



Breast Cancer during Pregnancy: A Case Report and Literature Review

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Abstract

Breast cancer is the most common and deadliest cancer in women. The association of breast cancer and pregnancy is relatively rare and has a poor prognosis due to often late diagnosis and a high potential for lymphatic dissemination. It poses many diagnostic, therapeutic, prognostic and psychological problems. We report a case of ductal carcinoma of the breast associated with pregnancy in a 27-year-old patient. The diagnosis was late as well as the care which began 4 weeks after delivery. Obstetrically, a caesarean section was performed at 36 weeks. The perinatal prognosis was good; however, the mother died after the first course of chemotherapy.

Subject Areas

Gynecology & Obstetrics, Oncology, Women's Health

Keywords

Breast Cancer, Pregnancy, Chemotherapy, Multidisciplinary Consultation, Prognosis

1. Introduction

Breast cancer is the most common and deadliest cancer in women in Niger and in the world. It represents a real public health problem in all countries. Cancers diagnosed during pregnancy or within a year after delivery are considered pregnancy-associated breast cancers [1]. The association of breast cancer with pregnancy is a rare event with a frequency of 1/3000 to 1/10,000 pregnancies [2] [3] [4]. However, it should be noted that the frequency of the association of breast

cancer and simultaneous pregnancy is increasing due to the increasingly advanced age of pregnant women and an increase in the incidence of breast cancer, including in young women of childbearing age [1]. The occurrence of breast cancer in pregnant women poses many diagnostic, therapeutic, prognostic and psychological problems [1]. We report a case of breast cancer associated with pregnancy in a 27-year-old patient cared for in the obstetrics gynecology department of the Issaka Gazobi maternity hospital in Niamey in the Republic of Niger.

2. Case Report

It was a 27-year-old patient G8P7, two living children and five deceased; carrier of an ongoing pregnancy of 32 weeks of amenorrhea and resided in Niamey. She consulted on February 1st 2022 at the Issaka Gazobi maternity hospital in Niamey for a painful swelling of the right breast. The onset dates back to 6 months with the occurrence of an inflammatory mass in the right breast for which she undertook treatment of an unknown nature without improvement. She had menarche at 14-year-old. There was no history of breast disease in her family. The examination noted a good general condition, WHO stage 0, right carcinomatous mastitis, painful on palpation, with fixed ipsilateral axillary adenopathies (**Figure 1**). Histological examination noted an infiltrating ductal adenocarcinoma of the right breast, SBR II (3 + 2), with axillary lymph node metastases. An extension assessment made of an abdominopelvic ultrasound and a chest X-ray was normal. The dosage of hormone receptors (not available in our context) and tumor markers was not performed. The obstetrical examination found a fundal height of 29 cm, fetal heart sounds present and regular at 146 beats/minute. Vaginal examination revealed a long posterior and closed cervix. The obstetric ultrasound objectified an evolving monofetal pregnancy of 32 weeks without anomaly of the fetus or the annexes. Overall, it was an infiltrating ductal carcinoma of the right breast, T4dN2M0 associated with an evolving single-fetal pregnancy of 32 weeks. We recommended the preservation of the pregnancy until 36 weeks of amenorrhea where she benefited from a cesarean section. A healthy newborn

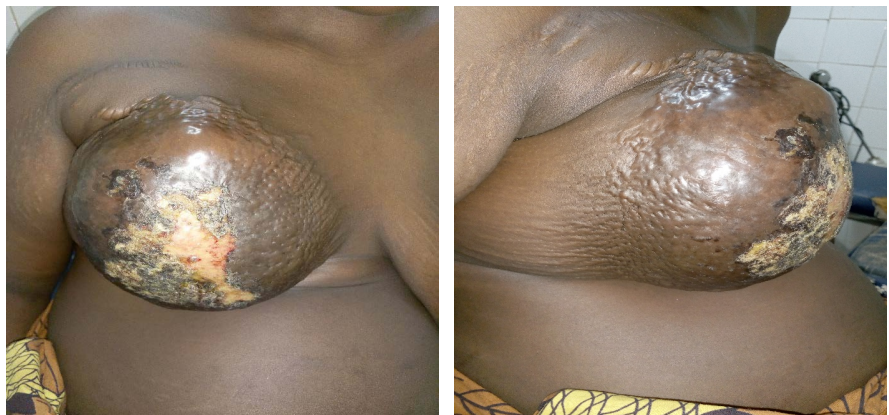


Figure 1. T4dN2M0 inflammatory breast cancer associated with pregnancy of 32 weeks.

weighing 2570 g is extracted. The patient is transferred to the Niamey cancer treatment center for further treatment. Neoadjuvant chemotherapy according to the FEC protocol was instituted. Four weeks after the caesarean section, she received the first course of well-tolerated chemotherapy. The patient died a week later at home in an unspecified context.

Informed consent: Written informed consent to publish this case and use anonymized image was obtained from the legal guardian of the patient after her death.

3. Discussion

The association of breast cancer and pregnancy is a rare but not exceptional situation. It is estimated that 7% to 14% of breast cancers that occur before the age of 45 coincide with pregnancy or breastfeeding [1]. In France, 200 to 300 cases of breast cancer in pregnancy are diagnosed each year [1]. In Tunisia, it concerns 5.8% of breast cancers [4]. In Niger, no previous study has been carried out on the association of breast cancer and pregnancy. Our patient is very young, 27-year-old, but with no history of breast cancer in her family. According to literature data, pregnancy-associated breast cancer occurs in young women, often with a family history of cancer [1] [2] [4] [5] [6]. The average age at diagnosis is between 33 and 36 years in France [1]. Hajji *et al.* [4] report an average age of 34 years in Tunisia. The diagnosis of breast cancer during pregnancy is difficult and late with a delay of 2 to 15 months [1]. This delay is explained by the anatomical and physiological modifications of the breast making it more difficult for the patient to detect a mass during a clinical examination, and on the other hand by the negligence of certain breast examination practitioners, content with monitoring the pregnancy, and their unjustified reluctance to request additional potentially irradiating screening examinations [4]. Emphasis should be placed on the examination of the lymph nodes, as this can promote the detection of suspicious lymphadenopathy when there is no detectable clinical abnormality in the breasts [1]. Paraclinically, mammography can be performed during pregnancy with adequate protection of the stomach and pelvis [7]. An additional ultrasound must be imperative. Ultrasound makes it possible to distinguish a solid mass from a cystic mass detected or not on mammography [8]. Fine needle aspiration and microbiopsy are essential and MRI can be considered [1]. However, the place of MRI during pregnancy is debated and is not systematically recommended [2] [9]. In our patient the diagnosis of cancer was made late after six months of evolution. It was a ductal carcinoma of the inflammatory type with lymph node invasion and inoperable at the time of diagnosis. The diagnosis was made on the basis of clinical examination and anatomo-pathological examination. In our patient, the dosage of hormone receptors was not performed because of the unavailability of this examination. Indeed, Niger currently only had four anatomical pathology laboratories for the whole country with limited resources that did not allow for the determination of hormone receptors. According to data from

the literature, hormone receptors are negative in 50% to 70% of cases of breast cancer associated with pregnancy [1]. The extension assessment essentially consists of a chest X-ray and an abdominal ultrasound [6]. In our patient, this extension assessment was normal. Concerning the treatment, the stakes of the care will be to balance the wish to preserve the pregnancy by informing the patient of the risks for her and the fetus. It will be necessary to propose an optimal treatment for the mother while avoiding as much as possible the risks for the fetus, in particular the risks of malformation [1]. Management must therefore take into account the age of pregnancy at the time of diagnosis, the preferences of the patient and the stage of the disease. Termination of pregnancy formerly practiced should no longer be systematic, because it does not improve the prognosis [4] [10]. Termination of pregnancy may however be proposed when pregnancy compromises the initiation of treatment and this therapeutic interruption will be carried out in most cases when the diagnosis of breast cancer occurs in early pregnancy [1] [10]. Surgery respecting the same indications as outside pregnancy is always possible but is often more hemorrhagic than outside pregnancy [1]. The tumor was inoperable at the time of diagnosis in our patient. Radiation therapy is contraindicated during pregnancy. It is therefore necessary to be able to postpone radiotherapy until postpartum, which sometimes leads to delays that may be considered too long [1]. Chemotherapy should be started after the end of the first trimester. It is generally proposed not to perform chemotherapy after the thirty-fifth week of pregnancy or within 3 weeks before delivery in order to avoid hematological complications during delivery [1] [4]. In our observation, the cancer was diagnosed at 32 weeks or 4 weeks before delivery. We therefore postponed chemotherapy until postpartum. Obstetrically, vaginal delivery is preferred. It allows less maternal toxicity, less treatment delays if it is necessary to resume chemotherapy after childbirth. Indeed in our patient, the caesarean section had led to a delay in the treatment since it was impossible to carry out the chemotherapy or the radiotherapy before the healing of the wounds. Chemotherapy was thus started 4 weeks after delivery, which led to a therapeutic delay of 8 weeks. Targeted therapies offer great hope in improving the management of breast cancer. However, this new therapeutic alternative of the future is not yet available in our regions with low medical resources. Concerning the prognosis, the maternal prognosis does not seem different from that of a non-pregnant woman with equal tumor size and equal lymph node extension [1]. However, the prognosis seems less good for more advanced tumours, with a delay in diagnosis which is often around 6 months [1] as in the case of our patient. The perinatal prognosis is linked to the foeto-toxic effects of the treatment. The main risks are malformation, most often iatrogenic prematurity, and hypotrophy explained by prematurity but also by the deterioration of the general maternal condition [1]. However, the fact of postponing the treatment increases the oncological risk of progressive progression, trans-placental metastasis [11] [12]; and death of the mother [11] [13]. In our observation, no obstetrical complication was observed,

but the postponement of postpartum care and delivery by cesarean section led to a therapeutic delay which resulted in the death of the patient.

4. Conclusion

The association of breast cancer and pregnancy is relatively rare and has a poor prognosis due to often late diagnosis and a high potential for lymphatic dissemination. It poses a diagnostic and therapeutic problem and a major psychological repercussion for the pregnant woman, the couple and for the medical teams. Management is multidisciplinary and should not wait until the end of the pregnancy.

Conflicts of Interest

The authors declare no conflicts of interest.

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