Breast Masses in Biological Females

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Palpable breast masses are common among biological females, including pregnant and lactating individuals. Although most palpable breast masses are benign, breast cancer is one of the most common cancers. In 2019, there were an estimated 3.7 million individuals living with female breast cancer in the United States. Therefore, it is important that clinicians have the knowledge to appropriately evaluate breast masses. Risk factors for female breast cancer include, but are not limited to, exposure to menopausal hormone therapy, personal or family history of breast cancer, gene variants, chest wall radiation, age of menarche younger than 12 years, obesity, and alcohol use. A systematic approach for breast mass evaluation can help clinicians identify clinical features that increase suspicion of malignancy. Physical examination, breast imaging, and tissue biopsy are key diagnostic tools. For individuals who are younger than 30 years, lactating, or pregnant, the initial evaluation includes ultrasound, whereas mammogram with ultrasound is recommended for individuals 30 years or older. Tissue biopsy is necessary to evaluate a clinically suspicious mass.

Medical History and Physical Examination

Medical history should include time frame of symptom onset, mass size and location, associated pain, skin changes, nipple changes, and nipple discharge. The physical examination should include inspection of asymmetry, swelling, masses, nipple changes, and skin changes. In the upright sitting position, the patient should place their hands behind their head, position elbows slightly back, and bring the chest forward. Then, the patient should place their hands on the hips so that the clinician can perform a physical examination of the neck, axilla, and breasts to check for lymphadenopathy, thyroid, and palpable breast abnormalities. Next, with the patient in a supine position with hands behind their head, the clinician should conduct the same physical examination of the axilla and breast. Starting with the asymptomatic breast, the clinician should begin palpation in a systematic fashion of all 4 quadrants using the flat palmar surfaces of the hand. If a mass is palpated, location should be documented using clockwise orientation and distance from the nipple, size and borders (ie, 2 × 2 cm discrete mass), consistency (ie, rubbery, mobile, fixed), and fluctuance. If lymphadenopathy is noted, size of node, consistency, and fixation should be documented. Any mass characterized by firmness, poorly defined borders, or immobility with or without skin and nipple changes (ie, dimpling, nipple retraction), bloody nipple discharge, and/or lymphadenopathy should be considered clinically suspicious; further workup is recommended (Table).

Imaging

Mammogram and ultrasound are the key imaging techniques for evaluation of a palpable mass. The Breast Imaging Reporting and Data System (BI-RADS) is used to categorize findings on breast imaging and guides clinician management. A negative finding (BI-RADS 1), in the setting of a clinically suspicious mass, always necessitates a further workup. BI-RADS 2 (benign) suggests a 0% risk of malignancy and routine screening is recommended. BI-RADS 3 (probable benign) carries a 0% to 2% risk of malignancy and requires close follow-up with imaging at 6, 12, and 24 months. There is no clear consensus on how often a clinical breast examination should be performed; it is reasonable to use a 3- to 6-month interval. If the mass increases in size or becomes suspicious, a tissue biopsy or aspiration is necessary. BI-RADS 4 has 3 subclassifications: 4a (cancer risk >2%-10%), 4b (cancer risk >10%-50%), and 4c (cancer risk >50%-95%). BI-RADS 5 is highly suspicious for cancer risk (>95%). A tissue biopsy is required for findings categorized as BI-RADS 4 and BI-RADS 5. The patient’s age determines the initial imaging selection.

Palpable Mass in Patients Younger Than 30 Years

Targeted ultrasound is preferred in initial evaluation of a palpable mass in patients younger than 30 years old. Individuals in this age group can have lumps in their breasts related to the menstrual cycle; thus, observation for 1 to 2 menstrual cycles is appropriate. If the mass persists after 1 to 2 menstrual cycles, a targeted ultrasound is the preferred next step. Targeted ultrasound findings may include a solid mass, complex cyst, complicated cyst, simple cyst, or a negative finding. A clinically suspicious mass with a negative ultrasound necessitates a diagnostic mammogram, but if low clinical suspicion, a physical examination in 3 to 6 months is acceptable. Simple cysts are benign and can be followed by routine screening. Solid masses and complicated cysts classified as a BI-RADS 3 can be managed with close follow-up, as previously described. All solid masses and complex cysts (BI-RADS 4 and 5) require tissue biopsy.

Palpable Mass in Patients Aged 30 Years or Older

Diagnostic mammogram with ultrasound is recommended for patients aged 30 years or older. A finding of BI-RADS 1 or negative mammogram with ultrasound, in the setting of a clinically palpable suspicious mass, necessitates a tissue biopsy. Findings categorized as BI-RADS 2 to 5 are managed as previously described. In general, neither magnetic resonance imaging (MRI), molecular breast imaging (MBI), or contrast enhanced mammogram (CEM) are recommended for initial assessment of a palpable breast mass. MRI demonstrates more false-positive results than digital mammography.
Pregnant or Lactating People

Pregnancy-associated breast cancer, defined as breast cancer diagnosed during pregnancy, at 1 year postpartum, or during lactation is rare but is increasing as people delay childbearing. A targeted ultrasound is the preferred image modality in pregnant and lactating people. Diagnostic mammogram is thought to be safe and may be considered, although sensitivity may be limited due to increased breast density. MRI, MBI, and CEM are usually not appropriate.

Tissue Biopsy

Tissue biopsy is recommended for all lesions categorized as BI-RADS 4 or 5; a core needle biopsy is the preferred method. Core needle biopsies are performed under ultrasound guidance. If the patient has a clinically suspicious mass with a negative ultrasound, a stereotactic, MRI-guided, or excisional biopsy should be considered. The 5 biopsy result categories, benign-concordant (image findings and histopathology results agree), indeterminate, benign-discordant, high-risk lesions (ie, atypical ductal hyperplasia, phyllodes, and pleomorphic lobular carcinoma in situ), or malignancy determine next steps. For benign-concordant results, recommendations include routine screening or physical examination and/or imaging at 6 or 12 months for 1 year to assess for changes. All other biopsy results warrant referral to a breast specialist for surgical excision. Malignancy warrants immediate referral.

Summary

Although most breast masses are benign, it is recommended that all palpable masses are evaluated with imaging, tissue biopsy, or both for early detection of breast cancer in biological females.

ARTICLE INFORMATION

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REFERENCES


