Case Report

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Contrasting Outcomes in Two High-Risk Pregnancies: A Clinical Experience in Diagnostic Delay vs. Multidisciplinary Success

Maliheh Ghasemi Tirtashi[1], Aghdas Ebad Jamkhane[1], Marzieh Zamaniyan[1], Negin Nezhad Naderi[2], Keihan Shabankhani[3*]

1.Sexual and Reproductive Health Research Center, Mazandaran University of Medical Sciences, Sari, Iran.
2.Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran.
3.Department of Anesthesiology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran.

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ABSTRACT

Pregnancy significantly alters the clinical presentation of various diseases, often masking or mimicking symptoms of serious underlying conditions. In high-risk pregnancies, overlooking nonspecific symptoms may delay the diagnosis of life-threatening disorders, resulting in poor maternal and fetal outcomes. This report describes two rare cases of pregnancy in women with complex medical histories. The first patient, a 34-year-old at 30 weeks' gestation, was diagnosed with invasive ductal breast cancer with extensive bone and pulmonary metastases, as well as hypercalcemia-induced renal failure. Despite emergency dialysis, respiratory support, spinal anesthesia for delivery, and coordinated care from nephrology, endocrinology, obstetrics, and anesthesiology teams, her condition worsened postpartum. She developed respiratory acidosis and decreased consciousness, and required intubation. Although initially stabilized and her malignancy confirmed via biopsy, she progressed to multi-organ failure and died from asystole 5 days postpartum, on January 22, 2025, despite resuscitation. The second patient, also 34, had a history of repaired congenital heart disease and right-sided invasive ductal carcinoma. Against medical advice, she pursued a high-risk spontaneous pregnancy, closely monitored by a multidisciplinary team. Her hypertension and gestational diabetes were managed with medications and insulin, respectively. At 37 weeks, she underwent elective cesarean section at a tertiary center, delivering a healthy boy with normal weight and Apgar scores of 9 and 10. She was discharged hemodynamically stable from the ICU, approved for breastfeeding, and scheduled to start chemotherapy on March 10, 2025. These contrasting cases demonstrate how outcomes in high-risk pregnancies are profoundly influenced by timely diagnosis and coordinated care. Nonspecific symptoms during pregnancy should prompt thorough evaluation, especially in the absence of antenatal care. A structured, team-based approach can significantly improve maternal and neonatal outcomes, even in medically complex scenarios.

*** Corresponding Author:**
Keihan Shabankhani
Address: *Department of Anesthesiology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran.*
E-mail: *kshabankhani@gmail.com*

Introduction

Pregnancy is a unique physiological condition that can have complex effects on the functioning of various body systems, especially in women with underlying chronic and high-risk diseases [1]. In such cases, the interaction between the hormonal, hemodynamic, and immune mechanisms of pregnancy and pre-existing diseases can exacerbate pathophysiology, lead to unpredictable outcomes, and significantly increase maternal and fetal morbidity and mortality [2, 3]. Congenital heart diseases, despite significant advancements in childhood surgical treatments, continue to have substantial functional effects in adulthood [4]. Residual disorders, such as valve stenosis, left ventricular failure, hypertension, and ascending aortic involvement, can become clinically unstable during pregnancy due to increased plasma volume, heart rate, and cardiac output [5]. According to the WHO classification, women with moderate to severe aortic stenosis or aortic dilation in the context of bicuspid valves are at high risk and require continuous monitoring and intensive care approaches [6].

On the other hand, breast cancer, as the most common malignancy associated with pregnancy, occurs in approximately 1 in every 3,000 to 10,000 pregnancies. Its diagnosis is often delayed, as physiological changes in breast tissue during pregnancy can mask clinical findings [7]. The main challenge in these patients is making effective treatment decisions while preserving fetal health. Choosing the appropriate time for surgery, deciding whether to delay or start chemotherapy, and evaluating the impact of these interventions on fetal outcomes are some of the key concerns in managing treatment in these situations [8, 9]. Moreover, insulin-dependent gestational diabetes, as one of the most important metabolic disorders during pregnancy, can lead to outcomes such as fetal macrosomia, shoulder dystocia, increased cesarean section rates, neonatal respiratory failure, and neonatal hypoglycemia if not well controlled [10]. Accurate management of insulin and dietary regimens, daily blood glucose monitoring, and decision-making regarding the optimal time for pregnancy termination are integral parts of care for these patients [11]. To date, only a few reports have documented the simultaneous occurrence of these three conditions in a single pregnancy. Here, we present two contrasting cases one with a fatal outcome due to delayed diagnosis and another with successful management through structured multidisciplinary care. These cases underscore the importance of high clinical suspicion, early diagnostic vigilance, and interdisciplinary collaboration in navigating complex pregnancies.

Case Presentation

Case 1: Diagnostic Delay with Fatal Outcome

A 34-year-old primigravida at 30 weeks' gestation presented to the emergency department with progressive drowsiness, reduced consciousness, and worsening dyspnea. She had no history of prenatal or antenatal care. On examination, she was lethargic with bilateral wheezing. Vitals: BP 120/80 mmHg, HR 98 bpm, T 36.5 °C, SpO_2 92%. Two months earlier, she had been hospitalized with dyspnea and diagnosed with asthma. Cardiology evaluation was unremarkable; pulmonology initiated duolin (ipratropium and salbutamol) and azithromycin. Infectious disease specialists administered remdesivir (later discontinued after a negative COVID-19 PCR), dexamethasone, and meropenem. She also reported back pain, for which neurosurgery suggested MRI, which she declined. She was discharged after partial respiratory improvement.

On this admission, due to worsening mental status, she was transferred to the ICU. Labs showed Hb 9.6 g/dL, WBC 13.9 × 10^3/µL, platelets 130 × 10^3/µL, BUN 144 mg/dL, Cr 2.7 mg/dL, Ca 18.6 mg/dL, and albumin 2.9 g/dL. ABG revealed primary metabolic alkalosis with respiratory compensation. (pH 7.43, PCO_2 50.9 mmHg, HCO_3 33 mEq/L). Findings indicated hypercalcemia and renal failure, suggestive of paraneoplastic syndrome or metastatic disease. Emergency dialysis was started, and endocrinology advised further workup, including vitamin D, iPTH, and 24-hour urinary calcium. Imaging showed left lower lobe consolidation, ground-glass opacities, pleural effusions, cardiomegaly, and diffuse atelectasis on chest X-ray and CT (Figure 1). Lytic lesions were seen in the thoracic skeleton and calvarium (suggesting skull

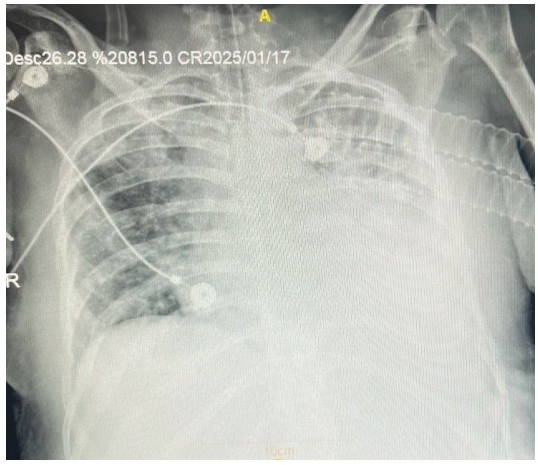

Fig. 1. Left lower lobe consolidation and diffuse atelectasis

metastases). CT also revealed bilateral axillary and mediastinal lymphadenopathy, a perifissural nodule in the LLL, and widespread skeletal metastases. Breast ultrasound showed multiple hypoechoic, irregular, spiculated, and microlobulated masses in both breasts, classified as BIRADS-5. The largest measured 15 × 25 mm (left) and 15 × 10 mm (right). Left axillary nodes appeared abnormal.

On January 17, 2025, she entered labor with regular contractions and 1-finger cervical dilation. A multidisciplinary team opted for vaginal delivery under spinal anesthesia during dialysis. She received supportive treatment, including KCl, pamidronate, meperidine, and dexamethasone. A 1,320 g male neonate was delivered with Apgar scores of 3 and 7. Postpartum, the patient developed respiratory acidosis and worsening consciousness. Neurology recommended brain MRI, but due to respiratory distress, she was intubated and placed on CPAP. Once stabilized, interventional radiology performed a breast biopsy, confirming invasive ductal carcinoma grade II/III (Nottingham score 6/9). Given her malignancy, multiorgan involvement, hypercalcemia, and renal failure, hematology-oncology was consulted. However, on January 22, 2025, at 00:10, she experienced bradycardia and asystole. Despite 50 minutes of CPR, she passed away.

Case 2: Multidisciplinary Success

A 34-year-old G1P0 woman with a spontaneous pregnancy at 37 weeks was referred for delivery under multidisciplinary care due to complex cardiac and oncologic comorbidities. She had a history of congenital heart disease diagnosed at age six, requiring surgical repair of aortic coarctation. Echocardiography on January 18, 2025, revealed a dilated ascending aorta, bicuspid aortic valve, moderate aortic stenosis and insufficiency, mild LVH, EF 50%, mild tricuspid regurgitation, moderate pulmonary insufficiency, and normal pulmonary artery pressure. She also had longstanding hypertension, controlled with amlodipine pre-pregnancy and methyldopa during pregnancy, with BP remaining around 120/80 mmHg.

Her oncologic history included a suspicious right breast mass detected in March 2024. Ultrasound showed a 24 × 11 mm lesion (BIRADS-4a), and core needle biopsy confirmed DCIS. Immunohistochemistry was positive for P63 and SMA. A modified radical mastectomy was performed on September 20, 2024, revealing invasive ductal carcinoma (2 cm, upper outer quadrant, node-negative). Chemotherapy was postponed until after delivery. The pregnancy, conceived naturally despite prior medical advice against it, was further complicated by gestational diabetes, managed with Novorapid (2 units before meals) and Levemir (11 units at night). Glycemic control was optimized during a short hospital stay in December 2024. She also received aspirin, enoxaparin (prophylactic), methyldopa, amlodipine, prenatal vitamins, and two doses of betamethasone for fetal lung maturation.

On the planned date and with cardiology approval, an elective cesarean section was performed at a tertiary center. A healthy male infant weighing 3,200 g was delivered with Apgar scores of 9 and 10. Prenatal ultrasound and fetal echocardiography were normal. Postoperatively, the mother remained stable in the ICU and was discharged in good condition. Follow-up showed no cardiac or diabetic complications postpartum. Chemotherapy began on March 10, 2025, per oncology protocol. Breastfeeding was permitted given the delayed start of chemotherapy. The patient remained hemodynamically stable, with well-controlled blood pressure and glucose levels, and continued cardiology follow-up.

Discussion

These two clinical experiences represent contrasting outcomes in the context of high-risk pregnancies complicated by serious pre-existing conditions. The first case, unfortunately, highlights the consequences of a delayed diagnosis in a patient who presented with progressive drowsiness, dyspnea, and altered mental status. These nonspecific symptoms were initially attributed to asthma and respiratory infection during a previous hospitalization, leading to a missed opportunity for early oncologic evaluation. Upon re-admission, the discovery of severe hypercalcemia, acute renal failure, and widespread lytic lesions raised the suspicion of metastatic disease, which was later confirmed as invasive ductal carcinoma with osseous involvement [7-9]. Hypercalcemia of malignancy, while rare in pregnancy, is a life-threatening emergency often associated with advanced cancers and must be considered in cases of altered mental status and renal dysfunction, particularly in the absence of prior antenatal care or baseline health assessments [8, 9]. The advanced nature of the disease in this patient, coupled with the systemic consequences of hypercalcemia and organ failure, left limited room for therapeutic intervention, and despite emergency dialysis and successful preterm delivery, the patient succumbed to multiorgan dysfunction within days.

In contrast, the second case demonstrates how structured, anticipatory, and multidisciplinary

Table 1. Comparative Overview of Cases

Feature	Case 1	Case 2
Age	34 years	34 years
Gestational Age	30 weeks	37 weeks
Key Comorbidities	None (no antenatal care)	Congenital heart disease, Breast cancer, GDM
Diagnostic Timeline	Delayed	Early(pre-pregnancy cancer diagnosis)
Delivery	Vaginal (preterm)	Elective cesarean (term)
Neonatal Outcome	1320 g, Apgar 3 & 7	3200 g, Apgar 9 & 10
Maternal Outcome	Died 5 days postpartum	Stable discharge; planned chemotherapy
Key Factor	Delayed diagnosis	Multidisciplinary coordination

management can lead to a favorable maternal and neonatal outcome, even when multiple high-risk conditions coexist. This patient, with a background of corrected congenital heart disease, active breast cancer, and insulin-dependent gestational diabetes, was closely followed from early in her pregnancy. Cardiac evaluations indicated moderate aortic stenosis and insufficiency with preserved systolic function, allowing for pregnancy continuation under strict hemodynamic monitoring [4-6]. Her breast malignancy was diagnosed in the early stages and surgically managed before delivery, with chemotherapy appropriately postponed to the postpartum period in accordance with oncologic safety guidelines [7, 8]. Glycemic control was achieved with a basal-bolus insulin regimen and adjusted through inpatient monitoring during the third trimester, preventing metabolic or fetal complications [10, 11]. Delivery was planned at 37 weeks via elective cesarean section, a decision made to minimize cardiovascular stress and coordinate oncologic planning. The result was a healthy neonate and a stable maternal course.

These cases highlight the critical importance of early recognition and proactive coordination in managing high-risk pregnancies. The first case illustrates how the absence of routine prenatal care, diagnostic delays, and misinterpretation of symptoms can lead to missed therapeutic windows and preventable maternal mortality. Meanwhile, the second case provides evidence that even in the presence of complex comorbidities, favorable outcomes are achievable through timely diagnosis, continuous risk assessment, and a collaborative care model (Table 1). In both cases, the complexity of decision-making required input from multiple specialties, underscoring the necessity of interdisciplinary communication in perinatal medicine.

In clinical practice, these findings support several core principles. First, clinicians must remain vigilant in evaluating nonspecific symptoms during pregnancy and maintain a broad differential diagnosis. Second, paraneoplastic syndromes, such as hypercalcemia, must be recognized early to initiate life-saving interventions. Third, pregnancy in patients with significant cardiac or oncologic histories is no longer an absolute contraindication but instead a scenario requiring tailored, evidence-based management. Ultimately, these experiences demonstrate that the difference between life and death in high-risk pregnancies often lies not in the underlying pathology alone but in how and when it is addressed by the medical team.

Brief lessons from the case

These two cases provide a valuable contrast in the management of high-risk pregnancies complicated by severe underlying conditions. The first case underscores how delayed recognition of serious non-obstetric symptoms such as altered mental status and dyspnea can obscure the diagnosis of advanced metastatic disease. In this patient, the absence of prenatal care and the initial misinterpretation of symptoms as respiratory or psychiatric in origin delayed critical investigations. Ultimately, the discovery of severe hypercalcemia and metastatic lesions confirmed the diagnosis of invasive breast cancer at a stage too advanced for meaningful oncologic intervention, leading to maternal death despite emergency delivery and supportive care.

Conversely, the second case demonstrates the positive impact of proactive, interdisciplinary care. The patient, despite having three major risk factors congenital heart disease, recent breast cancer surgery, and insulin-dependent gestational diabetes achieved a successful pregnancy outcome. Close monitoring by cardiology, oncology, endocrinology, and obstetrics teams allowed for optimal timing of delivery, prevention of peripartum complications, and safe deferral of chemotherapy until after birth. This structured approach ensured both maternal stability and neonatal well-being, highlighting the importance of a coordinated care model.

Conclusion

Together, these clinical experiences illustrate how the outcome of complex pregnancies depends not only on the nature of the underlying diseases but also on the timing and quality of care. While advanced maternal illness may limit therapeutic options and lead to irreversible outcomes, early multidisciplinary involvement can mitigate risks and support favorable results. These cases reinforce the need for high clinical vigilance in interpreting nonspecific symptoms during pregnancy, the essential role of prenatal care, and the life-saving potential of early, collaborative decision-making in high-risk obstetric settings.

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Conflict of Interests

The authors declare that they have no competing interests.

Ethical statement

Ethical approval was not required for this case report, as it involved the retrospective analysis of anonymized patient data without any intervention or experimentation.

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