

Bilateral ovarian endometriomas after laparoscopic hysterectomy following adjuvant tamoxifen therapy for breast cancer: A case report

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ABSTRACT

Tamoxifen, a selective estrogen receptor modulator, is widely used as adjunctive therapy for women with breast cancer. However, tamoxifen has an agonistic effect on the endometrium and may be associated with endometrial proliferation, hyperplasia, polyp formation and carcinoma. The case report describes a 50-year-old woman who developed bilateral ovarian endometriomas while taking tamoxifen for breast cancer after total laparoscopic hysterectomy. She had undergone total laparoscopic hysterectomy for multiple uterine fibroids with no ovarian pathology at age 48 years, had been diagnosed with breast cancer and had commenced tamoxifen as post-mastectomy adjuvant therapy. One year after starting tamoxifen, she developed bilateral ovarian swelling accompanied by acute abdominal pain. At laparoscopic bilateral salpingo-oophorectomy, endometriomas were visible on both ovaries. Pathological examination confirmed endometriotic cysts with no evidence of malignancy. Postoperatively, anastrozole (an aromatase inhibitor) was substituted for tamoxifen as adjuvant therapy for her breast cancer.

1. Introduction

Globally, breast cancer is the second most frequently diagnosed malignancy after lung cancer, accounting for over two million cases annually [1]. It is also the leading cause of cancer death in women worldwide. In Japan, breast cancer was the most common cancer of women in 2018, and the fifth most common cause of cancer death in women in 2019 [2].

Fewer than one-third of women with newly diagnosed breast cancer are premenopausal [3]; however, administration of adjuvant endocrine therapy for hormone receptor-positive cancers is important regardless of menopausal status, to reduce the risk of recurrence.

Tamoxifen (TAM) is widely administered to women with hormone receptor-positive breast cancer. TAM is an established adjuvant therapeutic agent for breast cancer because of its antagonistic effect on that tissue. However, TAM is also a known risk factor for endometrial cancer because of its agonistic effects on the endometrium.

Despite case reports regarding the relationship between endometriosis and TAM use, it remains unclear whether this agent induces or promotes endometriosis. We report here a woman with bilateral ovarian endometriomas that developed following TAM treatment.

2. Case Presentation

A 48-year-old premenopausal woman, gravida 1, para 1, presented with heavy menstrual bleeding. Transvaginal ultrasonography and magnetic resonance imaging (MRI) revealed one submucosal and multiple interstitial uterine fibroids. Additionally, she was anemic.

Given that her fibroids were symptomatic, a total laparoscopic hysterectomy with ovarian conservation was performed. Intraoperatively, the uterus was seen to be enlarged, but both ovaries were macroscopically normal. There was no macroscopic evidence of endometriosis on laparoscopy (Fig. 1).

Two years after the hysterectomy, she was diagnosed with breast cancer and underwent mastectomy followed by radiotherapy. She was prescribed oral tamoxifen (20 mg/day) as adjuvant therapy. No pelvic masses were detected on ultrasound sonography at that time. Three years after the hysterectomy, at the age of 51 years, she presented with lower abdominal pain of sudden onset. A 7-cm diameter, right pelvic, multilocular cyst and a left unilocular cyst were detected by contrast enhanced CT and MRI examination (Fig. 2). Bilateral endometriotic ovarian cysts were suspected and accordingly laparoscopic bilateral salpingo-oophorectomy was performed.

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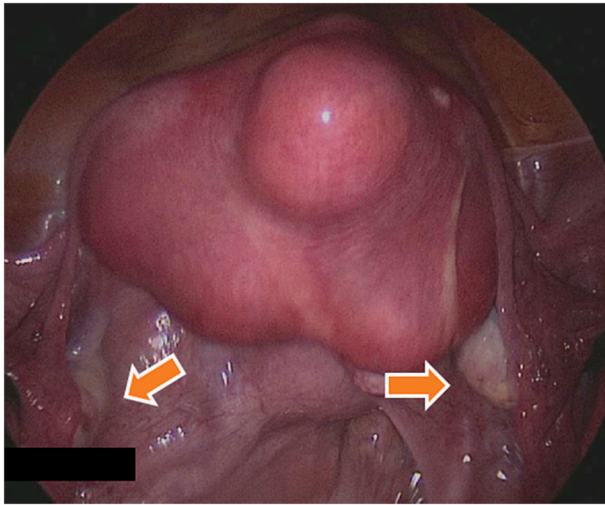


Fig. 1. Laparoscopic image showing no endometriotic lesions in both ovaries (arrows) and the peritoneum.

At laparoscopy, the diameter of her right ovary was 4 cm and of the left ovary 7 cm. No intraperitoneal adhesions were identified. The cysts contained chocolate-like liquid (Figs. 3,4).

She was diagnosed as having bilateral ovarian endometriotic cysts

with no histopathological evidence of malignancy. Postoperatively, anastrozole (an aromatase inhibitor) was substituted for TAM.

3. Discussion

TAM has antiestrogenic activity in breast tissue, whereas it has an estrogen-like effect on the endometrium. TAM has been associated with endometrial proliferation leading to endometrial hyperplasia, polyps, endometriosis, and carcinoma [4]. Numerous reports of endometriosis developing during treatment with tamoxifen have been published [5–11] (Table 1). The Breast Cancer Prevention Trial by the National Surgical Adjuvant Breast and Bowel Project reported that women taking TAM have a greater incidence of endometriosis than do women taking a placebo (RR = 2.0). [4] However, little is known about the progression of endometriosis in women taking tamoxifen. This case report describes the development of benign ovarian endometriomas in a tamoxifen user whose ovaries were macroscopically normal before treatment.

Given the risk of malignant transformation in endometriosis [12,13], women taking TAM should be advised to have gynecological follow-up.

4. Conclusions

We report here a case of ovarian endometriosis in a TAM user. Because TAM can stimulate endometrial tissue, women should be followed up regularly. In the present case, the ovarian endometriomas arose in a woman who had macroscopically normal ovaries before

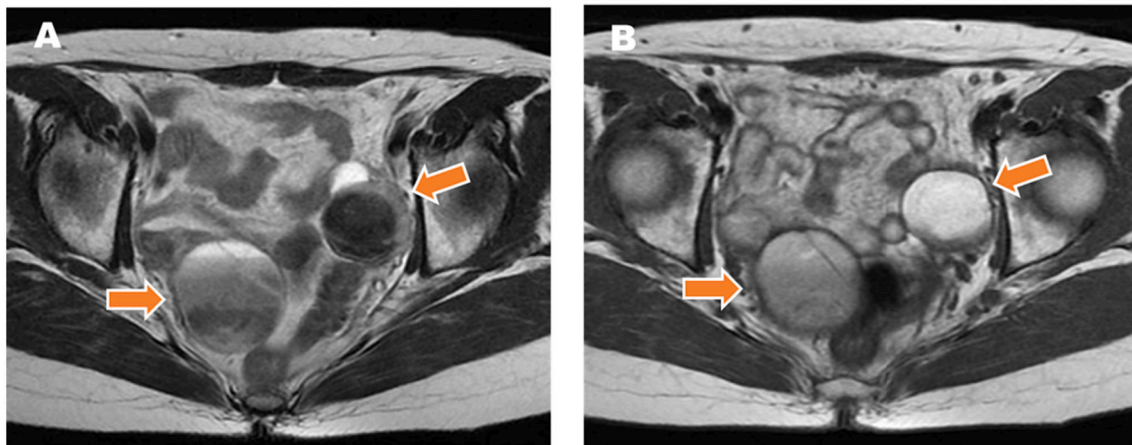


Fig. 2. MRI findings of (A) axial T2-weighted image and (B) axial T1-weighted image revealing a right pelvic multilocular cyst (7 cm in diameter) (arrows) and a left unilocular cyst with high-signal intensity on the T1-weighted image (arrows).

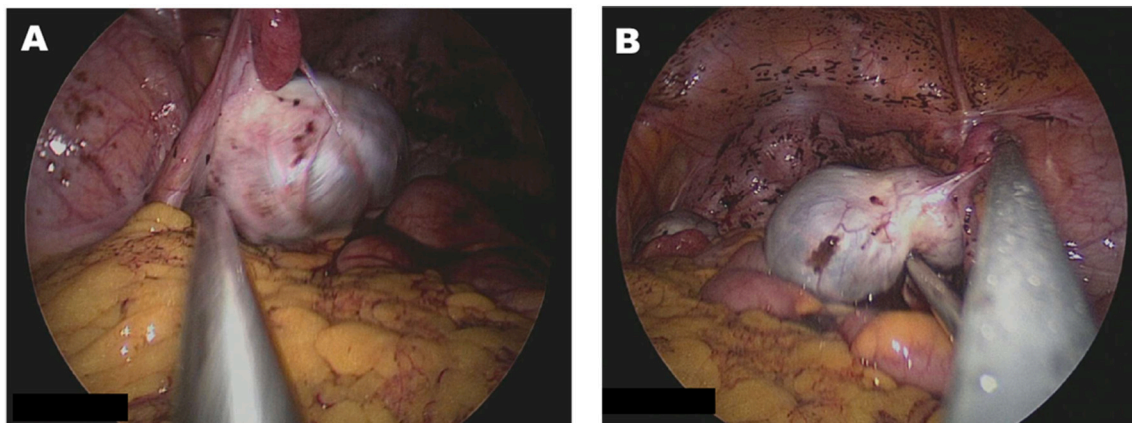


Fig. 3. Laparoscopic findings (A) The left ovary is 7 cm. (B) The right ovary is 4 cm. No intraperitoneal adhesions were detected.

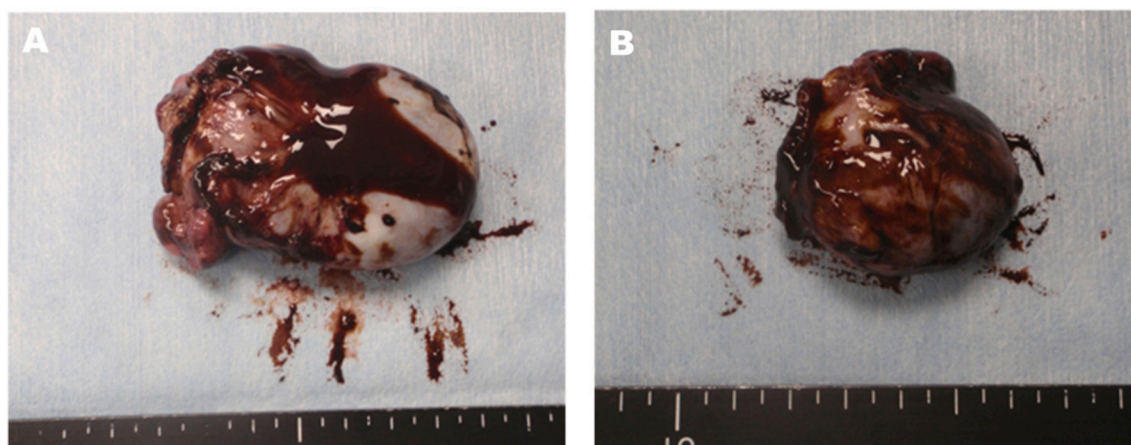


Fig. 4. There is chocolate-like liquid in (A) the left and (B) right ovaries.

Table 1

Case reports of endometriosis developing during administration of tamoxifen [5–11].

age	pre/post menopausal	region	period of medication	
42	premenopausal	Ovary	19 months	Abad de Velasco et al. [5]
37	premenopausal	Ovary	13 months	Morgan et al. [6]
26	premenopausal	Ovary	12 months	Morgan et al. [6]
54	premenopausal	Douglas' pouch	5 months	Ford et al. [7]
41	premenopausal	Douglas' pouch	1 months	Rose et al. [8]
55	postmenopausal	retroperitoneum	24 months	Naufel et al. [9]
60	postmenopausal	Douglas' pouch, rectum	24 months	Hajjar et al. [10]
66	postmenopausal	Ovary	48 months	Choi IH et al. [11]

treatment.

Contributors

Satoshi Nishiyama contributed to patient management, data collection and analysis and drafted the manuscript.

Sotaro Hayashi, Naoki Abe, Sachino Kira, Miho Oda, Lifa Lee, Yoko To, and Maki Goto contributed to data analysis and editing of the manuscript.

Hiroshi Tsujioka contributed to patient management, data analysis, and editing of the manuscript.

All authors approved the final submitted article.

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Patient consent

Informed consent for publication of this case report was obtained from the patient.

Provenance and peer review

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Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this case report.

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