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| TITLE OF SAM | Breast MRI |
| PRESENTED BY | Christopher E. Comstock, MD |

ASSESSMENT QUESTIONS & REFERENCES

LECTURE 1: Breast MRI

| QUESTION 1 | DISCUSSION RE: ANSWER OPTIONS |
|---|---|
| <p>Multiple studies have consistently shown that preoperative breast MRI:</p> <ul style="list-style-type: none"> A. Reduces rates of local breast recurrence B. Reduces mortality C. Detects additional ipsilateral and contralateral disease D. Reduces rates of surgical re-excision | <p>ANSWER: C</p> <p>Rationale: Multiple studies have shown that preoperative breast MRI detects additional ipsilateral contralateral disease occult on conventional imaging.</p> |

REFERENCE FOR QUESTION 1

Houssami, N., et al. (2008). "Accuracy and surgical impact of magnetic resonance imaging in breast cancer staging: systematic review and meta-analysis in detection of multifocal and multicentric cancer." J Clin Oncol 26(19): 3248-3258

| QUESTION 2 | DISCUSSION RE: ANSWER OPTIONS |
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| <p>Which of the following is the most sensitive for detecting breast cancer in high risk patients:</p> <ul style="list-style-type: none"> A. Mammography and MRI B. Mammography and ultrasound C. Ultrasound and MRI D. MRI alone | <p>ANSWER: A</p> <p>Rationale: The combination of mammography and MRI has been shown to have the highest sensitivity for breast cancer detection.</p> |

REFERENCE FOR QUESTION 2

Prospective multicenter cohort study to refine management recommendations for women at elevated familial risk of breast cancer: the EVA trial. Kuhl C, Weigel S, Schrading S, Arand B, Bieling H, König R, Tombach B, Leutner C, Rieber-Brambs A, Nordhoff D, Heindel W, Reiser M, Schild HH. J Clin Oncol. 2010 Mar 20;28(9):1450-7

| QUESTION 3 | DISCUSSION RE: ANSWER OPTIONS |
|---|---|
| <p>Which of the following descriptors of nonmass enhancement would be considered the most suspicious?</p> <ul style="list-style-type: none"> A. focal B. regional C. linear D. segmental | <p>ANSWER: D</p> <p>Rationale: Segmental nonmass enhancement is highly suspicious for breast cancer with a PPV greater than 60%.</p> |

REFERENCE FOR QUESTION 3

Lieberman L, Morris EA et al. Breast lesions detected on MR imaging: features and positive predictive value. AJR Am J Roentgenol. 2002 Jul;179(1):171-8.

LECTURE 2: Breast MRI Case Review

| QUESTION 1 | DISCUSSION RE: ANSWER OPTIONS |
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| <p>The most appropriate step after an area of suspicious clumped, nonmass linear enhancement detected on breast MRI is:</p> <ul style="list-style-type: none">A. MRI guided biopsyB. 6 month follow up MRIC. Targeted ultrasoundD. Correlation with recent mammogram | <p>ANSWER: D</p> <p>Rationale: Suspicious nonmass enhancement is suggestive of DCIS and therefore should be correlated with mammography to evaluate for corresponding calcifications that could be biopsied using stereotactic guidance.</p> |
| REFERENCE FOR QUESTION 1 | |
| <p>MRI for diagnosis of pure ductal carcinoma in situ: a prospective observational study. Kuhl CK, Schrading S, Bieling HB, Wardelmann E, Leutner CC, Koenig R, Kuhn W, Schild HH. Lancet. 2007 Aug 11; 370(9586):485-92.</p> | |
| QUESTION 2 | DISCUSSION RE: ANSWER OPTIONS |
| <p>The finding of nonenhancing septations on MRI:</p> <ul style="list-style-type: none">A. Is diagnostic of a benign fibroadenomaB. Is seen in approximately 8% of breast cancersC. Can be used to avoid biopsy of a morphologically suspicious massD. Is a BI-RADS descriptor that has been removed from the updated BI-RADS lexicon | <p>ANSWER: B</p> <p>Rationale: Nonenhancing septations are seen in approximately in 8% of breast cancers and therefore cannot be used to avoid biopsy of a suspicious mass.</p> |
| REFERENCE FOR QUESTION 2 | |
| <p>Schnall MD, Blume J, Bluemke DA, et al. Diagnostic architectural and dynamic features at breast MR imaging: multicenter study. Radiology. Jan 2006; 238(1):42-53.</p> | |
| QUESTION 3 | DISCUSSION RE: ANSWER OPTIONS |
| <p>When a suspicious mass on MRI demonstrates a benign progressive pattern on kinetic analysis, which of the following is correct?</p> <ul style="list-style-type: none">A. Biopsy should be recommended despite the benign kinetic pattern.B. Six month follow up MRI, rather than biopsy, is more appropriate.C. Surgical biopsy is preferable than core biopsy to confirm concordance.D. Is more likely to be seen on second look ultrasound. | <p>ANSWER: A</p> <p>Rationale: Since approximately 6% of cancers demonstrate benign progressive kinetics, biopsy should still be recommended for a suspicious mass on MRI despite a benign kinetic pattern.</p> |
| REFERENCE FOR QUESTIONS 3 | |
| <p>Kuhl CK, Mielcareck P, Klaschik S, et al. Dynamic breast MR imaging: are signal intensity time course data useful for differential diagnosis of enhancing lesions? Radiology. Apr 1999; 211(1):101-110.</p> | |