

Simultaneous Laparoscopic Resection for Synchronous Pulmonary Metastases of Colorectal Cancers

Case Report

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Abstract

The purpose of this study is to review our experience of simultaneous laparoscopic resection for synchronous pulmonary metastases of colorectal cancers. The four cases of video-assisted thoracoscopic surgery (VATS) for synchronous pulmonary metastases were performed. For colorectal cancers, open colectomy (Open group) was performed in 2 patients and laparoscopic colectomy (LAP group) in 2 patients. In the Open group, low anterior resection was performed for colorectal cancer in two patients. In LAP group, right hemicolectomy was performed in two patients. Operation time was 245, 320 min in Open group and 295, 315 min in LAP group. Blood loss was 200, 350 cc in Open group and 300, 800 cc in LAP group. Postoperative complication was a pulmonary edema in Open group and a wound bleeding in LAP group. There was no postoperative mortality. Simultaneous laparoscopic resection for synchronous pulmonary metastases is a feasible option for minimal invasive treatment of colorectal cancer.

Keywords: Colorectal cancer; Pulmonary metastasis; Synchronous; Simultaneous

Introduction

The lung is the second most common metastatic site of colorectal cancers. Pulmonary metastases develop in 10~20% of patients who undergo curative resection for with colorectal cancer [1-3]. Although only 10% of pulmonary metastases of colorectal cancer are solitary, curative resection for pulmonary metastases in selected patients can increase 5-year survival rates up to 40~60% [4,5].

The variety of procedures that can be performed using minimally invasive surgical approach is expanding. The laparoscopy surgery of colorectal cancer has become widely accepted and has been shown to be an alternative option to open surgery in terms of oncologic outcomes in randomized studies [6-8]. Since its introduction in the early 1990s, video-assisted thoracoscopic surgery (VATS) has accepted as safe procedure which has fewer complications and a reduced hospital stay when compared with an open thoracotomy. Despite the controversy of using VATS to treat malignancies, anatomical pulmonary resection by VATS has become an acceptable alternative for primary lung cancers as well as pulmonary metastases [9-11] However, simultaneous laparoscopic resections for both colorectal cancers and synchronous pulmonary metastases are rarely documented and its feasibility unknown. The purpose of this study is to review our experience of simultaneous resection for synchronous pulmonary metastases of colorectal cancers.

Methods

From January 2004 to December 2009, a total of five cases underwent simultaneous resection for primary colorectal cancer and synchronous pulmonary metastases with curative intention. A case of pulmonary metastasis underwent open thoracotomy. The four cases of VATS for synchronous lung metastases were

performed. For the VATS, a 5 mm trocar was inserted at the fourth intercostals space and two 12mm trocar at the fifth and seventh intercostals spaces. Under observation of the thoracic cavity via thoracoscopy, resections of lung lobe were performed using linear-cutter stapler. For colorectal cancers, open colectomy (Open group) was performed in 2 patients (2 male; age 65, 71 years) and laparoscopic colectomy (LAP group) was performed in 2 patients (2 male; age 65, 72 years).

Results

In the Open group, low anterior resection was performed for colorectal cancer in two patients. In LAP group, right hemicolectomy was performed in two patients. For all of lung lesions, wedge resection was performed via VATS. In all of lung specimen, resection margin was not involved tumor cell. Operation time was 245, 320 min in Open group and 295, 315 min in LAP group. Blood loss was 200, 350 cc in Open group and 300, 800 cc in LAP group. Postoperative complication was a pulmonary edema in Open group and a wound bleeding in LAP group. There was no postoperative mortality (Table 1).

Discussion

The lung is the second frequently affected metastatic sites in patients with colorectal carcinoma. In the current study, disease-free survival of pulmonary metastasectomy through VATS was not significantly different from that of pulmonary metastasectomy through conventional open thoracotomy [10]. The VATS is a safe procedure which has fewer complications and a reduced hospital stay when compared with an open thoracotomy [11]. Until now, there is not the study about simultaneous resection for pulmonary metastasis and colorectal cancer using laparoscopic approach and VATS.

Table 1: Simultaneous Resection for Pulmonary Metastases in Colorectal Cancers.

| | Open | | LAP | |
|----------------------------------|-------------|------------|-------------|------------|
| | Case 1 | Case 2 | Case 3 | Case 4 |
| Sex | M | M | M | M |
| Age (year) | 65 | 71 | 65 | 72 |
| BMI (kg/m ²) | 28.1 | 21.9 | 20.0 | 20.7 |
| ASA | 2 | 3 | 2 | 2 |
| Location of tumors | | | | |
| Colorectal cancer | rectum | rectum | ascending | ascending |
| Pulmonary metastases | right lower | left lower | right lower | left upper |
| Operation methods for metastases | VATS | VATS | VATS | VATS |
| Operation time (min) | 320 | 245 | 315 | 295 |
| Blood loss (cc) | 500 | 350 | 300 | 800 |
| Follow-up (months) | 24.7 | 31.6 | 44.9 | 21.8 |
| Locations of recurrence | - | lung | lung | - |

BMI: Body Mass Index; VATS: Video-Assisted Thoracoscopic Surgery

In this study, totally 5 cases of simultaneous resection was performed for colorectal cancer with synchronous pulmonary metastases. Two of five cases underwent VATS for pulmonary metastases and laparoscopic colorectal resection. The advantage of simultaneous surgery and staged surgery for pulmonary metastases in colorectal cancer is controversy. However, compare to open surgery, simultaneous VATS and laparoscopic colorectal resection seem to be safe and feasible. There will be needed study for early operative outcomes, long term oncologic outcomes with

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