CLINICAL IMAGE

A Metastatic Ovarian Tumor Mimicking Pregnancy Luteoma Found during Puerperium

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Introduction

Pregnancy luteoma is a benign condition observed during pregnancy. We introduce a case with a metastatic ovarian tumor mimicking pregnancy luteoma on magnetic resonance.

Case Report

A 28-year-old puerperant with fever came to our hospital. Her last delivery was uneventful. Her laboratory data was normal except for anemia (red blood cell count was $3.41 \times 10^6/\mu l$) and elevated serum C-reactive protein (7.23 mg/dl). CA19-9, CA125, and carcinoembryonic antigen (CEA) were negative. She had no family history indicating hereditary cancer syndrome. Ultrasound revealed a right adnexal mass that was not recognized during the cesarean section. Magnetic resonance (MR) images revealed a well-demarcated mass within a pseudo-cyst surrounded by uterus, pelvic sidewall, and right cardinal ligament. The mass was composed of tiny hypointense nodules within the background of high signal on T_2-weighted (T_2WI; Fig. 1A) images. Contrast enhanced T_1-weighted images revealed strong enhancement of the background stroma and the hypointense nodules remained with weaker enhancement (Fig. 1B, C). There was no signal difference between the two parts on diffusion-weighted images (Fig. 1D). We suspected pregnancy luteoma and sclerosing stromal tumor (SST) as the similarity of pseudo-lobular pattern.

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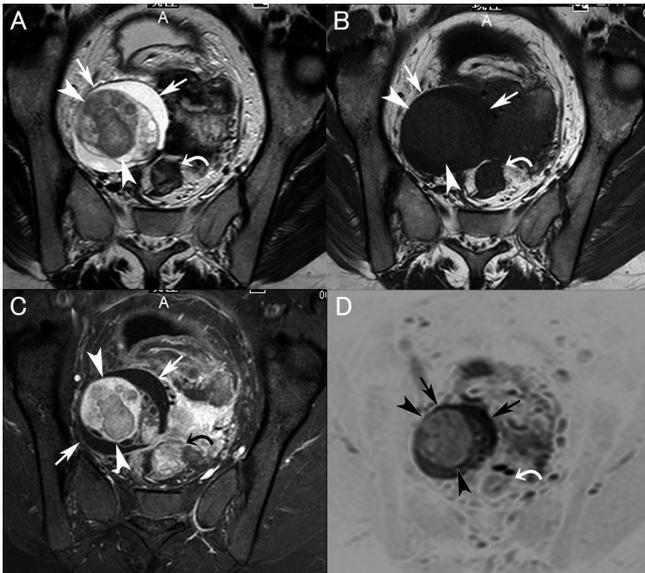*Corresponding author, Phone: +81-29-853-3205, Fax: +81-29-853-3205, E-mail: ytanaka@md.tsukuba.ac.jp

The white-colored small right ovarian mass with hemorrhage surrounded by the pseudo-cyst was removed (Fig. 1E). The tumor was composed of varying types of malignant tumors including signet ring-like cells (Fig. 1F) and was positive for CDX2. The histopathological diagnosis was metastatic adenocarcinoma of the ovary and its peritoneal dissemination. Advanced rectal cancer was also found via colonic fiberscope followed by the surgery. As the disease was resistive against chemotherapy, the patient was transferred to another hospital under best supportive care.

Discussion

Common malignant ovarian tumors found during pregnancy include mature cystic teratomas, epithelial carcinomas, yolk-sac tumors, immature teratomas, and Sertoli-cell tumors. Metastatic ovarian tumor during pregnancy is not so rare.[1] Their diagnosis often delays and it leads to poor maternal prognosis.

The metastatic ovarian tumors typically appear as well-demarcated, often bilateral tumors with hypointense part on T_2WI. Those from the colorectal cancer often make multilocular cystic mass with uniform signal intensity and size.[2] The present case appeared as unilateral predominantly solid mass that was quite different from the typical metastatic ovarian tumor from colorectal cancer.

We suspected pregnancy luteoma and SST before surgery. Pregnancy luteoma is defined as hyperplasia of the luteinized theca cells during pregnancy. Well-demarcated bilateral ovarian masses including hypointense nodules with low signal on T_2WI are a hallmark of pregnancy luteomas.[3] The nodules typically arrange at the periphery of the ovaries in pregnancy luteoma, although they were distributed randomly in the present case. Such imaging findings are shared by SST showing pseudo-lobular pattern. In addition, metastatic ovarian tumor can show such characteristic which is one of the common histology found during pregnancy.[1] Our present case appeared with pseudo-lobular-like appearance as the tumor included densely proliferating solid part and mucus-rich tumor cells with stromal edema.

In conclusion, it is important to raise the possibility of a metastatic ovarian tumor, when radiologists see a well-demarcated mass with hypointense area on T_2WI, even if it is unilateral and the patient is young.
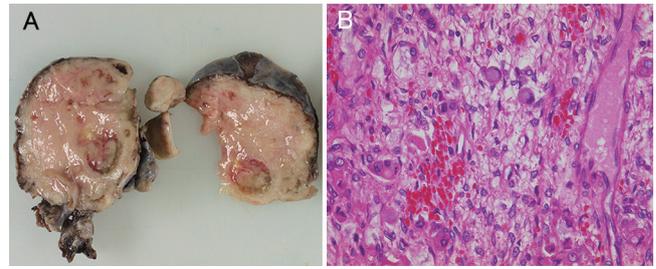
Fig. 2. The cut surface of resected ovary shows a white and soft mass with hemorrhage and necrosis, macroscopically (**A**). The mass is microscopically composed of adenocarcinoma with glandular formation and diffuse proliferation of signet ring-like cells (**B**: hematoxylin-eosin stain, high power field).

Fig. 1. Magnetic resonance (MR) images of a 28-year-old puerperant with a metastatic ovarian tumor. A well-demarcated mass including hypointense nodules are seen within the ovary (arrowheads) surrounded by a pseudo-cyst (arrows) on T_2-weighted coronal image (**A**). The mass shows homogeneous low signal on T_1-weighted image (**B**). The nodules within the mass shows weak enhancement whereas the background stroma shows intense enhancement (**C**: contrast enhanced and fat-saturated T_1-weighted coronal image). The coronal diffusion-weighted image does not reveal restricted diffusion within the mass (**D**). MR images also demonstrated the primary rectal cancer as intestinal wall thickening (**A–D**, curved arrows).

References

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