

Conservative surgical treatment of an isolated uterine body choriocarcinoma under transient occlusion of uterine arteries

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Summary

In patients with choriocarcinoma of the uterine body who want to preserve fertility, it is inevitable to perform uterus conserving surgery with safe surgical techniques and to obtain an efficient clinical outcome of survival and pregnancy. A 30-year-old G1 P0 patient was referred to the present department due to treatment failure of abnormal intrauterine pregnancy after endometrial curettage. Under the clinical impression of gestational trophoblastic disease (GTN) localized in the posterior uterine body, the patient underwent wide wedge resection of uterine wall along with securing safe margins under transient occlusion of uterine arteries (TOUA). After resection and uteroplasty was performed, the pathology report revealed the diagnosis of choriocarcinoma; hence, the patient received three cycles of adjuvant chemotherapy with the EMA-CO regimen. During 12 months after completing chemotherapy treatment, the patient has been doing well without recurrence.

Key words: Conservative surgery; Choriocarcinoma; Uterine body.

Introduction

Conservative surgical treatment is an inevitable choice for treating patients with choriocarcinoma who want to preserve fertility. There are a few reports in which conservative surgery was performed in patients with choriocarcinoma, who had a localized lesion without distant metastasis. Also, high vascularity could lead to serious intraoperative complications because of heavy bleeding, and the risk of conversion to hysterectomy will be increased. To reduce heavy intra-operative bleeding, bilateral uterine artery embolization (UAE) was used in a few cases. However, blood vessels supplying the tumor sites can be occluded simultaneously after UAE; hence, there could be problems while performing immediate adjuvant chemotherapy, and sometimes UAE induces ovarian failure due to insufficient uterine arterial flow to the ovaries. To perform appropriate adjuvant chemotherapy focused on tumor sites and to achieve a good response to chemotherapy, normal architecture of blood supply to the tumor site is required.

The authors report a case of choriocarcinoma of the posterior uterine body managed by uterus conserving surgery with transient occlusion of uterine arteries (TOUA), followed by chemotherapy while preserving normal architecture of the uterine arteries.

Case Report

A 30-year-old nulliparous woman was referred to the present clinic because of elevation of β -hCG immediately after performing cervical dilation and endometrial curettage due to the clinical impression of missed abortion. The pathology report revealed products of conception with trophoblastic proliferation. An isolated lesion was detected in the middle portion of the posterior endometrium by ultrasonography (Figure 1A). The serum β -hCG level of the patient was 800 mIU/mL at the time of her visit, and it increased up to 5,808 mIU/mL in four days just before hysteroscopy. The well-visualized lesion was resected and removed successfully by hysteroscopy (Figure 1B). The lesion was pathologically diagnosed as fragments of villi with focal proliferation of trophoblastic cells. One week after the hysteroscopy operation, the serum β -hCG level was 3201 mIU/mL, and after another week, the serum β -hCG level of the patient reached the slope of the plateau. After checking the serum β -hCG level at a one-week interval, methotrexate, single dose, 50 mg/m² was intramuscularly injected over six cycles at a one week interval. The six cycles of methotrexate injections decreased the serum β -hCG level from 3,201 to 36.3 mIU/mL. However one week after the sixth last injection of methotrexate, the serum β -hCG level increased up to 73.9 mIU/mL. The drug was changed to actinomycin injected intravenously, 1.25 mg/m² weekly and after two cycles, serum β -hCG reached its normal level (< 2.0 mIU/mL). Three months later, the serum β -hCG level was re-elevated to the level between 7.2 and 20.5 mIU/mL, during the woman's weekly follow-up without any definite lesion on ultrasonography. When the serum β -hCG level was higher than 150 mIU/mL, ultrasonography (Figure 2A) and MRI (Figure 2B) showed an abnormal finding. To confirm the diagnosis of a grossly isolated uterine choriocarcinoma without distant metastasis, PET-CT was performed and it revealed no distant metastasis. Standard treatment was hysterectomy, but the

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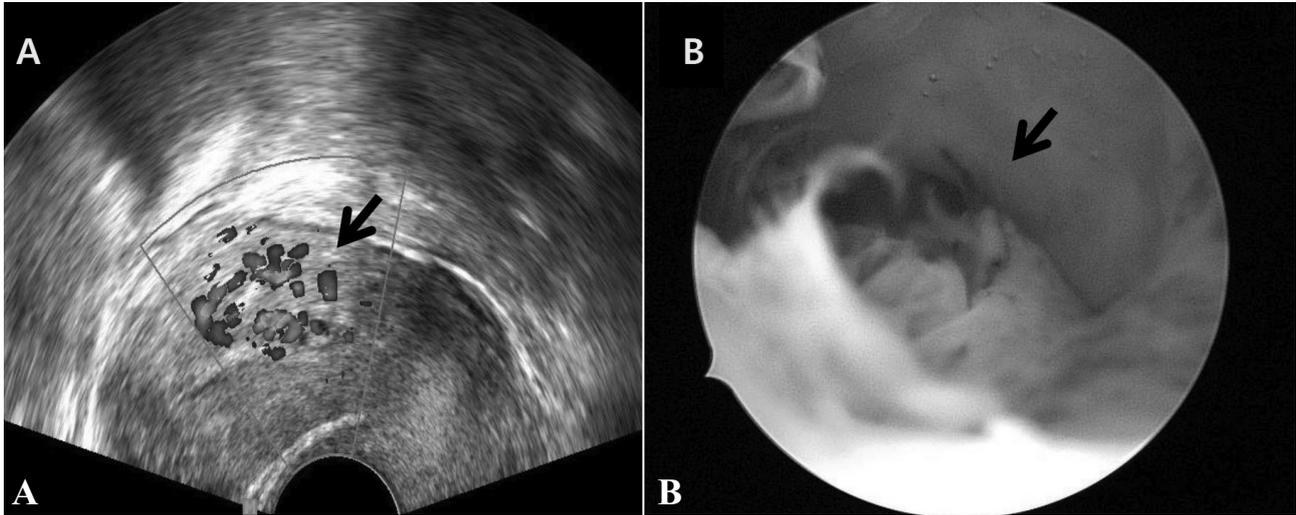


Figure 1. — Diagnostic images of gestational trophoblastic neoplasia. The black arrow indicates isolated mass on posterior uterine body. The diameter of the mass is 2.3 cm. A) Transvaginal Doppler ultrasonogram of isolated lesion with high vascularity invading uterine wall. B) Hysteroscopic image of mass-like lesion of uterus.

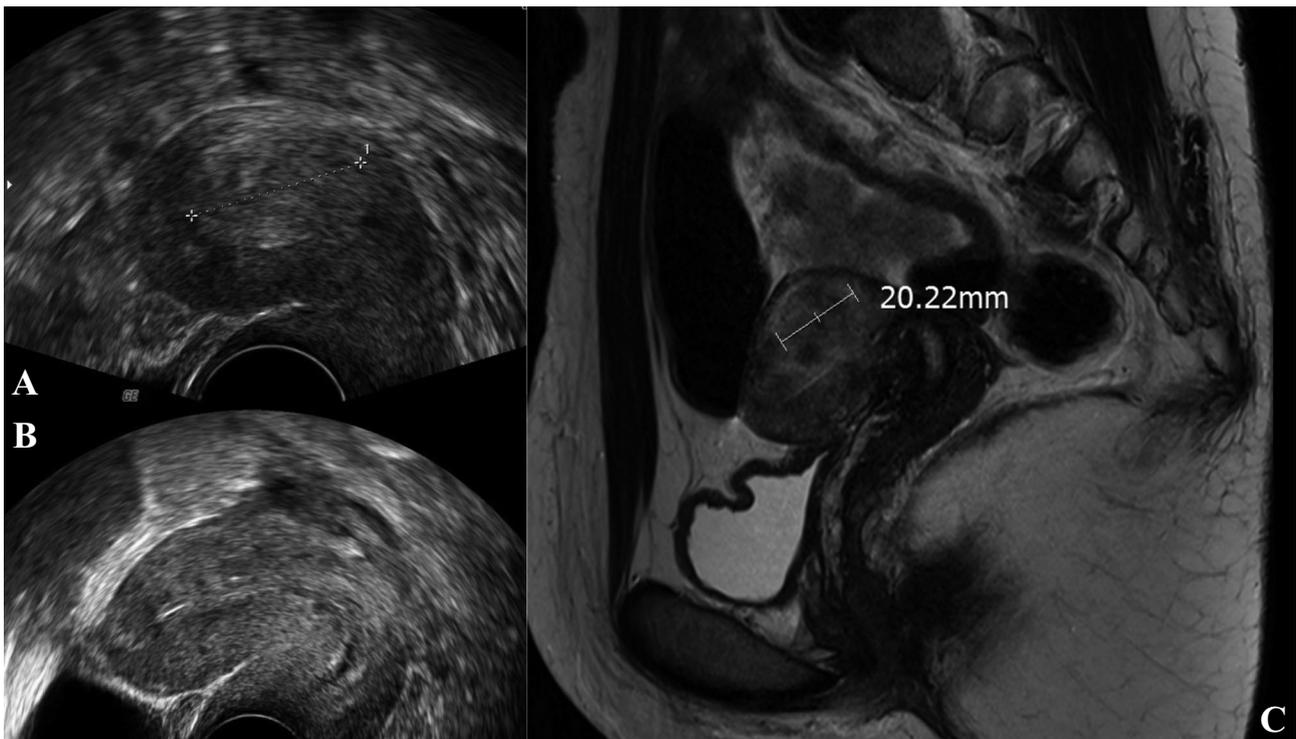


Figure 2. — A) Ultrasonography shows sagittal view of the uterus with heterogeneous echoic mass in the posterior body. B) A circa 2-cm width ill-defined heterogeneous hyperintense lesion on T2WI with asymmetric myometrial invasion in posterior body of uterus; strong peripheral enhancing with central hypointensity. C) Postoperative ultrasonographic image shows clear endometrial lining without any myometrial defect.

patient and her husband had no children; hence, they had a strong desire for fertility preservation. After receiving informed consent, wide wedge resection of the lesion along with securing safe margins was performed under the TOUA technique [1]. During the operation, the authors requested the pathologist for frozen biopsy examination. The diagnosis of choriocarcinoma with a negative

resection margin was confirmed and then uteroplasty was performed. Estimated blood loss was only 50 mL because of the TOUA technique. Final pathology report revealed the diagnosis of choriocarcinoma (Figure 3). After the postoperative recovery period, the patient received three cycles of the combination chemotherapy regimen consisting of EMA-CO (etoposide,

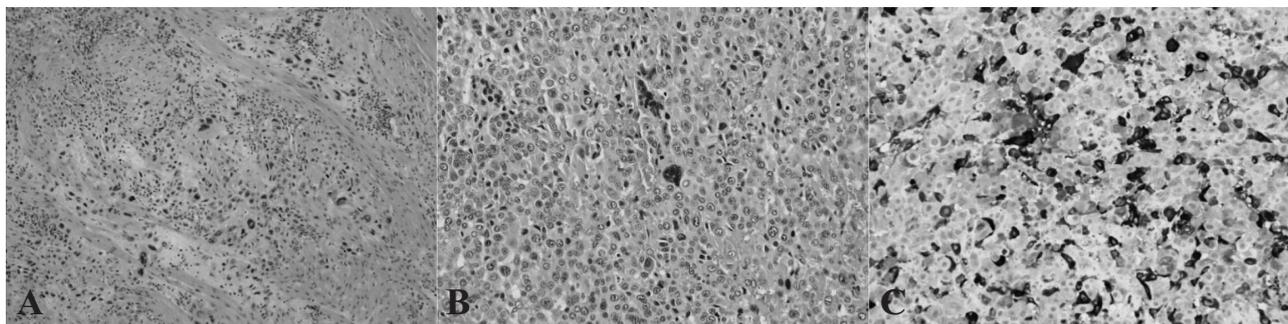


Figure 3. — A) Microscopic finding of excised myometrium shows the myometrial invasion of choriocarcinoma (H&E $\times 100$). B) Microscopic finding of the choriocarcinoma shows a biphasic arrangement of cytotrophoblasts and syncytiotrophoblasts (H&E $\times 200$). C) The choriocarcinoma component shows diffuse strong reactivity with beta-human chorionic gonadotropin by immunohistochemistry ($\times 100$).

methotrexate, actinomycin, cyclophosphamide, and vincristine). The serum β -hCG level after the operation returned to its normal level, < 2.0 mIU/mL for 12 months with regular menstruation, and there was no lesion on ultrasonography (Figure 2).

Discussion

Choriocarcinoma consists of invasive, highly vascular anaplastic trophoblastic tissue, made up of cytotrophoblasts and syncytiotrophoblasts without villi. Choriocarcinoma is the most aggressive histologic type of gestational trophoblastic neoplasia (GTN), and it is characterized by early vascular invasion and widespread metastases. The clinical presentation of choriocarcinoma depends upon extent of disease and location of metastases. Choriocarcinoma metastasizes hematogenously. Sometimes, the clinical presentation can be bleeding from a metastatic site [2].

It is difficult to diagnose GTN or choriocarcinoma under low level of β -hCG without pathological evaluation. Under less than 50 mIU/mL of β -hCG in a patient with choriocarcinoma or GTN, the site of the lesion is mostly in the pelvic organs, especially in the uterus, but it is usually not detected by ultrasonography because there is no typical finding. MRI or PET-CT is more useful and more sensitive for diagnosing GTN in this situation [3].

In the current study, a clinical diagnosis of GTN was made by MRI and PET-CT findings, and surgical therapeutic strategy was developed after the authors ensured the presence of a localized focal lesion on the posterior uterine body without any metastasis (Figure 2).

As in the present case, if a woman has a strong desire to preserve fertility and to have a baby, conservative surgery is an inevitable choice. However, there are only a few reports of conservative surgical treatment [4-8]; in most cases, patients received conservative surgery when the lesion was located at a tubal site or a cornual site, and to reduce heavy intraoperative bleeding, bilateral UAE was performed. In comparison with this case, several differ-

ences were noted. First, in the present case, the lesion was located in the uterine body, not in a tubal or cornual site, and it was more difficult to perform conservative treatment for a lesion located on the uterine wall, because the surgeon should know the correct location of the lesion and he/she needs to obtain a safe resection margin followed by well-designed uteroplasty. The present department has developed techniques for uteroplasty with experience of number of adenomyomectomies [9]. Also, the authors used the TOUA technique instead of UAE or permanent occlusion of both uterine arteries. Adjuvant chemotherapy was considered after conservative surgery and it was effective because appropriate chemotherapeutic agents could be sufficiently delivered to the lesion via the blood stream. However, after UAE or permanent occlusion of both uterine arteries, a long time is needed for formation of multiple collateral vessels from both internal iliac arteries. TOUA is a transient occlusion during the operation and the arterial flow returns to normal values after removal of vascular clips; thus, allowing immediate chemotherapy if the patient has recovered after conservative surgery.

Conclusion

In GTN localized in the uterine body without metastasis, conservative surgical management followed by adjuvant chemotherapy, while preserving normal uterine vessel architecture through TOUA, could be a safe, effective, and good therapeutic option in patients who want to preserve their fertility.

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