Cancer in Pregnancy

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KEYWORDS

- Gestational breast cancer • Cervical cancer in pregnancy
- Colon cancer in pregnancy • Hematologic cancers in pregnancy
- Lymphoma in pregnancy • Leukemia in pregnancy

KEY POINTS

- The diagnosis of cancer in the gestational period poses many difficult decisions for which multiple clinical, personal, and ethical factors need to be considered for treatment planning.
- The incidence of most gestational cancers is increasing owing to the fact that many women are deciding to delay childbearing.
- In general, most chemotherapy treatments should be delayed until the second and third trimesters to avoid fetal toxicity.
- Pregnancy should not be a reason to delay a diagnostic workup for symptoms concerning for cancer.

INTRODUCTION

Because more women are waiting to have children until later in life, cancer diagnoses in pregnancy are becoming more common. Gestational cancer is defined as a new cancer diagnosis during pregnancy or in the first year postpartum.[1] The most common cancers in reproductive aged women are breast, melanoma, thyroid, cervical, and lymphomas, listed in order of decreasing frequency.[2] The diagnosis of cancer in the gestational period poses many difficult decisions for which multiple clinical, personal, and ethical factors need to be considered for treatment planning. We review the pertinent information for some of the more common gestational cancers, as well as some less common, but with increasing prevalence in the United States.

BREAST CANCER

Gestational breast cancer is considered any breast cancer occurring either during pregnancy, in the year after delivery, or anytime during lactation. Breast cancer is

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one of the most common pregnancy-associated cancers. Pregnancy-associated breast cancer occurs in 20% of breast cancer patients younger than 30 years of age.[3] The incidence is only 0.4% of all breast cancers diagnosed in women aged 16 to 49, however the rate is increasing.[1] This increase is most likely secondary to delaying the age at which women begin childbearing.

The majority of gestational breast cancer is infiltrating ductal carcinoma. Gestational breast cancer is more likely to be poorly differentiated and have metastases at the time of diagnosis when compared with nonpregnant women.[4] There is typically a lower incidence of estrogen receptor–positive, progesterone receptor–positive breast cancer diagnosed during pregnancy and the postpartum period, whereas human epidermal growth factor 2–positive tumors seem to be equal in incidence to that of nonpregnant women.[5]

A diagnosis of breast cancer during pregnancy or lactation is often more challenging given the normal physiologic changes in the breast during these periods.[6] For example, rapid enlargement and hypertrophy during pregnancy and the postpartum period can distort the anatomy of the breast. Often the diagnosis is delayed by pregnancy and lactation; hence, the diagnosis is made at more advanced stages during pregnancy.[7] Interestingly, a breast cancer diagnosis during lactation can be detected by the milk rejection sign, in which the nursing infant will refuse to nurse from the cancerous side.[2] Any breast mass persisting for more than 2 weeks during pregnancy or lactation needs to be evaluated. Even though 80% of breast biopsies during pregnancy are benign, delayed diagnosis because of pregnancy or lactation is critical to prognosis.[8]

If a breast mass is identified in pregnancy, it should be evaluated with imaging, typically a diagnostic mammogram. This imaging modality is considered safe during pregnancy and poses little known threat to the developing fetus.[9] An abdominal shield can be used, although the data supporting the added safety of this technique are minimal.[10–12] The standard dose of radiation of a mammogram (200–400 mrads) is negligible to the developing fetus.[9] A biopsy should be performed of any suspicious mass in pregnancy or lactation, regardless of mammogram results. Evaluation for advanced stage disease with imaging of the chest, liver, bone, and brain should also be performed. To image the chest during pregnancy a chest radiograph may be performed. The gravid uterus can make it difficult to rule out metastasis at the diaphragm or inferior lung lobes, in which case an MRI of the chest may be performed without contrast.[13] MRI without contrast has documented safety in pregnancy and can also be used to evaluate the abdomen, pelvis, and brain. There is limited information on the safety of PET scans during pregnancy and these generally should be avoided.[14] If there is suspicion for bone metastasis, a radionuclide (technetium-99M) bone scan can be obtained and also has a negligible radiation dose to the fetus.[9]

The treatment for pregnancy-associated breast cancer is challenging and should be managed by a maternal–fetal medicine specialist, breast surgeon, and oncologist. The data on treatment of gestational breast cancer are limited to retrospective reviews and case series.[15–18] In the past, it was thought that termination of pregnancy would improve prognosis and survival; however, this supposition has not been supported by evidence.[19] Elective termination of pregnancy can be considered in the instance of very advanced stage disease as a personal choice for the mother. In contrast, there is some evidence to suggest termination of pregnancy actually worsens the prognosis of breast cancer. However, these studies are retrospective and the data are likely skewed by the fact that more women with advanced disease choose termination of pregnancy.[19,20]