

CLINICAL PRESENTATION AND RADIOLOGY QUIZ QUESTION

A 59 year old woman presents with focal right breast pain. The patient has pain in the anterior breast with no palpable lesion.

Of the following options, which is the best first step in further evaluation of this patient's breast lesion?

- (a) no further work-up is required
- (b) CT of the breast
- (c) diagnostic mammography
- (d) MR imaging of both breasts

RADIOLOGY QUIZ QUESTION, ANSWER, AND EXPLANATION

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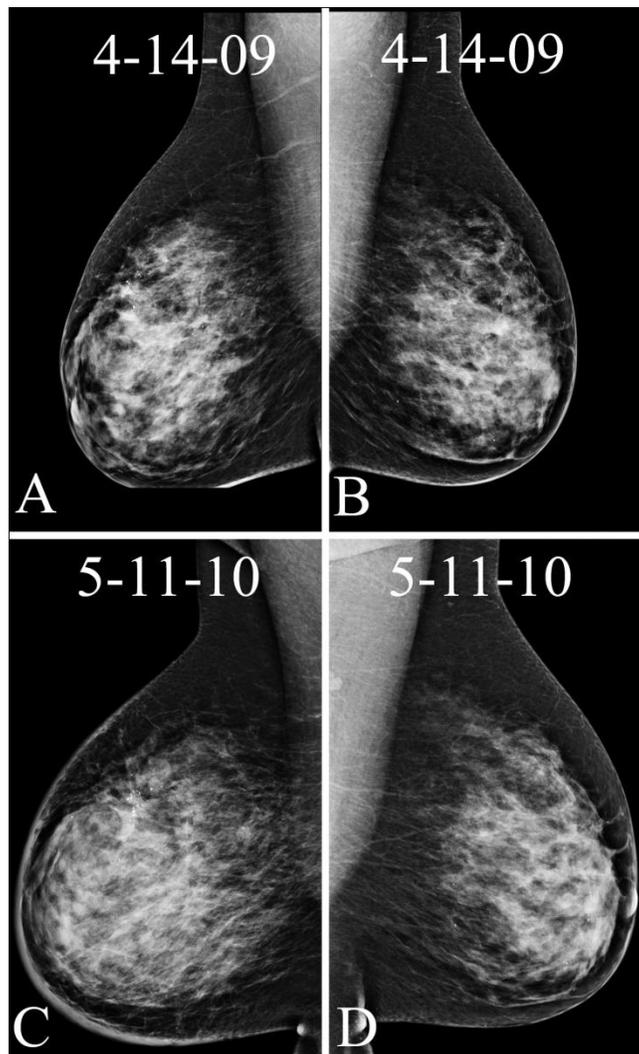
- (a) no further work-up is required
- (b) CT of the breast
- (c) diagnostic mammography
- (d) MR imaging of both breasts

Answer: (c), diagnostic mammography, is the correct response. Breast pain is a presenting symptom in less than 10% of patients with breast cancer, and most patients with pain and breast cancer also have a mass. Nonetheless, patients with focal pain (even without a mass) need to have this pain evaluated, and in general the evaluation proceeds as with a breast mass. As discussed in Radiology Quiz of the Week #50 and #51, the exact method of further evaluation varies depending on the local resources and preferences. Of the possibilities listed, diagnostic mammography is the best response. The purpose of the diagnostic mammogram is to find cancer. Typically, diagnostic mammography consists of the usual views obtained during screening mammography (bilateral mediolateral oblique and craniocaudal views), with a marker at the location of the pain. Additional views may also be obtained, such as a straight lateral exam and spot-compression studies of the painful region. Ultrasound may also be a reasonable first step, but ultrasound is not listed as an option. While focal pain (without a mass or other symptoms) should generally be treated in the same manner as a breast mass, diffuse, non-localized pain (with no palpable abnormalities), particularly bilateral breast pain or pain that comes and goes (with the menstrual cycle), is virtually never caused by breast pain and generally does not require imaging evaluation.

Despite the decreased likelihood of cancer (compared to a palpable mass), focal pain in the breast needs to be regarded with some suspicion and further work-up is required; therefore, (a) is incorrect. CT of the breast is rarely performed and is not indicated in this case, and (b) is incorrect. MR of the breasts is usually performed trouble-shooting difficult cases or screening patients at extremely high risk for breast cancer, and is not the best first step in further evaluation, so (d) is incorrect.

IMAGING STUDY AND QUESTIONS

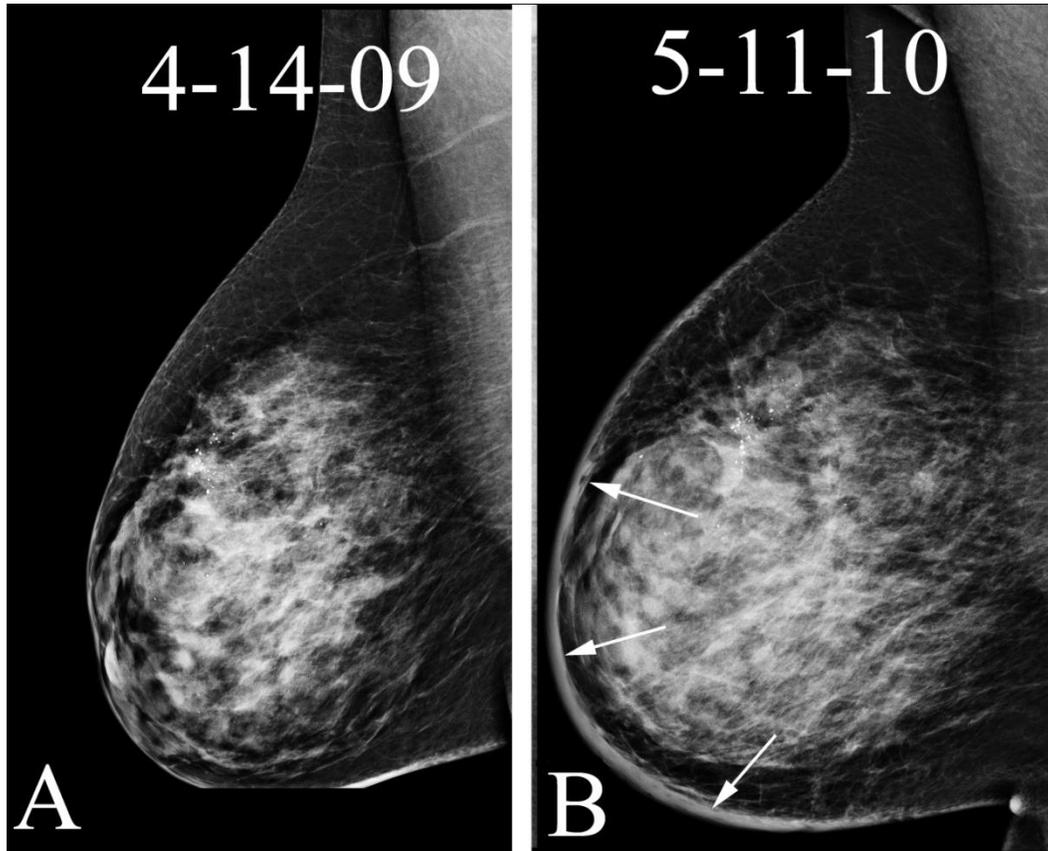
The patient underwent imaging:



Imaging questions:

- 1) What type of study is shown?
- 2) Are there any abnormalities?
- 3) What is the most likely diagnosis?
- 4) What is the next step in management?

IMAGING STUDY QUESTIONS AND ANSWERS
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**Imaging questions:**

- 1) What type of study is shown? Mediolateral oblique (MLO) views from bilateral mammograms performed 4/14/09 and 5/11/10. Note the presentation above is altered above (compared to Page 3) to show the sequential studies side-by-side.
- 2) Are there any abnormalities? Yes. There is diffuse skin thickening on the study from 5-11-10 (arrows). While difficult to appreciate, there is also increased overall size of the breast.
- 3) What is the most likely diagnosis? The imaging findings (diffuse skin thickening and breast swelling) are not specific. While these findings may represent mastitis (in the appropriate clinical situation), they may also be seen with inflammatory breast cancer.
- 4) What is the next step in management? Correlation with clinical history. If there are strong clinical features of mastitis, appropriate treatment with antibiotics and short-term follow-up to document a return to normal are appropriate. If there are no clinical features of mastitis, biopsy should be performed.

PATIENT DISPOSITION, DIAGNOSIS, AND FOLLOW-UP

The patient underwent biopsy which showed infiltrating ductal carcinoma with associated dermal lymphatic invasion (inflammatory cancer).

SUMMARY

Presenting symptom: The patient presented with focal breast pain. As noted on Page 2, focal breast pain is an infrequent presentation for breast cancer, and should be evaluated in the same manner as a focal breast mass. Diffuse, nonlocalized pain (with no palpable abnormalities), particularly bilateral breast pain or pain that comes and goes with the menstrual cycle, is virtually never caused by breast cancer and does not require imaging evaluation.

Imaging work-up: The imaging workup of focal breast pain generally proceeds as with a focal breast mass. This varies with local practice but generally includes either a diagnostic mammogram, followed by an ultrasound if the mammogram does not provide an explanation of the patient's pain. Alternately, ultrasound may be performed first, with a mammogram performed if the ultrasound does not provide an explanation of the patient's pain.

Establishing the diagnosis: In the case of an identified potential cause of the pain, further evaluation depends on the imaging findings. Focal masses generally require biopsy. In this case, if the patient had had symptoms of mastitis (which she did not), appropriate treatment (including antibiotics) and follow-up establishing resolution of the process would have been a reasonable method of establishing the diagnosis. Given that this patient did *not* have clinical findings of mastitis, biopsy was performed to establish the diagnosis.

Take-home message: Focal breast pain should be evaluated in the same manner as a breast mass. While focal pain (without a mass or other symptoms) should generally be treated in the same manner as a breast mass, diffuse, nonlocalized pain (with no palpable abnormalities), particularly bilateral breast pain or pain that comes and goes (with the menstrual cycle), is virtually never caused by breast pain and does not require imaging evaluation.

FURTHER READING

Mulley AG. Evaluation of breast masses and nipple discharges. Chapter 113 in Goroll AH, Mulley AG (editors), *Primary Care Medicine: Office Evaluation and Management of the Adult Patient*. Lippincott Williams and Wilkins, Philadelphia, 2009.

Renfrew, DL. Breast imaging. Chapter 9 of *Symptom Based Radiology*, Symptom Based Radiology Publishing, Sturgeon Bay, WI, 2010, available for no charge at www.symptombasedradiology.com.