

## Complete Remission of Ovarian Small Cell Carcinoma Treated with Irinotecan and Cisplatin: A Case Report

MAKI SAITOH-SEKIGUCHI<sup>1</sup>, KENJI NAKAHARA<sup>1</sup>, TAKANOBU KOJIMAHARA<sup>1</sup>,  
TSUYOSHI OHTA<sup>1</sup>, JUN KAWAGOE<sup>1</sup>, TSUYOSI OHNUKI<sup>1</sup>,  
TADASHI HAYASAKA<sup>1</sup>, TEIICHI MOTOYAMA<sup>2</sup> and HIROHISA KURACHI<sup>1</sup>

*Departments of <sup>1</sup>Obstetrics and Gynecology, and <sup>2</sup>Pathology, Yamagata University School of Medicine, Yamagata, Japan*

**Abstract.** *Background: Small cell carcinoma of the ovary is a rare type of ovarian carcinoma with a very poor prognosis. Case Report: We report here a case of a 55-year-old woman with small cell carcinoma of the left ovary. The patient underwent cytoreductive surgery with residual tumors of 6 cm at the cul-de-sac and was found to have stage IIIc disease. After six courses of irinotecan (CPT-11) and cisplatin (CDDP) combination therapy, secondary cytoreductive surgery was performed. The patient showed no evidence of residual tumors. After an additional three courses of chemotherapy, the patient is still alive and well without evidence of disease. Conclusion: CPT-11 and CDDP combination chemotherapy may be effective and safe for patients with small cell carcinoma of the ovary.*

Although small cell carcinoma is common in the lung, neoplasms of this type primarily derived from the ovary have rarely been described. In addition, the cases reported had poor prognosis (1, 2). In the literature, small cell carcinoma of the ovary did not respond well to the usual therapy for ovarian cancer. Treatment regimens for small cell lung carcinoma are well established and one of them was beneficial for small cell carcinoma of the ovary (1). Therefore, the usefulness of chemotherapy regimens used for small cell lung carcinoma has been suggested. Irinotecan (CPT-11) hydrochloride, a topoisomerase I inhibitor, is effective against small cell lung cancer (3-5). Moreover, CPT-11 and cisplatin (CDDP) combination chemotherapy has been shown to have a response rate of 76% when used as an initial regimen for ovarian cancer (6). We report here a case of the use of CPT-11 and CDDP combination

chemotherapy in a patient with small cell carcinoma of the ovary. The patient had residual tumors in the peritoneum after the first surgery. After six courses of chemotherapy, a secondary cytoreductive surgery was performed and pathological complete response (CR) was confirmed.

### Case Report

A 55-year-old gravida 3, para 2 woman complained of lower abdominal swelling and pain. A mass was palpated in the lower abdomen and massive ascites was detected. Ultrasonography showed a cystic and solid mass in the pelvis. Magnetic resonance imaging (MRI) showed an 8x10x11 cm, solid and cystic mass in the left ovary with massive ascites and dissemination to the peritoneum and omentum (Figure 1). A tumor marker, CA 125, was elevated to 629 U/ml.

The patient underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy and partial omentectomy. The tumor of the left ovary was adherent to the omentum and rectum. Moreover, disseminated tumors 6 cm in diameter were residual in the cul-de-sac, peritoneum and subdiaphragm. Therefore, we performed maximal cytoreductive surgery. There were 4500 ml of clear yellow ascites. The resected tumor measured 8x7x7 cm. Pathological examination of the tumor revealed primary ovarian small cell carcinoma of a pulmonary type (Figure 2). Immunohistochemical staining was weakly positive for neuron-specific enolase (NSE) and negative for synaptophysin, chromogranin and grimerius. The tumor had metastasized to the right ovary, omentum and rectum. Cytological examination of the peritoneal wash was positive for malignant cells.

Six courses of combination chemotherapy with CPT-11 (60 mg/m<sup>2</sup>) on day 1, 8, 15 and CDDP (60 mg/m<sup>2</sup>) on day 1 were administered every 4 weeks. During the chemotherapy, the CA125 level gradually decreased. MRI showed a partial response (PR). The patient underwent a pelvic and paraaortic node dissection and excision of the

*Correspondence to:* Maki Saitoh-Sekiguchi, Department of Obstetrics and Gynecology, Yamagata University School of Medicine, 2-2-2 Iidanishi, Yamagata 990-9585, Japan. Tel: +81 236285393, Fax: +81 236285396, e-mail: msaito@med.id.yamagata-u.ac.jp

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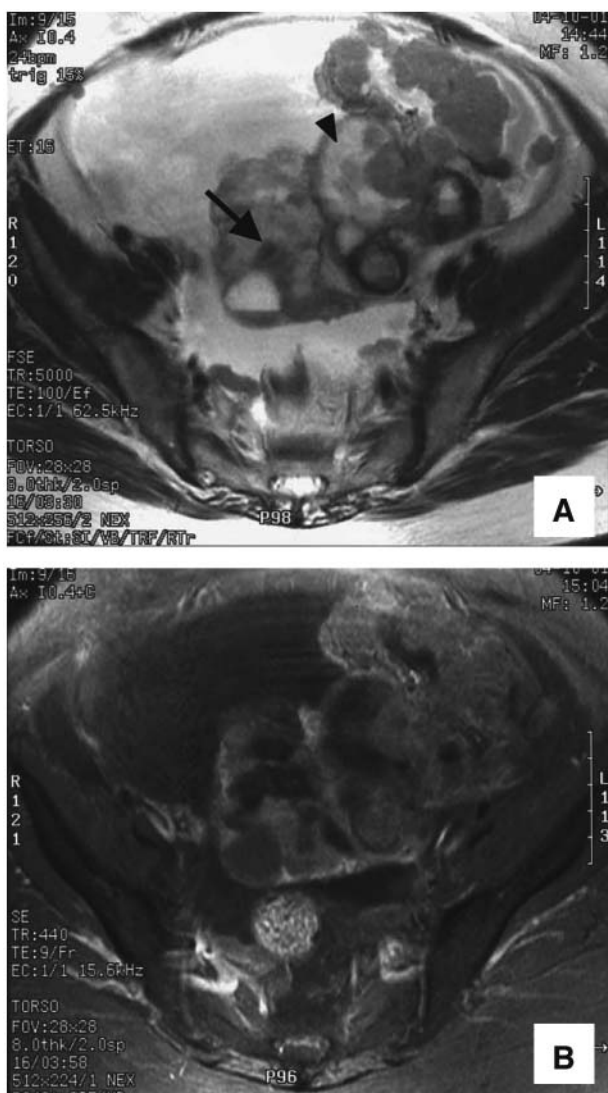


Figure 1. Magnetic resonance imaging (MRI) of the pelvis. The T2-weighted transverse (A) and T1-weighted gadolinium enhancement transverse (B) MR images show an 8x10x11 cm solid (arrow) and cystic (arrowhead) mass in the left ovary and massive ascites.

cul-de-sac peritoneum. Secondary debulking surgery revealed no residual tumors. Three additional courses of CPT-11 and CDDP were administered. The patient is still alive after 12 months with disease-free status after the second debulking surgery.

### Discussion

Small cell carcinoma of the ovary is a rare type of ovarian carcinoma with a poor prognosis. The overall survival rate is approximately 10%, increasing to 30% when only stage Ia cases are considered (7).

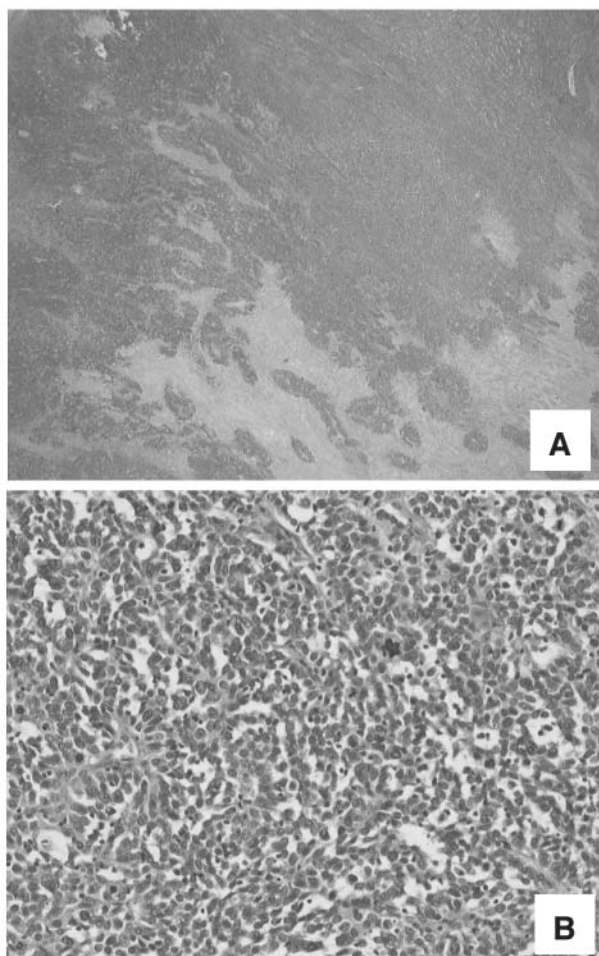


Figure 2. Histological appearance of the ovarian small cell carcinoma of the pulmonary type, at low-power (x20) (A) and high-power (x40) (B). The tumor was characterized by small cells with scant cytoplasm, elongated nuclei and mitoses.

Two types should be distinguished: the hypercalcemic and the pulmonary types (1, 2). The hypercalcemic type occurs in young women from 9 to 43 (average 23.9) years of age and is associated with hypercalcemia in approximately two-thirds of the patients (2). This type is aggressively malignant with a poor prognosis. The overall survival rate of stage Ia patients was reported to be 33% after 1 to 13 (average 5.7) years of follow-up (2). Although there have been several reports in the literature of patients with prolonged survival (8, 9), the majority of patients die within 1-2 years after diagnosis (2).

The pulmonary type is seen more frequently in elderly women from 28 to 85 (average 59) years of age and has histological and immunohistochemical features similar to those of the more common pulmonary small cell carcinoma (1). Immunohistochemical findings of the disease were

described in the literature. NSE was detected in six of nine cases, and chromogranin was detected in two of the nine cases (1). In our patient, only NSE was detected. The histogenesis of this tumor type is unclear. It has been suggested that it can arise from the stem cells or neuroendocrine-type cells of the surface epithelium that have the capacity for neuroendocrine and epithelial differentiation (10). Generally, the prognosis is poor and only limited data on the treatment for this tumor type are available. Most patients described by Eichorn *et al*. (1) died within 1 year or had an early recurrence. They suggested that patients with ovarian small cell carcinoma of the pulmonary type should be treated with agents known to be effective against small cell carcinoma of the lung. In the literature, combination chemotherapy regimens containing platinum (cisplatin, etoposide, bleomycin and ifosfamide) were used in such patients (9, 11, 12). Because the histological type in our patient was pulmonary, she was treated with a combination of CPT-11 and CDDP, which is reported to be effective for small cell lung cancer (3-5). Indeed, the combination of CPT-11 and CDDP showed significant activity in chemotherapy-naïve patients with advanced ovarian cancer (13), with an overall response rate of 76%. On this basis, our patient was treated with a combination of CPT-11 and CDDP. After six courses of combination chemotherapy, she had pathological CR.

To our knowledge, this is the first report of an excellent response to CPT-11 and CDDP combination chemotherapy in small cell carcinoma of the ovary. This regimen may be effective and safe for patients with small cell carcinoma of the ovary.

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