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Successful treatment of metastatic pulmonary tumors by bronchial arterial infusion chemotherapy in two patients with locally well controlled uterine cancer.

Masaru Yonezawa* Akihiko Seki† Atsuo Numoto‡
Kiyoya Kawada** Katsuto Eguchi†† Takafumi Kudo‡‡

*Kagawa Prefectural Central Hospital,
†Kagawa Prefectural Central Hospital,
‡Kagawa Prefectural Central Hospital,
**Kagawa Prefectural Central Hospital,
††Okayama University,
‡‡Okayama University,

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Masaru Yonezawa, Akihiko Seki, Atsuo Numoto, Kiyoya Kawada, Katsuto Eguchi, and Takafumi Kudo

Abstract

Pulmonary metastatic tumors in two patients with locally well controlled uterine cancer were treated with bronchial arterial infusion chemotherapy. The first patient underwent a radical hysterectomy and pelvic lymphadenectomy for stage IIb cervical cancer. Fifteen months after the operation, pulmonary metastasis was identified. Clinical evidence of tumor was negative after bronchial arterial infusion chemotherapy, systemic chemotherapy and radiotherapy. The patient continues to be healthy without recurrent signs six years after bronchial arterial infusion chemotherapy. The second patient underwent a radical hysterectomy and pelvic lymphadenectomy for stage II endometrial cancer. Fifteen months after the operation, pulmonary metastasis was identified. After bronchial arterial infusion chemotherapy and systemic chemotherapy, regression of the tumors was observed. This patient has also survived for two years since the lung metastases. These results indicate that bronchial arterial infusion chemotherapy is a potent treatment for pulmonary metastases of uterine cancer.

KEYWORDS: bronchial arterial infusion chemotherapy (BAIC), lung metastasis, uterine cancer

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— Brief Note —

Successful Treatment of Metastatic Pulmonary Tumors by Bronchial Arterial Infusion Chemotherapy in Two Patients with Locally Well Controlled Uterine Cancer

MASARU YONEZAWA*, AKIHIKO SEKI[a], ATSUO NUMOTO[a], KIYOYA KAWADA[a], KATSUTO EGUCHI[b] and TAKAFUMI KUDO[b]

[a]Division of Obstetrics and Gynecology, Kagawa Prefectural Central Hospital, Kagawa 760, Japan and [b]Department of Obstetrics and Gynecology, Okayama University Medical School, Okayama 700, Japan

Pulmonary metastatic tumors in two patients with locally well controlled uterine cancer were treated with bronchial arterial infusion chemotherapy. The first patient underwent a radical hysterectomy and pelvic lymphadenectomy for stage IIb cervical cancer. Fifteen months after the operation, pulmonary metastasis was identified. Clinical evidence of tumor was negative after bronchial arterial infusion chemotherapy, systemic chemotherapy and radiotherapy. The patient continues to be healthy without recurrent signs six years after bronchial arterial infusion chemotherapy. The second patient underwent a radical hysterectomy and pelvic lymphadenectomy for stage II endometrial cancer. Fifteen months after the operation, pulmonary metastasis was identified. After bronchial arterial infusion chemotherapy and systemic chemotherapy, regresssion of the tumors was observed. This patient has also survived for two years since the lung metastases. These results indicate that bronchial arterial infusion chemotherapy is a potent treatment for pulmonary metastases of uterine cancer.

Key words: bronchial arterial infusion chemotherapy (BAIC), lung metastasis, uterine cancer

It is well known that the lungs are the most frequent site of the distant spread of uterine cancer. Pulmonary metastatic tumors of uterine cancer have been treated with various methods including systemic chemotherapy, but prognosis is still generally poor.

This report describes a trial of bronchial arterial infusion chemotherapy (BAIC) on patients with pulmonary metastatic tumors of uterine cancer. We present 2 cases of successful treatment of metastatic pulmonary lesions by BAIC in patients with locally well controlled uterine cancer.

Case Presentation

Case 1. In February 1986, a 39-year-old patient underwent a radical hysterectomy and pelvic lymphadenectomy for stage IIb squamous cell carcinoma of the uterine cervix ($pT_1N_0M_0$). She received postoperative local irradiation, via vaginal application of ^{137}Cs at 1380 mg/h. The patient had an uneventful course and was discharged. The patient had been free of disease for 15 months when a roentgenogram of the chest showed a tumor mass in the hilum of the right lung and atelectasis of the right middle lobe (Fig. 1). A computed tomographic image showed mediastinal lymph node swelling. Bronchoscopic findings showed remarkable stenosis of the right middle bronchus by the polypoid tumor. A biopsy specimen showed squamous cell carcinoma with the same histological appearance as resected cervical cancer. Examination revealed no localized recurrence, and no metastatic involvement other than the lung. She was readmitted on June 12, 1987, and received systemic CAP chemotherapy: cyclophosphamide (500 mg), aclarubicin (40 mg), and cisplatin (75 mg). Three weeks after the first course of chemotherapy, she received BAIC: aclarubicin (20

* To whom correspondence should be addressed.

mg), and cisplatin (20 mg). BAIC was conducted using Seldinger's technique (1). Bronchial angiography was performed via catheter to confirm the distribution of blood vessels in the lesions (Fig. 2). Single injection BAIC was carried out. Radiotherapy of 60 Gy was delivered to the hilar lesion concurrently with BAIC. The tumor mass in the right lung and enlarged mediastinal lymph nodes disappeared (Fig. 3). Two months after BAIC, an additional one course of systemic CAP chemotherapy was given.

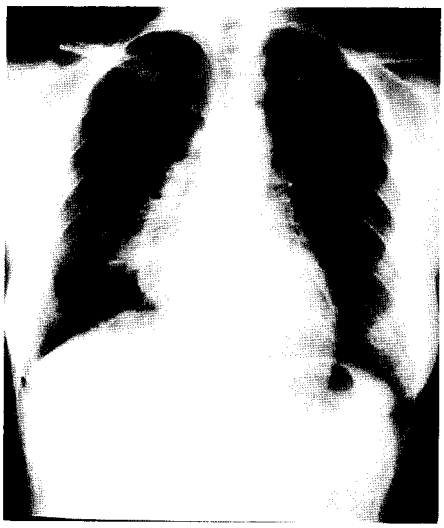

Fig. 1 Radiograph of chest of case I before bronchial arterial infusion therapy (BAIC). Note a shadow of tumor mass in the right hilum and atelectasis in the right middle lobe.

She continues to be well 8 years after resection of the primary lesion. And 6 years after BAIC for pulmonary metastasis there is no sign of recurrence.

Case 2. In January 1990, a 59-year-old woman underwent a radical hysterectomy and pelvic lymphadenectomy for stage II endometrial cancer. Pathologic examination revealed a poorly differentiated adenocarcinoma with severe myometrial invasion ($pT_2N_0M_0$). She receiced postoperative whole pelvic radiation therapy (50 Gy). She was treated subsequently as an outpatient with oral chemotherapy (5-fluorouracil).

The patient had been free of disease for 15 months when a roentgenogram of the chest showed tumor masses in the lower field of the right lung and in the middle field of the left lung (Fig. 4). A transbronchial biopsy showed adenocarcinoma with the same histological appearance as the primary endometrial tumors. Examination revealed no findings of recurrence in any other organs except the lung. She was readmitted to the hospital on April 25, 1991, and treated with systemic CAP chemotherapy: cyclophosphamide (500 mg), pirarubicin (40 mg), and cisplatin (70 mg)) every 4 weeks for 2 courses. The tumor masses showed slight shrinkage after 2 courses of chemotherapy.

Fig. 2 Bronchial angiography taken during BAIC in case I. BAIC: See Fig. 1.

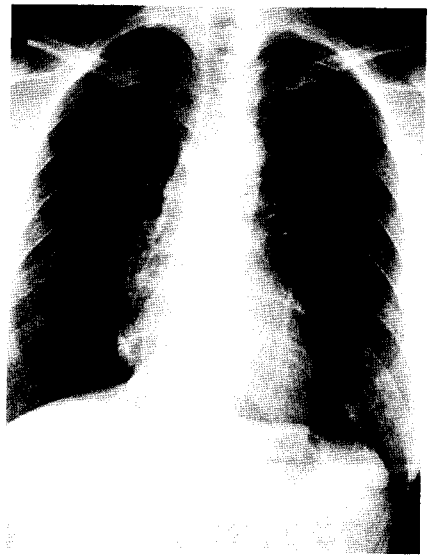

Fig. 3 Radiograph of chest of case I after BAIC. The shadow of tumor mass in the right hilum and atelectasis disappeared.

Fig. 4 Radiograph of chest of case 2 before BAIC. Note two nodular shadows in the right lower lung field and left middle lung field. BAIC: See Fig. 1.

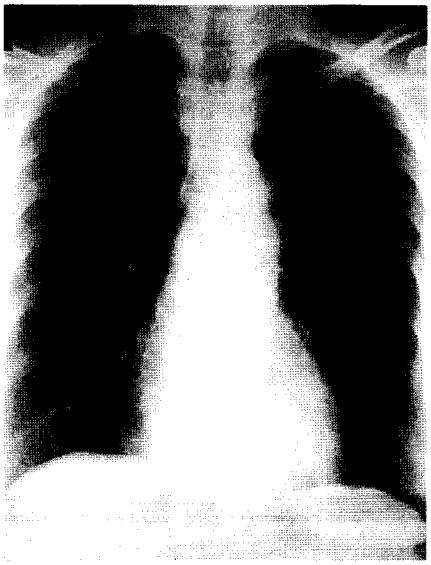

Fig. 5 Radiograph of chest of case 2 after BAIC. The shadows in the right lower lung field disappeared, and a size in tumor in the left middle lung field diminished. BAIC: See Fig. 1.

Three weeks after the systemic chemotherapy, she received BAIC: pirarubicin (50 mg), and cisplatin (70 mg) with intravenous administration of cyclophophamide (500 mg). One half of the dose of cisplatin and pirarubicin was infused into each of the bilateral bronchial arteries. A roentgenogram of the chest taken in July 1991, showed a marked shrinkage of the tumor mass in the middle field of the left lung , and the disappearance of the mass in the lower field of the right lung (Fig. 5).

She is now well with the metastatic lesion in the left lung and 2 years after BAIC.

Discussion

The incidence of pulmonary metastases is 1.7 to 6.1 % for uterine cervical cancer and 3.2 to 4.7 % for endometrial cancer (1, 2). Pulmonary metastases of uterine cancer are treated with chemotherapy, radiotherapy, surgery or a combination of therapies, but the prognosis is generally poor after the apperance of pulmonary metastases.

Chemotherapeutic drugs are usually administered intravenouslly, and arterial infusion is intended to raise the concentration of the drugs in a lesion. Pelvic arterial infusion chemotherapy is widely used as an adjuvant or neoadjuvant setting for the treatment of primary lesions and pelvic recurrent tumors in gynecologic malignancies.

BAIC has been used for primary lung cancer since the 1960s. Lung cancer is generally supplied by the bronchial arteries. Therefore, BAIC yields some favorable results in primary lung cancer (3–5). Since metastatic lung cancer is also supplied mainly by the bronchial arteries, BAIC is expected to be efficacious in cases of metastases. At the present time, only a few reports on BAIC for metastatic lung tumors from carcinoma of the kidney, esophagus, liver, breast, colon and other organs are available to us. Kakizoe *et al.* (6) reported the response rate of metastatic lung tumors from carcinoma of the kidney was 25 %, and it was particularly effective in a tumor mass that has abundant afferent vessels. BAIC is more technically difficult than systemic administration. Various complications with BAIC have been reported, including damage to the spinal cord, esophageal ulcer, and bronchoesophageal fistulae (7). Neither of our patients had BAIC-related complications.

In this report BAIC was administered to only 2 patients with lung metastases of uterine cancer. One patient has survived 6 years, and the other is now well 2 years after BAIC. But, to our knowledge, only 1 case of uterine sarcoma involving BAIC has been reported in the

field of gynecologic malignancies (8). The number of published cases is too small to evaluate the clinical usefulness of BAIC for metastatic lung tumors of uterine malignancies. However, many reports support the usefulness of systemic chemotherapy for lung metastases of uterine cancer (1, 9). Therefore, we believe that BAIC can be used in combination with systemic chemotherapy to improve survival. BAIC should be indicated in cases in which examinations that include radiographic images show no metastatic lesions other than in the lung. BAIC is also appropriate in the cases of multiple metastatic lesions of the lung that are difficult to treat with surgery or radiotherapy.

Our results indicate that BAIC appears to be a potent treatment to improve the prognosis of pulmonary metastases of uterine cancer. We intend to make further studies on clinical results of more cases.

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