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Simultaneous Resection with Hepatic and Pulmonary Metastases following a Resection of Rectal Cancer

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First Department of Surgery, Nagasaki University School of Medicine

A 67 years-old female was surgically treated for simultaneous hepatic and pulmonary metastases. Her postoperative course was uneventful, demonstrating high preoperative CEA level of 11.5 µg/mg returned to normal level of 2.9 µg/mg at the time of two weeks of postoperative period.

It was emphasized that even concomitant hepatic and pulmonary metastases should be surgically resected and postoperatively intensive and multimodality cares of the use of potent anticancer drugs.

Introduction

Recently, the surgical indication for metastasis was established on the basis of oncologic consideration and the results of surgical outcome for metastasis.

Recent view concerning the indication of surgical treatment has been confirmed by Thomford. However, this concept is now extensively extended in clinical use. In general, it has been recognized that metastasis one of local signs of generally spreading diseases and general treatment for metastasis is main, preceded by local therapy. Nevertheless, therapeutic values of general therapy for metastasis have not been apparently clarified even by the use of potent anticancer agents as general treatment. On the contrary, there are some reports concerning remarkable effects by the local therapy of radiation and/or surgery. Therefore, aggressive surgery has been attempted for the treatment of metastatic foci in various organs.

Needless to say, it is necessary for individual tumor oncology to be taken into consideration to care for the tumor-bearing host with meticulous plans of the treatment.

Nevertheless, a five year-survival rates of colon cancer after surgical treatment are relatively fair. However, it is uncertain that one-stage surgical treatment for simultaneous metastases to the liver and the lung should be recommended.

This study is to report our clinical experiences as well as to review the treatments of concomitant metastases to the liver and the lung after surgical resections of colon cancers.

Patient

During the time from January 1981 to December 1990, 33 patients with hepatic metastases from 21 colon cancer and 12 rectal cancer and which comprise synchronous and 29 asynchronous were surgically treated in our clinics as shown in Table 1.

Table 1. Patients with a local excision for rectal cancer

<table>
<thead>
<tr>
<th>histology</th>
<th>number</th>
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<tbody>
<tr>
<td>adenoma</td>
<td>1</td>
</tr>
<tr>
<td>early cancer</td>
<td>2</td>
</tr>
<tr>
<td>m-carcinoma</td>
<td>7</td>
</tr>
<tr>
<td>sm-carcinoma</td>
<td>2</td>
</tr>
<tr>
<td>advanced cancer</td>
<td>1</td>
</tr>
<tr>
<td>pm-carcinoma</td>
<td>1</td>
</tr>
<tr>
<td>a-carcinoma</td>
<td>1</td>
</tr>
<tr>
<td>malig. melanoma</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

men to female 7 to 7 age 32 to 82 a mean of 61.8 years old

Operative procedure

<table>
<thead>
<tr>
<th>approach</th>
<th>number</th>
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<tbody>
<tr>
<td>trans-sphincteric approach</td>
<td>10</td>
</tr>
<tr>
<td>trans-sacral approach</td>
<td>4</td>
</tr>
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</table>

It is accounted for 9.0% of resected 232 colon cancers and 6.2% of resected 197 rectal cancers.

Nevertheless, we have experienced a concomitant resection for hepatic and pulmonary metastases. A few concomitant combined resections are reported herein. The surgical indication and its outcome are not clearly indication and its outcome are not clearly certified for a scanty report.

A 67 years-old female admitted to our hospital to undergo a surgical resection of colon cancer, in which was showing a sign of apple-core sign by barium-enema examination immediately above the peritoneal reflection (Rs), showing a malignant ulcer with irregular rand wall and a stenosis which was situated 12 cm proximal to the dentate line and failed to introduce the fiberscopic tube beyond the stenosis. Five biopsied specimens around the circum-
ference of cancer lesions were taken to ascertain its diagnosis histologically. Histologic examination revealed moderately differentiated adenocarcinoma. Neither hepatic metastasis nor positive node metastasis around the abdominal aorta was confirmed by preoperative CTR and US examination. Preoperative serum CEA level was 11.5 \( \mu g/mg \).

On May 22, 1990, the operative procedure of low anterior resection including the sigmoid colon was performed. Neither hepatic metastasis nor peritoneal dissemination was recognized with nodal involvement of \#252, stage III (S, N2).

Surgical specimen showed localized ulcerative lesion. Resected line kept sufficient free margin away from the visible tumor margin with histologically positive node metastasis of \#252.

Postoperative course was uneventful and serum CEA level was reduced to 1.7 \( \mu g/mg \).

Postoperative follow-up had been continued until on October 5, 1991, when high serum CEA level of 120.5 \( \mu g/mg \) was indicated. CT scan of the abdomen showed a low density mass lesion in \( S^1 \) \( S^4 \) of the liver which showed irregular internal echodensity and margin. And also an abnormal mass shadow on the left side of chest xP Film was detected in which notch shadow was defined, suggesting a lesion of pulmonary metastasis. At that time serum CEA level rose up to 128.6 \( \mu g/mg \).

On November 26, 1991, simultaneous resection of hepatic and pulmonary metastases was carried out through laparotomy by right subcostal skin incision and thoracotomy by left axillary skin incision. A total of bleeding was 620 ml and the operation time was three hours and 10 minutes. No regional lymphnode swelling of the mediastinum pulmonary hilum and hepatic hilum, periductal areas was noted. The surgical specimen of the lung showed a 2x1.5 cm mass in \( S^4 \), showing expansive growth and the liver specimen also revealed an encapsulated tumor, 4.0x4.2 cm.

Her postoperative course was uneventful, and the serum CEA level returned to 2.9 \( \mu g/ml \) at the time of four weeks following surgery. She still has been well living without any recurrence.

Discussion

The improvement of surgical outcome has been achieved by complete resection for cancerous lesion and also aggressive treatment for cancerous lesion and also for recurrence and metastasis is necessary to obtain satisfactory long-term result.

The concept of pulmonary metastasis as a local lesion of generally spreading disease has been established by accumulated clinical experience and it is well known that cancer cells from digestive tract are trapped by the liver as the first filter and by the lung as the second filter.

Recently, it is defined that the result of aggressive surgery for pulmonary metastasis is not so pessimistic as to expect disappointing surgical outcome.

It is generally accepted that anticancer agent for colon cancer failed to elicit antitumor effect because of well differentiated carcinoma. Surgery is only one of the effective approaches of colon cancer. Surgical indication of pulmonary metastasis from colon cancer has been extended in cases with general metastasis from colon cancer, their prognoses are a 50% survival time is with in 10 months and the five-year survival rate is less than 5%, showing poor prognosis.

The surgical outcome clearly demonstrates that recurrence after a resection of pulmonary metastasis, much more predominates occurrence in the lung, less than other organs including the liver. Pilho reported that liver metastasis precedes pulmonary metastasis with at least one year ahead.

It is well known that the prognosis of the patients with pulmonary metastasis is detrimental. Therefore, it is emphasized that the use of anticancer agents is necessary for prevention of recurrence in the remaining lung and liver. However, the effects of anticancer agents are limited and most of patient with recurrence and/or metastasis expire within one and half and/or two years with multiple metastases in bilateral lungs.

On the other hand, Morton reported that the tumor doubling time is most influential factors on the survival rate which reflects the immune state of the tumor-bearing host and the determination of surgical indication should awaits the observation of the disease extension and occurring multiple metastases in one or two months. Nakagawa clarified that the metastasizing tumor mass of more than 3 cm in diameter is accompanying high incidence of nodal involvement. Shirakusa pointed out that pulmonary metastasis demonstrates two types of histologic growth patterns, in which expansive growth for which limited operation is indicated and infiltrate one for which lobectomy is indicated to prevent a residue of carcinoma as a rule.

Recently, developed potent anticancer drugs may make it possible to control micrometastasis. Therefore even though multiple metastasis had occurred, physician should bear in mind that meticulous follow-up care must be done.

Hughes et al reported that the prognoes of patients
with hepatic and other organ metastasis are inferior to those with hepatic metastasis alone in the analysis of a result of hepatic metastasis registry. However, they emphasized that complete resection could expect to lead to a valid outcome. Morton reported that the prognosis of complete resection for hepatic metastasis accompanying other organ metastasis had led to almost the same as that for hepatic metastasis alone.

Further accumulated data concerning the result of a resection for concomitantly liver and pulmonary metastasis may make clear the validity of complete resection for metastasis.

References

3) Shibata N, Kagotani K, and Noguchi s: Two resectable cases of synchronous metastases of colorectal carcinoma to the liver and lung.