



(CASE REPORT)



## Breast cancer in pregnancy and postpartum: Maternal and fetal implications

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### Abstract

**Introduction:** Breast cancer is the most common cancer among women and one of the most important causes of death among them. A diagnosis of cancer during pregnancy is uncommon. Pregnancy associated breast cancers (PABC) are the second most pregnancy related malignancy, after cervical cancer. PABC are cancers diagnosed during pregnancy or within one year of delivery. This review aimed to identify the maternal and fetal implications during PABC and management this situation in low- and middle-income countries, such as Armenia.

**Materials:** The material of this study was a review of literature data from the following databases: PubMed, Web of Science and Scopus without time limits. The keywords for the search were the following terms: PABC, risk factors, incidence and outcomes, as well as a combination of these terms. The study included data from three PABC patients with different outcomes, registered at the Erebouni Medical Center during last 3 years. Results. Based on the published studies, the incidence rate of breast cancer varies greatly with race and ethnicity and is higher in developed countries. The findings of this study demonstrated that PABC outcomes depends of various risk factors including demographic, reproductive, hormonal, hereditary, breast related, and lifestyle.

**Conclusion.** The results of this study indicated that breast cancer in pregnancy is an uncommon phenomenon but one which poses dilemmas for patients and their physicians. A multi-disciplinary approach is recommended for optimal clinical-decision making.

**Keywords:** Breast Cancer; Pregnancy; Breast Cancer Treatment; Breast Cancer Diagnosis

### 1. Introduction

Cancer is a multifactorial disease and the second leading cause of death in women during their reproductive years, and complicates approximately 0.1% of all pregnancies. During gestation cancer poses immense pressure on the pregnant patient, her relatives and it raises conflicts between optimal maternal therapy and fetal well-being. Although the disease occurs all over the world, its incidence, mortality, and survival rates vary considerably among different parts of the world, which could be due to many factors such as population structure, lifestyle, genetic factors, and environment. PABC is regarded as a clinically and biologically distinct type of breast cancer and only comprises 0.2–0.4% of all breast cancers [4, 6]. However, it is the most common cancer during pregnancy and is diagnosed in approximately 15–35 cases per 100.000 births, and the number of cases of breast cancer diagnosed during pregnancy is less than after delivery [1, 5, 7, 8]. Pregnancy itself may temporarily increase the risk of developing breast cancer, although it has a long-term protective effect on the development of breast cancer [2, 3]. However, whether PABC has a worse prognosis is currently debatable. The occurrence of breast cancer and pregnancy concomitantly poses a unique challenge and management should involve a multidisciplinary approach including obstetrician, maternal fetal medicine specialist, oncologist, neonatologist, psychologist and geneticist [4]. The well-coordinated work of these specialists, the adoption of joint decisions contributes to the best outcomes of PABS. The above is confirmed by the three clinical cases cited

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## 2. Case

### 2.1. Case presentation N 1

Patient-N.A., born on February 6, 1984

Diagnosis: The right breast Paget's disease pT1crNOMO; Her2neo positive, condition after 2017 surgery. The patient did not receive appropriate treatment, in 2020 with recurrent skin infection, 16 weeks pregnancy, Her2neo positive variant.

At the time of her initial immunohistochemical examination (28.02.2017) we had: Paget's disease, Her2neo positive (3+), PR (0), ER (0), and Ki 67-45%. The second (16.04.2017) reveal invasive nonspecific breast carcinoma with lumbar component, grade 2, Her2neo positive condition; Her2neo positive (3+), PR (0), ER (0), Ki 67-70-75%.

Chest X-ray & R-scan showed that the lungs were not infiltrative. There is a slight increase in the image of the lungs in the armpits. The structure of the roots is not disturbed. The sinuses are free. Residual pleuro-diaphragmatic adhesion is observed on the left side. Heart – waist is flat, diameter is not widened. There are no marked pathological changes. The initial consultation was conducted in Vardanants medical center. Then, at 31 weeks of gestation, she was admitted to the pathology department of Erebouni Medical Center with recurrent breast cancer.

A tumor board was assembled, a multidisciplinary team was consulted, as a result of which it was decided to carry out 4 courses of induction chemotherapy with EC scheme (Endoxan + Phamarubicin). The pregnancy was carried out at 31 weeks & 5 days & a caesarean section was performed on 12.08.2020. Pregnant height 165 cm, weight 78 kg, her first birth & second pregnancy. An immature (32 weeks old) male with lung problems (often difficulty breathing) was born with subcutaneous involvement. Transferred to the neonatal intensive care unit. Oxygen therapy has been started. Spontaneous motor activity & Muscle tone is low, physical reflexes are suppressed; Trophic therapy, parenteral nutrition & antibiotic therapy. From the 6th day, he received liquid oxygen through the nasal horns; Clinical improvement has been observed. At the time of discharge, the child weighed 2380 g and was 46 cm tall. The mother was taken to the oncology department for further treatment. Currently, the mother and child are at home in a normal state. No complications were reported to the patient or her baby during this period of time.

### 2.2. Case presentation N 2

Patient – G., born on December 29, 1989.

Patient's second pregnancy, at 16 weeks of gestation, ultrasound examination revealed a palpable growth in the right breast. Examination of the biopsy revealed non-specific mucinous carcinoma. Clinical diagnosis: Right breast C-r, Luminal Type B, Her 2+ positive, cN +, cMo.

Pathological diagnosis: Fibrous tissue (tumor bed) at the site of invasive breast carcinoma, ypT0, ypN0 (0/20), ypMx, R0. Full post-chemotherapeutic effect, pCR, RCB 0. Fibrosis-cystic changes, sclerosing adenosis. After Herceptin. At the request of the pregnant woman, the abortion was performed on the instructions of the oncologist.

### 2.3. Case presentation N 3

Patient – D., born on November 18, 1979.

Diagnosis: C-r of the left breast. Pathological diagnosis: invasive breast carcinoma (cT2, cN0, Grade I, Luminal Type A). The patient received surgical chemotherapy in Germany. Accompanying: uterine fibroids, endometrial polyps. That was a patient's third pregnancy, second childbirth. After cesarean section she had healthy son. No complications were reported to the patient or her baby during this period of time.

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## 3. Discussion

The first mention of PABS dates back to the 20th century and for many years women were advised to refrain from pregnancy after breast cancer treatment because of concerns about an increased risk of recurrence and mortality. Subsequently, the discovery of hormonal sensitivity in breast cancer has led to the theory that elevated levels of estrogen and progesterone during pregnancy may increase the risk of breast cancer recurrence. However, modern data do not confirm this [6, 7]. As a result, breast cancer is no longer considered an absolute contraindication for subsequent

pregnancies. Moreover, there are many works that reveal a better prognosis of breast cancer in pregnant women, compared with the non-pregnant contingent.

Some authors recommend counseling patients two years after diagnosis and treatment before trying to conceive, as two years represents the median time to disease recurrence [7]. In addition, women who waited two years to conceive after breast cancer treatment had a significantly higher five-year survival compared to those who waited six months to conceive [8]. Although pregnancy does not appear to increase the risk of breast cancer recurrence, there are insufficient data on subsequent pregnancy outcomes in women with initial PABS. The cases cited by us prove the assertion that favorable outcomes of PABS are possible only as a result of the hard work of the relevant specialists. There are currently insufficient data to evaluate the impact of additional pregnancies on recurrence risk and survival in women with PABC. In the absence of specific information about this subgroup of women, care should be taken when counseling women who have had PABC about subsequent pregnancies.

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#### 4. Conclusion

The results of this study showed that breast cancer during pregnancy is unusual but poses dilemmas for patients and their doctors. An interdisciplinary approach is recommended for optimal clinical decision making. Further research is needed to elucidate the underlying mechanisms and specific risks, and to ensure appropriate evidence-based counseling for PABC survivors. To facilitate the work of a practical obstetrician-gynecologist, it is necessary to develop National standards for diagnosis and management of patients with PABC.

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#### Compliance with ethical standards

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The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

##### *Disclosure of conflict of interest*

The author declare that he has no competing interests.

##### *Statement of ethical approval*

'The present research work does not contain any studies performed on animals/humans subjects by any of the authors'.

##### *Statement of informed consent*

Written informed consent was obtained from the patients for publication of this cases reports.

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#### References

- [1] Ali SA, Gupta S, Sehgal R, Vogel V: Survival outcomes in pregnancy associated breast cancer: a retrospective case control study. *Breast J* 2012, 18(2):139–144.
- [2] Azim HA Jr, Santoro L, Pavlidis N, Gelber S, Kroman N, Azim H, Peccatori FA: Safety of pregnancy following breast cancer diagnosis: a meta-analysis of 14 studies. *Eur J Cancer* 2011, 47(1):74–83.
- [3] Clark R, Reid J: Carcinoma of the breast in pregnancy and lactation. *Int J Radiat Oncol Biol Phys* 1978, 4(7–8):693–698.
- [4] Fornetti J, Martinson H, Borges V, Schedin P: Emerging targets for the prevention of pregnancy-associated breast cancer. *Cell Cycle* 2012, 11 (4):639–640.
- [5] Johansson AL, Andersson TM, Hsieh CC, Cnattingius S, Lambe M: Increased mortality in women with breast cancer detected during pregnancy and different periods postpartum. *Cancer Epidemiol Biomarkers Prev* 2011, 20 (9):1865–1872.
- [6] Schedin P: Pregnancy-associated breast cancer and metastasis. *Nat Rev Cancer* 2006, 6(4):281–291.
- [7] Sukumvanich P: Review of current treatment options for pregnancy associated breast cancer. *Clin Obstet Gynecol* 2011, 54(1):164–172.
- [8] Upponi SS, Ahmad F, Whitaker IS, Purushotham AD: Pregnancy after breast cancer. *Eur J Cancer* 2003, 39(6):736–741.