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**Breast Cancer in an Ovum Donor:
A Case Report**

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INTRODUCTION

Meticulous screening, including history and physical and psychological assessment, is mandatory for all potential ovum donors prior to controlled ovarian hyperstimulation and oocyte retrieval. We have previously reported that incidental pathology is not uncommon among ovum donors (1) and may preclude participation. This report highlights the importance of the complete assessment of all organ systems, as we diagnosed an adenocarcinoma of the breast in an ovum donor during her initial screening examination.

CASE REPORT

A 24-year-old nulligravida white female enrolled in the oocyte donation program after responding to an advertisement. Her medical and surgical history were unremarkable. She had no known drug allergies and had been on and off oral contraceptives since the age of 16, with approximately 1 year of total use. She had not been hospitalized, nor had she been exposed to X-ray, her-

bicides, or toxic chemicals. Her gynecologic history was unremarkable including menarche at age 13 and regular monthly menstrual cycles. She had no smoking, alcohol, or recreational drug use and admitted to several cups of coffee and cola ingestion per day. She denied any nipple discharge apart from generalized breast tenderness and had not noticed any changes in her breasts. Her family history was unremarkable except that both her sisters have a history of ovarian cysts.

On physical examination, bilateral breast nodularity was noted. Within the right breast, a 1-cm, nonmobile firm lump was appreciated. No axillary, supraclavicular, or cervical adenopathy was noted. The patient was instructed to return following her next menses for reevaluation. Because of its persistence, she consented to fine-needle aspiration. The area was infiltrated using 1% xylocaine, and despite several attempts using an 18-gauge hypodermic needle, no fluid was obtained. She was referred to a breast surgeon where a repeat needle aspiration revealed atypical cells. An open biopsy 2 weeks later resulted in the diagnosis of a ductal adenocarcinoma involving the surgical margins. Bilateral mammography was obtained to evaluate the left breast, which was unremarkable. The patient underwent a second procedure with wide excision of the site and axillary node dissection. Pathology revealed a confined high-grade ductal adenocarcinoma. All nodes were negative. She is currently undergoing four courses of Adriamycin and Cytosan. Prior to chemotherapy, she was consulted with respect to future fertility and given the option of oocyte and/or embryo banking. Although initially interested, she failed to follow up and entered to receive chemotherapy.

DISCUSSION

Breast cancer is the most common malignancy among women in the United States. As a cause of death, breast is second only to lung cancer (2). A woman's lifetime risk of being diagnosed with breast cancer is 1 in 8 (12%). However, 15% of newly diagnosed breast cancers occur among women 45 years of age or younger. The large majority of women diagnosed with breast cancer do not have identifiable risks (3).

Several clinical points arise from this case. First, if careful assessment and referral were not undertaken, this patient would have received ovulation induction. Ultimately, she would have developed metastatic disease and her cancer may have been attributed to her receiving fertility drugs. Data linking fertility drugs

with ovarian cancer and exogenous hormone replacement with breast cancer have been reported (4). However, the retrospective reports have been criticized as methodologically flawed, biased, and misleading. Although this patient had previous oral contraceptive use, reports including the Cancer and Steroid Hormone study demonstrated no association between breast cancer and oral contraceptive use (5) and the Collaborative Group on Hormonal Factors in Breast Cancer concluded that there was no increase in risk with dose or with increasing duration of use (6). It is unlikely that her oral contraceptive use contributed to her disease.

This case underscores the importance of our role as educators and primary care physicians, particularly in a young population where many patients do not have a regular gynecologist or primary care physicians. In the 500 ovum donors screened in the past 2 years, only 5% stated that they perform self breast assessment, while fewer than 1% correctly demonstrated the exam. Most young women are nervous about finding disease and feel protected by their age.

Finally, chemo- and brachytherapy have enhanced long-term survival of young women with cancer. Many patients are keenly aware of the impact of treatment on future fertility. Collection and cryopreservation of oocytes and embryos, ovum donation, and, most recently, ovarian tissue banking before radiochemotherapy is administered are now viable options to consider (7). Ironically, this patient went from desiring to be an ovum donor to needing oocytes and/or embryo banking for fear of losing her own fertility. However, prior to initiating any attempt at gamete preparation, extensive discussion is required to address whether controlled ovarian hyperstimulation may exacerbate existing disease. Furthermore, pregnancy following remission of disease may present heightened risks of disease recurrence.

In summary, this case emphasizes the importance of extensive screening of all women prior to initiation of any medical treatment including oocyte donation. Recent advances in assisted reproduction allow for possible treatment options in women undergoing cancer therapy, and should be an integral part of the overall treatment plan of oncology patients.

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Steven R. Lindheim¹

Mark V. Sauer

Department of Obstetrics and Gynecology
Division of Reproductive Endocrinology
Columbia Presbyterian Medical Center
College of Physicians & Surgeons
Columbia University
New York, New York

¹ To whom correspondence should be addressed at Columbia Presbyterian Medical Center, Department of Obstetrics and Gynecology, 622 West 168th Street, New York, New York 10032.