

# Long-term effective control of advanced epithelial ovarian cancer by Aidi combined with compound Sophora flavescens injection:A case report

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## Long-term effective control of advanced epithelial ovarian cancer by Aidi combined with compound Sophora flavescens injection:A case report

### Abstract

Epithelial ovarian cancer is still the most lethal gynecological malignancy, with a recurrence rate of 70% in advanced cases. Adi and compound sophora flavescens have shown potential as antitumor injections for several cancers. Here, we present a case of advanced epithelial ovarian cancer treated with Adi combined with compound sophora flavescens injection for prevention of recurrence and metastasis. The current survival period of the patient has reached 122 months. Surprisingly, a durable tumor control has occurred. Although the use of Aidi in combination with compound matrine injection as a treatment for ovarian cancer is not fully understood, it has demonstrated satisfactory clinical efficacy and no significant adverse reactions.

**Keyword:** Advanced epithelial ovarian cancer; Recurrence and metastasis; Aidi injection; Compound Sophora flavescens injection

### Background

Ovarian cancer (OC) is occult, 70% of OC patients are advanced at first visit, the recurrence rate is 70% within 3 years after initial treatment, and the 5-year survival rate of advanced OC patients is only about 40%<sup>[1]</sup>. The main reason is that patients are prone to early distant metastasis, and at the same time, they are prone to resistance to platinum drugs in the later stage of chemotherapy<sup>[2]</sup>. Epithelial ovarian cancer (EOC) has the highest mortality rate among gynecological tumors<sup>[3]</sup>. High-grade serous carcinoma (HGSC) is the most common histology in EOC. Subtype. Despite significant advances in the treatment of epithelial ovarian cancer in the past few decades, recurrent ovarian cancer remains a fatal disease, often controlled by combined treatment with surgery and chemotherapy<sup>[4]</sup>. Because the clinical needs of these patients are arguably the greatest, our focus is on treating advanced disease. Through continued progress, we hope that ovarian cancer will transition from a highly fatal disease to a chronic but treatable disease and gradually become a curable disease.

Aidi injection is mainly composed of astragalus root, ginseng, acanthopanax root, etc. In ovarian cancer, it mainly lies in inhibiting tumor angiogenesis by down-regulating vascular endothelial growth factor<sup>[5]</sup>, reduce the expression of proteins encoded by carcinogenic active genes, thereby producing anti-tumor effects<sup>[6]</sup>. The compound matrine injection is mainly composed of matrine and oxymatrine (also known as matrine). This kind of alkaloid has many pharmacological activities, among which the most significant one is antitumor activity<sup>[7]</sup>. Its main effects include inhibition of cell proliferation, induction of apoptosis and autophagy,

inhibition of cell migration and invasion, inhibition of tumor angiogenesis, reversal of multidrug resistance of tumor cells and regulation of immunity<sup>[8-13]</sup> .

Although the use of Aidi combined with *Sophora flavescens* as a treatment for ovarian cancer is not fully understood, it offers promise as a complementary therapy. Here, we present a study of patients with advanced recurrent ovarian cancer treated with Aidi combined with *Sophora flavescens* for prevention of recurrence and metastasis. This treatment resulted in 86 months of progression-free survival (PFS) after chemotherapy for ovarian cancer, complete remission after palliative chemotherapy for recurrence and metastasis, The median progression-free survival (PFS) of 9.2 months was well exceeded<sup>[14]</sup> .

## Case presentation

A 56-year-old female visited a doctor on October 23, 2013 due to chest tightness and cough. Chest X-ray examination showed right pleural effusion and parallel puncture. A small number of cancer cells were found in pleural fluid smear, which tended to adenocarcinoma. Blood Ca125>600 IU/ml. Abdominal CT on October 29, 2013 showed cystic and solid mass in bilateral adnexal areas of pelvis, which was considered to be derived from ovarian malignant tumor with possible large peritoneal metastasis. A large amount of pelvic effusion was considered metastatic. 1 course of intravenous chemotherapy TC regimen (Paclitaxel 210mg+ carboplatin 500mg). PET/CT examination on November 4, 2013 showed bilateral ovarian MT with multiple metastases to mesentery and pelvic floor peritoneum, and massive effusion in right pleural cavity and abdominal pelvis. On November 22, 2013, total hysterectomy + omentectomy + diaphragmatic incision + pleural exploration + diaphragmatic repair was performed. Postoperative pathology: (left ovary) serous papillary adenocarcinoma, high grade, tumor size 8\*7\*7cm, left fallopian tube not involved,(right ovary) serous papillary adenocarcinoma, high grade, tumor size 6.5\*5\* 2.5 cm, right fallopian tube not involved, send another (Upper abdominal tumor, left pararectal tumor, right pararectal tumor) See cancer involvement. Send separately (liver surface nodule, uterus rectal fossa peritoneum, left ovarian blood vessel, greater omentum) No cancer involvement;(uterus) endometrium showed proliferation-like morphology;(cervix) chronic inflammation. Tumor cells: ER(+++) PR(-) P53(++) Her2/neu(1+) VEGF(++) WT1(+)  $\beta$ -Catenin(+++) Ki67(+)<sup>60%</sup> Bcl-2(+) bax(+) MDR(+) TOPOII(individual +) GSTn(+) P27(++) CyclinD1(+) AgNOR1-3/The patients voluntarily enrolled in the phase II clinical trial of intraperitoneal chemotherapy for advanced epithelial ovarian cancer, and were randomly assigned to intraperitoneal chemotherapy group, who received 4 times of thoracic intraperitoneal infusion chemotherapy from November 27, 2013 to December 18, 2013, respectively. The regimen: cisplatin combined with etoposide. The chemotherapy process was smooth. After chemotherapy, III degree bone marrow suppression occurred. After the last chemotherapy, blood Ca125: 6.86IU/ml.

The patient received postoperative adjuvant chemotherapy from January 2, 2014 to May 9, 2014, totaling 6 courses (Docetaxel 80mg+ carboplatin 600mg,ivgtt, q3w). From December 2016 to July 2021, traditional Chinese medicine was given in our department for anti-recurrence and metastasis treatment, and traditional Chinese medicine intravenous injection: Aidi injection was given.(Guizhou Yibai Pharmaceutical Co.Ltd, Chinese medicine approval number: Z52020236)100ml+ compound *Sophora flavescens* injection (Shanxi Zhendong Pharmaceutical Co.Ltd, Chinese medicine approval number: Z140021230)20ml,qd,regular reexamination showed no evidence of recurrence and metastasis.

On July 8, 2021, PET/CT reexamination showed soft tissue nodules near the blood vessels in the left pelvic wall and increased FDG metabolism. It was considered that the metastatic tumor might be large (about 11 mm x 9 mm x 10mm)(a).The rest showed no abnormality. Blood: Ca125: 4.23 U/ml. From July 16, 2021 to October 18,2021,5 courses of first-line TC chemotherapy (albumin paclitaxel 200mg d1, d8+ carboplatin 500 mg d1 ivgtt, q3w) combined with traditional Chinese medicine injection: Aidi injection 100ml+ Kushen injection 20 ml, qd. On September 16, 2021,pelvic MR was evaluated as CR after 3 courses of chemotherapy(b),Blood: Ca125: 4.23 U/ml. Grade III bone marrow suppression and liver dysfunction occurred after chemotherapy, so the sixth course of chemotherapy was suspended, and the efficacy evaluation during the reexamination was CR. From October 15,2021 to October 30, 2023,the patient continued to receive a total of 10 courses of traditional Chinese medicine antitumor therapy (Aidi 100ml+ Kushen Injection 20ml

qd), and the reexamination evaluation during the period was CR(c).The last review was October 31,2023.The imaging examination of our hospital was CR(d),blood Ca125:10.1U/ml.

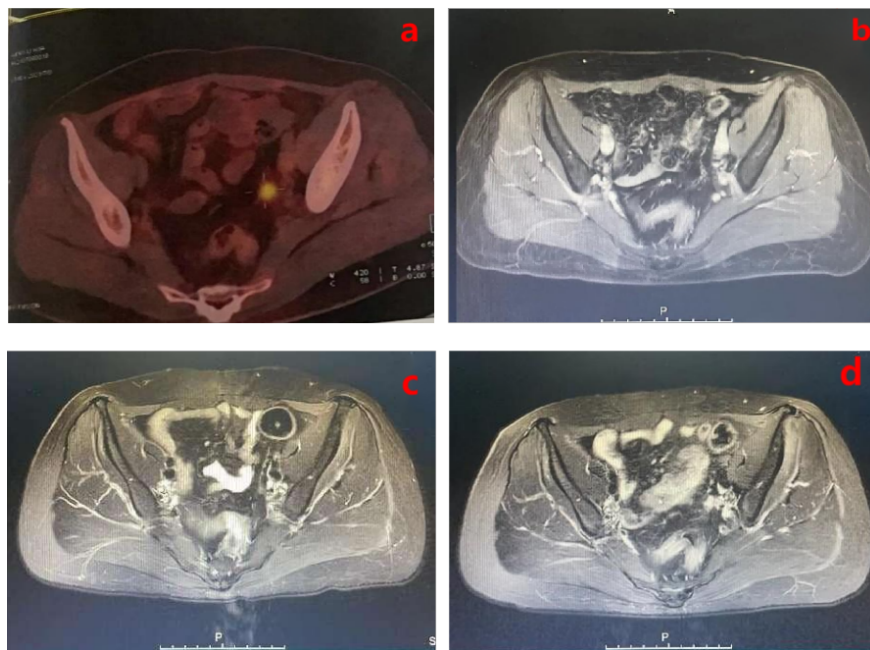


Figure 1 a: PET-CT showing recurrent metastatic lesions on 28 July 2021;b: pelvic MR examination on September 2021, CR assessed;c: pelvic MR examination on February 2023, CR assessed;d: pelvic MR examination on October 2023, CR assessed.

### Discussion and Conclusion

Median overall survival for recurrent ovarian cancer is reported to be 46 months<sup>[15]</sup>.Here, we present a rare case of recurrent ovarian cancer with a survival period of 122 months. The treatment with antitumor Chinese medicine injection as maintenance therapy surprisingly resulted in a durable tumor control. In addition, no adverse reactions or tumor recurrence have been reported. Antitumor Chinese medicine injection has been widely used as a combination therapy for ovarian cancer in China to improve clinical efficacy, reduce side effects of chemotherapy and improve patients 'quality of life<sup>[16]</sup>.A recent study showed that matrine in ovarian cancer mainly through the regulation of ERK/JNK, PI3K/AKT, NF- $\kappa$ B pathway to play its anti-proliferation, pro-apoptosis mechanism to achieve anti-tumor purposes<sup>[17]</sup>.Another study showed that Aidi injection can reduce the expression levels of CEA, CA153 and HE4 in ovarian cancer markers in rats, regulate PI3K/mTOR signaling pathway to inhibit ovarian cancer cell proliferation and induce apoptosis<sup>[18]</sup>.

This patient was diagnosed with high-grade serous ovarian cancer. Approximately 70% of epithelial ovarian cancer recurred within 1-2 years of diagnosis<sup>[19]</sup>.In this case, Aidi combined with Kushen provides a safe and effective method, and we believe that these two traditional Chinese medicine injections may participate in antitumor therapy. Although the exact mechanism of Aidi combined with Kushen in preventing recurrence and metastasis of ovarian cancer is not fully understood, it has demonstrated satisfactory clinical effects and no significant adverse reactions. However, Further studies are needed to determine the safety and efficacy of Aidi combined with compound Sophora flavescens as a viable treatment regimen for ovarian cancer recurrence and metastasis.

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