

MULTIPLE CHOICE

BR TECHNIQUE AND INTERVENTION - PRACTICE SET

PROPOSED FOR REVIEW - questions are the author's verbatim Q&A; distractors are auto-selected from other answers in the same bank and must be checked by a subject-matter reviewer (a distractor could coincidentally be correct). Not authoritative assessment content.

1. Which ultrasound technique is used to localize a non-palpable breast lesion for surgical excision prior to a lumpectomy?

- A. Ultrasound-guided fine-needle aspiration
- B. Ductography
- C. Ultrasound-guided core biopsy
- D. Ultrasound-guided wire (needle) localization

2. How is the location of a breast lesion most commonly documented in the radiology report?

- A. By quadrant only (UOQ, UIQ, LOQ, LIQ)
- B. By clock-face position, distance from the nipple, and depth
- C. By the patient's subjective description of where she feels it
- D. By measurement from the sternal notch

3. Compared with a benign solid mass, which color Doppler feature is more commonly associated with malignancy?

- A. Complete absence of any detectable Doppler signal
- B. Increased and irregular internal vascularity with penetrating peripheral vessels
- C. Symmetric circumferential rim flow only
- D. Uniform low-velocity venous flow at the periphery

4. A palpable lump is found by mammography to be a circumscribed mass. The most appropriate next step is:

- A. Targeted diagnostic breast ultrasound
- B. Proceed directly to MRI-guided biopsy
- C. Galactography (ductography)
- D. Repeat mammogram in 12 months

5. A simple breast cyst is causing pain and the patient requests aspiration. Which finding on aspirated fluid generally does NOT require cytologic analysis?

- A. Aspirate from a cyst that does not resolve
- B. Clear or greenish straw-colored fluid with complete cyst resolution
- C. Aspirate from a complex cystic and solid mass
- D. Bloody aspirate

6. Which sonographic finding is typical of fat necrosis at a prior surgical or trauma site?

- A. Variable appearance ranging from oil cyst to a complex mass with mural calcifications
- B. A homogeneously hyperechoic mass with intense internal Doppler flow
- C. A purely cystic mass that increases in size on serial imaging
- D. A simple anechoic cyst with imperceptible wall

7. Following an ultrasound-guided core biopsy, why is a clip or marker commonly deployed at the biopsy site?

- A. To prevent hematoma formation
- B. To allow MRI screening of the contralateral breast
- C. To deliver brachytherapy to the lesion
- D. To localize the biopsy site if surgery or further imaging is needed

8. Which artifact most commonly confounds the diagnosis of a simple cyst as a solid lesion on breast ultrasound?

- A. Reverberation artifact in the anterior portion of the cyst from a high-frequency transducer
- B. Edge shadowing from the pectoralis muscle
- C. Ring-down artifact from gas in the gallbladder
- D. Mirror-image artifact deep to the diaphragm

9. Which sonographic finding is characteristic of intracapsular silicone implant rupture?

- A. Echogenic mass with posterior acoustic shadowing in the axilla
- B. Snowstorm echogenicity in adjacent breast tissue
- C. Anechoic implant with a smooth echogenic shell
- D. Stepladder sign with parallel echogenic lines within the implant

10. What is the principal advantage of vacuum-assisted breast biopsy compared with automated spring-loaded core biopsy?

- A. It eliminates the need for ultrasound or stereotactic guidance
- B. It acquires multiple contiguous samples through a single skin entry
- C. It uses a smaller-gauge needle than fine-needle aspiration
- D. It provides only cytologic and not histologic specimens

11. Compared with mammography, which statement best describes the role of breast MRI in high-risk screening?

- A. Breast MRI has higher sensitivity than mammography for invasive cancer in high-risk women
- B. Breast MRI is the preferred screening modality for women at average risk
- C. Breast MRI has higher specificity than mammography and reduces biopsies
- D. Breast MRI uses ionizing radiation and is therefore limited to symptomatic patients

12. Which scanning pattern is considered acceptable for systematic whole-breast ultrasound coverage?

- A. A single sagittal sweep down the midline only
- B. Radial and anti-radial or transverse and longitudinal sweeps with overlap
- C. Imaging only the symptomatic quadrant
- D. Random freehand scanning until a lesion is found

13. Which statement about gynecomastia in the male breast is correct?

- A. It is most commonly an eccentric mass remote from the nipple
- B. It appears as a discrete spiculated solid mass with posterior shadowing
- C. It appears as flame-shaped or nodular hypoechoic tissue in the retroareolar region, often bilateral
- D. It is composed of fluid only and resembles a simple cyst

14. What is the primary purpose of screening breast ultrasound as an adjunct to mammography in women with dense breast tissue?

- A. To replace annual mammography in dense-breasted women
- B. To detect mammographically occult cancers
- C. To stage known invasive breast cancer
- D. To assess axillary lymph node metastases as a stand-alone test

15. Several years after breast-conservation therapy with radiation, expected sonographic and physical findings include:

- A. Skin thickening, increased parenchymal echogenicity, and architectural distortion at the lumpectomy site
- B. Decreased skin thickness with loss of all parenchymal echogenicity
- C. Diffuse anechoic dilation of the ductal system
- D. A new hypoechoic, taller-than-wide mass with spiculated margins

16. Fine-needle aspiration biopsy of the breast is best characterized by which feature?

- A. Provides definitive grading of invasive carcinoma
- B. Is the preferred method for sampling microcalcifications
- C. Always requires a coaxial introducer needle
- D. Yields cytologic material rather than a tissue core

17. An echogenic, dirty-shadowing area of breast tissue adjacent to a silicone implant is best described as which finding?

- A. Snowstorm appearance of extracapsular silicone
- B. Mondor disease of superficial veins
- C. Normal reverberation artifact within the implant
- D. Stepladder sign of intracapsular rupture

18. Which feature most strongly suggests male breast cancer rather than gynecomastia?

- A. A bilateral, symmetric, nodular pattern beneath the nipple
- B. An eccentric, irregular hypoechoic mass not centered on the nipple
- C. A bilateral flame-shaped subareolar density
- D. Tender, palpable retroareolar tissue in a teenager

19. True or false: Posterior acoustic enhancement deep to a breast mass always indicates that the mass is a simple cyst.

- A. False
- B. True

20. After ultrasound-guided core biopsy of a breast mass yields a benign result, the next standard step is:

- A. Repeat biopsy of the same lesion every 3 months indefinitely
- B. No further follow-up of any kind
- C. Immediate surgical excision regardless of concordance
- D. Radiologic-pathologic concordance review and imaging follow-up if concordant

21. Which is the most important advantage of ultrasound guidance over stereotactic mammographic guidance for breast biopsy?

- A. Greater speed for biopsying calcifications without a mass
- B. Higher accuracy for non-mass enhancement lesions
- C. Real-time visualization of the needle without ionizing radiation or breast compression
- D. Better visualization of suspicious microcalcifications

22. Which transducer is most appropriate for routine breast ultrasound in an average-sized breast?

- A. Curved array, 3 to 5 MHz
- B. Phased-array sector, 2 to 4 MHz
- C. Intracavitary transducer, 8 to 10 MHz
- D. High-frequency linear array, at least 10 MHz

23. On a routine breast ultrasound image, which orientation convention is standard for radial imaging?

- A. The nipple side of the image is displayed on the left of the screen and the periphery on the right
- B. The nipple is displayed at the top and the chest wall at the bottom
- C. The chest wall is displayed on the left and the skin on the right
- D. Orientation does not need to be labeled because lesions are described in clock-face terms

24. On strain elastography, a malignant breast lesion most commonly demonstrates which feature relative to its B-mode size?

- A. Appears larger on the elastogram than on B-mode
- B. Cannot be measured on the elastogram
- C. Appears smaller on the elastogram than on B-mode
- D. Appears identical in size on both

25. Which gauge needle is typical for an ultrasound-guided core needle biopsy of a breast mass with an automated spring-loaded device?

- A. 7 gauge
- B. 30 gauge
- C. 22 gauge
- D. 14 gauge