopy group, intraoperative complications included 6 transfusion, 1 bladder injury, and 3 ureter injury; postoperative complications included 1 ureterovaginal fistula, 1 ureteral fistula, 1 ureteral obstruction, and 1 secondary infection of pelvic hematoma need a second operation. Thus 14 complications occurred among 11 patients. The 11 women constituted 19% of the stump cancer cases. In laparotomy group, intraoperative complications included 6 transfusion and 1 bladder

Table 2: Clinicopathologic characteristics and follow up of the cervical stump cancer cases.

FIGO Stage, n, (%)		
IA2	2	-2.8
IB1	49	-68.1
IB2	6	-8.3
IIA1	10	-13.9
IIA2	5	-6.9
Histology, n, (%)		
Squamous cervical cancer	64	-88.9
Adenocarcinoma	4	-5.6
Adenosquamous cervical cancer	3	-4.2
Neuroendocrine cancer	1	-1.3
Surgery, n, (%)		
Laparotomy	14	-19.4
Laparoscopy	58	-80.6
Para, n, (%)		
yes	5	-6.9
no	67	-93.1
Margin, n, (%)		
yes	4	-5.6
no	68	-94.4
LN, n, (%)		
yes	18	-25
no	54	-75
LVSI, n, (%)		
yes	31	-43.1
no	41	-56.9
Deep stromal invasion, n, (%)		
yes	38	-52.8
no	34	-47.2
Concurrent chemoradiotherapy, n, (%)		
yes	38	-52.8
no	34	-47.2
Median follow up, months, (rang)	50.5	(9-171)
Lost to follow up, n, (%)	8	-11.1
Death, n, (%)	7	-9.7
Median survival time	NR	

injury; postoperative complications included 2 a dynamic ileus and 2 delayed incision healing. Thus 11 complications occurred among 9 patients. The 9 women constituted 64.3% of the stump cancer cases.

Follow up

All the patients were followed up on every three months in the two year. Subsequent follow-up were every six months thereafter. The median follow-up time was 50.5 months (range, 9 months to 171 months). Eight patients was lost and 7 patients died. The median survival time was not shown both in laparoscopy and laparotomy group due to the minimum survival rates (0.862 and 0.917) were greater than 0.05 (Figure 1).

Discussion

As supracervical hysterectomy is becoming a rare procedure the

Table 3: Comparison of perioperative data and follow up between laparoscopy group and laparotomy group.

	Laparoscopy (58)	Laparotomy (14)	P
Mean age at diagnosis (years)	51.4	49.3	0.234
Operative time(min)	216.6	262.1	0.01
Blood loss(ml)	300.9	925	<0.001
Duration of hospital stay(days)	15.5	17.1	0.312
Hospitalization fee(\$)	4690.6	2874.7	<0.001
Overall complications	14	11	/
Patients occurred complications, n, (%)	11 (19.0%)	9 (64.3%)	0.002
Intraoperative complications	10	7	/
Transfusion	6	6	0.011
Bladder injury	1	1	0.84
Ureter injury	3	0	0.901
Postoperative complications	4	4	/
Adynamic Ileus	0	2	0.044
Delayed incision healing	0	2	0.044
Ureterovaginal fistula	1	0	1
Ureteral fistula	1	0	1
Ureteral obstruction	1	0	1
Secondary infection of pelvic hematoma	1	0	1
Median survival time	NR	NR	

NR: not reached

frequency of stump cancers should decrease. For example, such a procedure in our hospital has been abandoned for a long time, but may be still retained in some remote and backward areas of China. Although cervical cancer screening has been widely publicized in China, it is unsatisfactory to carry out screening work in some areas. Many patients believe that cervical cancer screening is unnecessary after subtotal hysterectomy. As a result, many patients do not go to the doctor until uncomfortable symptoms (such as abnormal vaginal bleeding or vaginal discharge) appear before they are diagnosed with cervical stump carcinoma. Normally the period is not very early. Therefore, it is very important to actively promote cervical cancer screening.

In our study, the complication rate was much lower in laparoscopy group than in laparotomy group. The reasons are as follows: Firstly, the new anatomical arrangements secondary to subtotal hysterectomy increases the difficulty of operation. Laparoscopy has a number of inherent advantages, including easier identification of the ureter using laparoscopic enlargement and less injury. Secondly, traditional laparotomy results in a longer recovery time and more postoperative complications due to larger trauma. In this regard, the laparoscopic surgery is a viable and safe procedure. Two recent clinical studies published in the New England Journal of Medicine have shown that minimally invasive surgery is inferior to open surgery in terms of tumor-free survival and overall survival for early cervical cancer [9,10]. While in our study the median survival time was not shown both in two groups due to the minimum survival rates were greater than 0.05. We need longer follow-up time to determine which is better for cervical stump carcinoma, traditional open surgery or minimally invasive surgery.

Conclusion

It is necessary to emphasize the requirement for regular cervical

screening after supracervical hysterectomy. Surgery for cervical stump cancer at an early-stage is a viable and safe procedure. A longer follow-up period was needed to compare the impact of laparoscopy surgery and traditional laparotomy on survival.

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