

Case Report**Multidisciplinary Management of Breast Cancer in Pregnant**

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Abstract

Objective: To examine the management of breast cancer during pregnancy, emphasizing a holistic approach and the importance of multidisciplinary teamwork among various healthcare professionals.

Methods: Case report.

Case: a thirty seven year-old woman (G3P2) at 23 weeks of gestation presented with breast cancer during pregnancy. Breast biopsy revealed stage II invasive papillary carcinoma, which subsequently progressed to an advanced stage. Following a family meeting and multidisciplinary counseling, the patient decided to continue the pregnancy. Conservative management was undertaken, and a cesarean section was performed at 31 weeks of gestation. The patient delivered a male infant weighing 1,355 grams with Apgar scores of 6 and 8 at 1 and 5 minutes, respectively. Currently, the patient is receiving outpatient care in the hematology-oncology department, while the infant is being followed up in the pediatric department.

Conclusion: This case underscores the critical role of holistic, multidisciplinary collaboration in managing breast cancer during pregnancy. Structured teamwork enables clinical decision-making that aligns with both patient values and evidence-based practice, without necessarily requiring pregnancy termination.

Keywords: breast cancer, multidisciplinary, pregnancy.

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INTRODUCTION

Breast cancer is one of the most frequently diagnosed malignancies during pregnancy, with an estimated incidence of 15–35 cases per 100,000 live births.¹ Management during pregnancy poses significant challenges, including timely diagnosis, accurate staging, treatment planning, and close coordination with obstetric care. In pregnant patients, treatment strategies should, whenever possible, follow standard protocols used for non-pregnant women.²

Effective management requires a multidisciplinary team (MDT) approach involving oncologists, obstetricians, pediatricians, and other relevant specialists to carefully evaluate maternal and fetal risks and benefits through regular case discussions or tumor board meetings.^{3,4}

A major clinical challenge is that pregnancy-associated breast cancer is often diagnosed at an advanced stage, which is associated with poorer outcomes. Recent data from the Swedish Multi-Generation Register demonstrate a worse prognosis among women diagnosed with breast cancer during pregnancy or within the first year postpartum compared with those diagnosed before pregnancy.⁵ Therefore, optimal and well-coordinated care during pregnancy is essential.

Although the fundamental structure and importance of MDTs are well established, there remains a notable gap in the literature regarding the practical implementation of MDT-facilitated, patient-centered decision-making in cases of advanced-stage breast cancer during pregnancy. This case report aims to address this gap by illustrating a holistic MDT management

approach in a patient diagnosed with progressive stage II invasive papillary carcinoma at 23 weeks of gestation, ultimately achieving a viable preterm delivery alongside ongoing maternal oncological care. This report underscores the value of optimized MDT coordination in managing complex oncological conditions during pregnancy.

METHODS

This retrospective case report describes a 37-year-old woman (G3P2) who was referred from the Hematology–Oncology Department to the Fetomaternal Division at Dr. Cipto Mangunkusumo General Hospital (RSCM) at 23 weeks of gestation. Breast biopsy revealed stage II invasive papillary carcinoma. The patient underwent two cycles of chemotherapy, after which the disease progressed to an advanced stage. Clinical data were retrospectively extracted from the patient's medical records.

This case report involved obstetrics and gynecology residents specializing in social obstetrics and gynecology, as well as maternal–fetal medicine, in the clinical decision-making process. Written informed consent for publication was obtained from the patient. The study was conducted in accordance with ethical standards and was approved by the hospital's institutional review board.

CASE

Patient History

A Thirty seven-year-old woman, gravida 3 para 2, was referred to our tertiary Fetomaternal Division at 23 weeks of gestation. She had no prior history of malignancy during her previous pregnancies, both of which were delivered vaginally without complications. In May 2023, the patient underwent a core needle biopsy at RS Islam, which confirmed grade 2 invasive ductal carcinoma of the breast. She had received two cycles of chemotherapy since August 2024.

The referral was prompted by the diagnosis of advanced-stage breast carcinoma complicated by a history of hypovolemic shock secondary to malnutrition. At presentation, the patient complained of progressive dyspnea and a persistent cough, without accompanying fever or chest pain.

Examination and Diagnosis

Physical examination and imaging studies indicated significant disease progression. A chest radiograph revealed a septated right pleural effusion, and a pleural drain was subsequently inserted. Cytological examination of the pleural fluid demonstrated malignant adenocarcinoma cells. Immunohistochemical analysis of the tumor tissue confirmed Estrogen Receptor (ER)–negative status.

Serial antenatal ultrasonography initially showed appropriate fetal growth; however, subsequent surveillance in the early third trimester identified the development of Intrauterine Growth Restriction (IUGR).

Management

A Multidisciplinary Team (MDT) comprising hematology–oncology, surgery, perinatology, psychiatry, and obstetrics–gynecology (including residents and consultants in fetomaternal and social obstetrics) was involved in the patient's care. One of the primary challenges was aligning the medical management plan with the perspectives and concerns of the patient and her family.

A holistic, evidence-based problem-solving approach was adopted through comprehensive case reviews and joint conferences. The MDT recommended continuation of the pregnancy with conservative management until the gestational age was considered viable for extrauterine life, taking into account neonatal survival rates at RSCM. Family meetings, facilitated by fetomaternal and social obstetrics specialists, were conducted to address differing viewpoints.

The patient and her family expressed significant anxiety and initially favored early termination of the pregnancy. However, the MDT employed a holistic counseling approach to support continuation of the pregnancy. Counseling emphasized the medical rationale for maintaining the pregnancy, selection of chemotherapy regimens considered safe during pregnancy, and the management of psychosocial barriers, including financial concerns related to treatment. This comprehensive approach ultimately led to a shared decision to continue the pregnancy.

Outcome

A planned cesarean section was performed at 31 weeks of gestation. A male neonate was delivered with a birth weight of 1,355 grams. Apgar scores were 6 and 8 at 1 and 5 minutes, respectively, and the Ballard maturational assessment was consistent with 32 weeks of gestation. The newborn was admitted to the Neonatal Intensive Care Unit (NICU). At discharge, both the mother and the infant were clinically stable. The mother continues outpatient follow-up with the Hematology–Oncology Department, while the infant receives routine pediatric follow-up care.

DISCUSSION

Summary of Key Findings

This case illustrates the multidisciplinary management of advanced grade 2 estrogen receptor–negative invasive ductal carcinoma diagnosed during pregnancy, complicated by pleural effusion, hypovolemic shock secondary to malnutrition, and intrauterine growth restriction (IUGR). This management framework successfully balanced standard oncological care with fetal well-being, allowing appropriate cancer treatment without pregnancy termination. The case highlights the critical role of clear communication and shared decision-making in aligning medical evidence with patient values to achieve optimal outcomes for both mother and child.

Literature Comparison

Breast cancer remains one of the leading causes of mortality among women worldwide, and despite advances in early detection and treatment, prevention continues to be a major public health priority.⁶ A cohort study involving 1,170 patients reported that 67% received chemotherapy during pregnancy, with a recent increasing trend in chemotherapy administration during gestation.² The five-year survival rate reaches approximately 80% in women under 50 years of age, reflecting overall prognostic improvement, although outcomes remain poorer in very young patients.⁷ The present case is noteworthy because fewer than 10% of women are diagnosed with breast cancer during pregnancy.⁸

Diagnosis of breast cancer during pregnancy is frequently delayed due to physiological breast changes.⁶ These changes increase the risk of misinterpreting normal findings as pathological, leading to both false-positive and false-negative assessments. Diagnostic challenges are further compounded by the limited use of mammography in pregnant women, particularly for detecting non-palpable lesions.⁹ Given these challenges, a comprehensive diagnostic approach is required. Any breast mass detected during pregnancy should prompt referral from an obstetrician–gynecologist to a hematology–oncology service. Palpable lesions should initially be evaluated using ultrasonography and mammography with appropriate fetal shielding, including assessment of the contralateral breast to determine disease extent.⁷ Diagnostic modalities such as mammography, ultrasonography, magnetic resonance imaging (MRI), and tissue biopsy play key roles in early detection and definitive diagnosis.¹⁰

Because ionizing radiation is potentially teratogenic, its use during pregnancy should be minimized. Although deterministic radiation effects such as fetal growth restriction, congenital malformations, fetal demise, and neurodevelopmental impairment are dose-dependent, radiation exposure from diagnostic procedures generally remains well below established safety thresholds.¹¹

Once breast cancer is diagnosed during pregnancy, referral to a specialized center with relevant expertise is recommended. Management should involve a multidisciplinary team comprising oncologists, obstetricians, and perinatologists, with active patient and family participation in shared decision-making.³ This collaboration is essential to balance maternal benefit against fetal risk and to determine optimal treatment timing. Accurate gestational age assessment is crucial, as it directly influences therapeutic options and risks of fetal growth disturbance and congenital anomalies.¹¹ Consequently, close collaboration with fetomaternal consultants is essential for ongoing fetal growth surveillance.

There is no scientific evidence demonstrating that pregnancy termination improves maternal prognosis in breast cancer. Abortion does not confer a survival benefit and is generally not recommended. If there is no medical indication that pregnancy contributes to disease progression, continuation of pregnancy is advised. However, termination may be considered in cases of

advanced-stage disease (stage III–IV), high-grade tumors, or aggressive cancers diagnosed early in the first trimester, given the high teratogenic risk associated with intensive chemotherapy during early organogenesis.¹² Decisions regarding termination must also incorporate medicolegal and ethical considerations.

In Indonesia, medical ethics emphasize protection of life from conception until death, prohibiting abortion without clear medical indications that threaten maternal or fetal life.¹³ This principle aligns with Indonesian Government Regulation No. 28 of 2024, Article 120, which mandates that abortion decisions be based on multidisciplinary medical team deliberations, particularly in cases endangering maternal health or involving severe, non-correctable fetal anomalies.¹⁴

Surgical management of breast tumors can be safely performed during pregnancy, although procedures in the first trimester carry a slightly increased risk of miscarriage. Cesarean delivery may increase maternal morbidity and pregnancy-related complications; therefore, surgical indications must be carefully justified and discussed within the multidisciplinary team. Surgery should not be delayed when clinically indicated, provided that maternal and fetal monitoring is optimized, particularly after 25 weeks of gestation.³ Chemotherapy administered during the second and third trimesters is considered relatively safe because organogenesis has been completed.¹⁵ Nevertheless, it is associated with increased risks of intrauterine growth restriction related to both tumor characteristics and chemotherapy toxicity. Reported fetal risks include preterm birth, low birth weight, transient neonatal tachypnea, and transient leukopenia. The incidence of congenital malformations following second- and third-trimester chemotherapy is approximately 3.8%, while preterm delivery rates range from 5% to 8%. Most exposed children demonstrate normal neurological development, although long-term behavioral and emotional outcomes require further investigation.¹²

A prospective cohort study following 24 pregnant women with breast cancer over eight years demonstrated favorable outcomes with individualized treatment involving surgery, chemotherapy, or both.¹⁶ European Society for Medical Oncology (ESMO) guidelines recommend chemotherapy regimens including fluorouracil (1,000 mg/m²), doxorubicin (50

mg/m²), and cyclophosphamide (500 mg/m²), administered every 3–4 weeks after the first trimester.³ Management under multidisciplinary supervision resulted in minimal pregnancy and delivery complications.^{3,16} Expert clinical judgment derived from multidisciplinary discussions plays a critical role in treatment planning.¹⁷ Hematology-oncology specialists indicate that chemotherapy regimens including doxorubicin and cyclophosphamide may be administered during the second trimester, particularly in patients with pleural effusion. Risk counseling remains essential, as chemotherapy-associated febrile neutropenia may increase the risk of neonatal sepsis. Multidisciplinary conferences enhance communication, coordination, and individualized treatment planning by integrating tumor biology, comorbidities, and patient-specific social factors.¹⁷

Clinical Significance

In this case, the multidisciplinary conference concluded that chemotherapy could be administered with strict fetal growth surveillance by the obstetrics and gynecology team, consistent with cohort evidence supporting chemotherapy use during the second and third trimesters with minimal delivery complications.¹⁶ Routine ultrasonographic monitoring including fetal growth assessment, amniotic fluid volume evaluation, and Doppler studies was recommended starting at 22–24 weeks of gestation, with fetal well-being assessments performed every two weeks during chemotherapy.¹⁸ Decisions regarding pregnancy termination were guided by perinatology readiness and neonatal survival data from RSCM. In 2024, survival rates exceeded 73% for infants born after 28 weeks of gestation, compared with 57% at 26–27 weeks, reinforcing the importance of prolonging pregnancy whenever feasible.¹⁹

Prematurity remains a major contributor to neonatal morbidity and mortality, with long-term risks including cerebral palsy, cognitive impairment, and academic difficulties.²⁰ Despite medical recommendations, the patient initially requested pregnancy termination at 23 weeks, believing it would improve chemotherapy outcomes. However, multidisciplinary evaluation demonstrated a neonatal survival rate of only 16% at that gestational age, leading to a recommendation to continue the pregnancy beyond 28 weeks. This disagreement resulted in

significant psychological distress, necessitating psychiatric and social obstetrics support.

Cancer during pregnancy generates profound psychological conflict between maternal and fetal well-being, requiring holistic, patient-centered counseling that integrates medical evidence, patient values, family support, and multidisciplinary facilitation through structured family meetings.²¹⁻²³ Holistic problem-solving is central to evidence-based clinical decision-making, integrating expert opinion, the best available evidence, and patient values.²⁴ Effective counseling promotes shared understanding and informed decision-making through both information exchange and emotional support.²³

Management of breast cancer during pregnancy follows structured ethical decision-making principles.²⁵ These include identifying decision-makers, gathering objective clinical data, evaluating alternative treatment options, and aligning recommendations with patient values while respecting professional and ethical standards. At RSCM, these principles were implemented through multidisciplinary conferences. Ethical principles of beneficence and non-maleficence guided decisions regarding conservative management versus pregnancy termination, with survival data informing timing considerations.²⁵ Autonomy and justice were upheld through patient and family involvement in shared deliberations, ultimately achieving consensus to maintain the pregnancy until 28–31 weeks of gestation. This approach reflects the mutual participation model of patient-centered care.²⁶

Overall, this case provides an important learning experience, underscoring that breast cancer management during pregnancy requires coordinated multidisciplinary collaboration and holistic analysis, particularly from a social obstetrics and gynecology perspective.²⁵

Limitations

This report is a single-case that may limit generalizability, there is also limited long-term neurodevelopmental follow-up of the infant, and reliance on institutional survival data that may not generalize to other centers.

CONCLUSION

This case highlights that a coordinated, patient-centered, holistic multidisciplinary team

approach is essential for managing advanced breast cancer during pregnancy. This framework successfully balances standard oncological care with fetal and maternal well-being, allowing for treatment without necessitating pregnancy termination. It underscores the critical role of clear communication and shared decision-making in aligning medical evidence with patient values to achieve optimal outcomes for both mother and child.

CONFLICT of INTERESTS

No Conflicts of Interest Regarding to This Manuscript.

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