

Specialized Topics in Areas of Radiologic Sciences
P.O. Box 2931 Toledo, Ohio 43606 419-471-1973
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Unit 49

Breast Imaging

Case Review Series

By

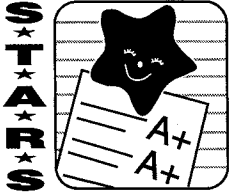
Emily F. Conant, M.D. and Cecelia M. Brennecke, M.D.

**Prepared by: Carolyn J. Frigmanski, M.A.,B.S.R.T. ®
Founder, S.T.A.R.S.**

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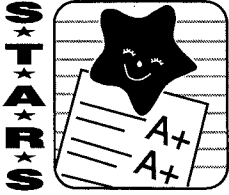
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Unit 49

Breast Imaging Case Review Series by Emily F. Conant, M.D. & Cecelia M. Brennecke, M.D.

Please complete the answer sheet at the conclusion of this post test & return it to the S.T.A.R.S. office.

Opening Round

- The cancer detection rate in first-round screening where no prior films are available is
 - 2-4/1000
 - 6-10/1000
 - 12-15/1000
 - 20-25/1000
- Screening is generally recommended yearly for all women _____ years of age or older.
 - 40
 - 50
 - 60
 - 70
- American women on average have a ____ in ____ lifetime risk of developing breast cancer.
 - 1-3
 - 1-4
 - 1-6
 - 1-8
- Every woman should have a clinical breast exam by a health care provider at least every ____ years.
 - 2
 - 3
 - 4
 - 5
- One of the factors that increases the risk of developing breast cancer is
 - no previous biopsy
 - late menarche
 - increasing age
 - early menopause
- In the BI-RADS standard, a suspected abnormality with biopsy consideration is categorized as
 - 1
 - 2
 - 3
 - 4
- Breast tissue density that is heterogeneously dense with 50-75% glandular tissue is categorized as
 - 1
 - 2
 - 3
 - 4
- Breast tissue density is increased in
 - younger women
 - women in their forties
 - women in their fifties
 - women in their seventies
- The radiologic imaging modality recommended for women on hormone replacement therapy (HRT) who present with a focal area of tenderness or palpable concern is
 - magnetic resonance imaging
 - ultrasound
 - conventional-film screen mammography
 - digital mammography

10. The radiologic imaging modality recommended for young women who present with a palpable mass during pregnancy or lactation is
- a. magnetic resonance imaging
 - b. ultrasound
 - c. conventional-film screen mammography
 - d. digital mammography
11. Proper compression is necessary to
- a. demonstrate symmetry
 - b. flatten out masses
 - c. reduce motion unsharpness
 - d. open mammary ducts
12. Most glandular tissue and breast cancers are located in the _____, _____ quadrant.
- a. lower, outer
 - b. upper, inner
 - c. lower, inner
 - d. upper, outer
13. The _____ muscle is an uncommon variant that may be misinterpreted as a mass or tumor.
- a. sternalis
 - b. pectoralis
 - c. intercostal
 - d. axillary
14. The _____ muscle lies posterior to the breast and is critical for positioning and interpretation.
- a. sternalis
 - b. pectoralis
 - c. intercostal
 - d. axillary
15. The minimum recommended schedule for cassette cleaning is
- a. daily
 - b. weekly
 - c. monthly
 - d. semi-annually
16. The compression plates and the surface of the bucky should be cleaned
- a. once a day
 - b. twice a day
 - c. after each use
 - d. at the beginning of each day
17. Small radiopaque particles in the axilla may represent
- a. sebaceous glands
 - b. dirt
 - c. hair follicles
 - d. deodorant
18. Any abnormalities in mammographic density that is not native to the breast are considered to be
- a. artifacts
 - b. aberrations
 - c. foreign bodies
 - d. fog
19. Supernumerary nipples occur in approximately ____ to ____% of adult women.
- a. 1-3
 - b. 2-6
 - c. 5-10
 - d. 15-20
20. The disease that results as a consequence of abnormal differentiation and migration of neural cells during the early stages of embryogenesis is called
- a. adenofibrosis
 - b. neuroblastoma
 - c. neurofibromatosis
 - d. glioma
21. The anatomic structures most commonly seen in the axilla and axillary tail are
- a. capillaries
 - b. sweat glands
 - c. arterioles
 - d. lymph nodes

22. Unilateral enlarged lymph nodes may necessitate
- a. 3 month follow-up b. core biopsy c. 6 month follow-up d. lumpectomy
23. The dose for an individual digital mammographic image is ____ than that of a film-screen image.
- a. greater b. similar c. lower
24. The spatial resolution of digital systems is _____ than that of analog film-screen systems.
- a. greater b. similar c. lower
25. Contrast resolution of digital systems is _____ than that of analog film-screen systems.
- a. greater b. similar c. lower
26. The view recommended to determine a “real” finding or overlapping tissue is
- a. spot compression b. magnification c. cranial caudad d. medial lateral
27. Calcifications in the _____ never represent primary breast malignancy.
- a. nipple b. lymph nodes c. ducts d. skin
28. 10% of all breast cancers are identified as
- a. ductal b. invasive lobular c. fibroadenomas d. metachronous
29. Calcifications with lucent centers are one of the classic types of _____ calcifications.
- a. malignant b. granular c. benign d. spiculated
30. A “teacup” calcification is created by
- a. milk of calcium b. cholesterol c. calcium d. tuberculosis nodes
31. The presence of vascular calcifications in young women may be the result of
- a. renal disease b. diabetes insipidus c. hypertension d. diabetes mellitus
32. Popcorn calcifications are indicative of calcified
- a. lymph nodes b. fibroadenomas c. mammary ducts d. lacteal ducts
33. A metal marker should be placed on the patient’s skin to assist in identifying
- a. suture calcifications b. scar tissue c. skin moles d. areas of erythema
34. Bilateral diagnostic mammograms should be performed at least ____ months after radiation therapy.
- a. 3 b. 6 c. 12 d. 24

46. Juvenile fibroadenoma and diabetic mastopathy in teens is **best** evaluated with
- a. film-screen mammography
 - b. ultrasound
 - c. magnetic resonance imaging
 - d. digital mammography
47. Patients with possible angioliipoma and hematoma should have a follow-up exam in ____ weeks.
- a. 3-4
 - b. 6-8
 - c. 10-12
 - d. 12-15
48. One of the features of benign masses is
- a. irregular borders
 - b. gentle lobulations
 - c. irregular density
 - d. a round shape
49. A palpable, mobile mass that undergoes rapid growth in pregnant or lactating women is usually a
- a. papilloma
 - b. galactoma
 - c. lactating adenoma
 - d. lipoma
50. A _____ cyst frequently occurs in the inframammary fold along the inferior medial breast.
- a. fatty
 - b. bloody
 - c. milky
 - d. sebaceous
51. The five year survival time for the malignant form of phyllodes tumor is
- a. 25-30
 - b. 40-50
 - c. 55-75
 - d. 60-80
52. _____ fibroadenomas have proliferative changes such as ductal hyperplasia and cyst formation.
- a. Complex
 - b. Simple
 - c. Compound
 - d. Situational
53. Cyclosporin-induced fibroadenomas may reduce in size if or when treatment is withdrawn
- a. completely
 - b. after 3 months
 - c. after 6 months
 - d. after 1 year
54. The percentage of fibroadenomas thought to be classified as “complex” is
- a. 20
 - b. 33
 - c. 50
 - d. 70
55. A metallic BB may be helpful in localizing a
- a. cyst
 - b. fibroadenoma
 - c. galactocele
 - d. lipoma
56. Accessory duct tissue is most often found in the _____ region.
- a. axillary
 - b. nipple
 - c. retromammary
 - d. inframammary
57. When a hematoma is sustained to the breast, the blood may track along
- a. lacteal ducts
 - b. the nipple
 - c. the muscle wall
 - d. Cooper’s ligaments
58. The type of mass that occurs as commonly in men as in women is a
- a. papilloma
 - b. adenoma
 - c. lipoma
 - d. fibroadenoma

59. The **most** common metastatic lesions occur
- a. in the lung b. breast-to-breast c. in the bone d. in the brain
60. The **most** uncommon breast cancer comprising less than 2% of all breast cancers is
- a. tubercular b. DCIS c. invasive d. metastatic
61. Bilateral cancers that are detected at the same time are called
- a. metachronous b. simultaneous c. synchronous d. coincidental
62. The risk of developing bilateral cancers is approximately _____% per year.
- a. 1 b. 2 c. 10 d. 20
63. Reddening, scaling and crusting of the nipple surface with associated puritis is indicative of
- a. diabetes mellitus b. acute mastitis c. chronic mastitis d. Paget's disease
64. Ductal dilatation is **most** commonly caused by
- a. fibroadenomas b. benign papillomas c. lipomas d. invasive carcinoma
65. Women with a spontaneous nipple discharge have a 61% chance it was caused by a
- a. fibroadenoma b. intraductal papilloma c. lipoma d. invasive carcinoma
66. The likelihood of malignancy for a category 5 lesion is approximately _____%.
- a. 30 b. 50 c. 75 d. 96
67. The **most** common reason men present for a mammogram is
- a. mastitis b. lipoma c. gynecomastia d. fibroadenoma
68. Men who present with a mass should initially have a
- a. biopsy b. MRI c. bilateral mammogram d. ultrasound
69. The average age of men with breast cancer is _____ years.
- a. 30 b. 45 c. 55 d. 59
70. Approximately _____% of male breast cancers are invasive ductal carcinoma.
- a. 50 b. 65 c. 85 d. 95
71. Comparisons with prior exams more than _____ months old are used to assess architectural distortion.
- a. 1 b. 3 c. 4 d. 6

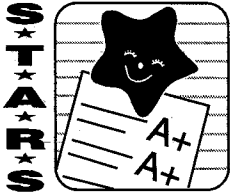
72. Breast conservation therapy involves lumpectomy and
- a. radiation therapy
 - b. reconstruction
 - c. chemotherapy
 - d. tamoxifen
73. A surgeon may place _____ at the site to aid a radiation therapist.
- a. guidewires
 - b. clips
 - c. BBs
 - d. staples
74. Benign fat necrosis developing in the biopsy site may mimic
- a. a cyst
 - b. a lipoma
 - c. recurrence
 - d. metastasis
75. _____ implants have a density that is higher than water in glandular tissue.
- a. silicone
 - b. oil
 - c. saline
 - d. elastomer
76. The oil in breast implants is derived from
- a. soy beans
 - b. corn
 - c. petroleum
 - d. peanuts
77. Intracapsular rupture of silicone implants can **most** accurately be evaluated with
- a. mammography
 - b. MRI
 - c. fine needle aspiration
 - d. ultrasound
78. Horizontal echogenic lines within the ruptured implant envelope are described as a
- a. "window" sign
 - b. "stripes" sign
 - c. "stepladder" sign
 - d. "parallel" sign
79. Free silicone is very hyperechoic with shadowing and is described as the appearance of a
- a. snowstorm
 - b. tornado
 - c. rain shower
 - d. volcano
80. A _____ star consists of radiating spicules that converge on a central point that may be fatty.
- a. falling
 - b. dark
 - c. light
 - d. bursting
81. Focal or stromal fibrosis exists when _____% of the breast is composed of interlobular stroma.
- a. 40
 - b. 50
 - c. 70
 - d. 90

Challenge

82. Fewer needle localizations are performed today than in previous years due to the acceptance of
- a. ultrasound
 - b. breast conservation
 - c. percutaneous core biopsy
 - d. excisional biopsy
83. An essential component of a radiologic needle localization procedure is the inclusion of a
- a. specimen radiograph
 - b. BB marker
 - c. guidewires
 - d. drainage tube
84. For needle localization, masses are usually located with
- a. MRI scans
 - b. ultrasound guidance
 - c. mammography
 - d. stereotactic equipment

85. Usually ____ specimens are taken in ultrasound-guided core biopsies.
- a. 3 b. 5 c. 10 d. 12
86. The only method that allows real-time visualization of a biopsy procedure is
- a. MRI b. CT scanning c. ultrasound d. fluoroscopy
87. According to published reports, complications occur in less than ____ in 1,000 biopsies.
- a. 1 b. 3 c. 5 d. 10
88. A safe, less expensive alternative to surgical excisional biopsy is _____-guided core biopsy.
- a. vacuum b. stereotactic c. fluoroscopic d. image
89. Calcifications and small, deep masses are usually sampled **best** by _____ biopsy.
- a. needle b. stereotactic c. surgical d. vacuum
90. The modality **better** at detecting invasive carcinoma than finding in situ carcinoma is
- a. MRI b. digital mammography c. ultrasound d. film-screen mammography
91. Difficult calcifications to target for stereotactic biopsy are located in the
- a. retromammary space b. axillary tail c. inframammary fold d. areolar region
92. To confirm a biopsy site, ____ orthogonal mammographic views should be obtained.
- a. 2 b. 3 c. 4 d. 6
93. A complication during stereotactic biopsy involves displacement of the
- a. guidewire b. bucky c. compression device d. clips
94. The administration of _____ may be necessary with MRI needle localization.
- a. barium b. carbon dioxide c. gadolinium d. air
95. Lactating adenomas represent _____% of masses undergoing biopsy in pregnant populations.
- a. 50 b. 70 c. 80 d. 90
96. Damage to the ducts and leaking of contents into the biopsy cavity may create a
- a. milk fistula b. sinus tract c. hematoma d. malformation
97. A _____ may be needed if a patient has a suspicious unilateral yellow, pink or bloody discharge.
- a. biopsy b. sample c. galactogram d. mammogram

98. Galactograms are contraindicated for patients with a significant history of allergies to
- dairy products
 - bacteria in yogurt
 - barium products
 - iodinated contrast
99. To relax the musculature, a _____ may be placed on the nipple.
- medicated towel
 - hot compress
 - local sedative
 - tepid compress
100. A “_____ point” in the breast initiates the discharge.
- stimulus
 - trigger
 - nerve
 - reaction
101. “Satisfaction of search” is essential for patients with _____ calcifications.
- extreme
 - minor
 - linear
 - small
102. In younger women, a solid mass is more likely to be a _____ than breast cancer.
- lipoma
 - cyst
 - fibroadenoma
 - teratoma
103. A complication after breast reconstruction may be
- edema
 - fat necrosis
 - a fistula
 - erythema
104. An inverted nipple may be of concern for malignancy if it occurs
- chronically
 - congenitally
 - at puberty
 - acutely
105. Adenoid cystic carcinoma represents less than _____% of all breast cancers.
- 1
 - 5
 - 10
 - 20
106. Medullary cancers are often called _____ cancers.
- gelatinous
 - circumscribed
 - complex
 - colloid
107. “Global asymmetry” is due to
- fibrocystic changes
 - lost elasticity
 - skin changes
 - shrinking
108. A _____ presents as a solitary, noncalcified mass on mammography.
- lipoma
 - cyst
 - lymphoma
 - adenoma
109. Breast abscesses are most common in _____ women.
- lactating
 - pre-menopausal
 - adolescent
 - post-menopausal
110. “Roman arch” patterns are indicative of
- invasive ductal carcinoma
 - micropapillary carcinoma
 - bilateral papillary carcinoma
 - invasive lobular carcinoma



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**Answer Sheet for: Unit 49 Breast Imaging Case Review Series by Emily F. Conant, M.D.
& Cecelia M. Brennecke, M.D.**

**Please place your lettered selection for each question in the respective box and return
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1.	13.	25.	37.	49.	61.
2.	14.	26.	38.	50.	62.
3.	15.	27.	39.	51.	63.
4.	16.	28.	40.	52.	64.
5.	17.	29.	41.	53.	65.
6.	18.	30.	42.	54.	66.
7.	19.	31.	43.	55.	67.
8.	20.	32.	44.	56.	68.
9.	21.	33.	45.	57.	69.
10.	22.	34.	46.	58.	70.
11.	23.	35.	47.	59.	71.
12.	24.	36.	48.	60.	72.

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73.	85.	97.	109.
74.	86.	98.	110.
75.	87.	99.	
76.	88.	100.	
77.	89.	101.	
78.	90.	102.	
79.	91.	103.	
80.	92.	104.	
81.	93.	105.	
82.	94.	106.	
83.	95.	107.	
84.	96.	108.	