Management of Breast Pain
Susan C. Harvey, MD August 14, 2018, 7:00pm ET

SAM Questions

1. A 28 year old presents with breast pain and she has no family history of breast cancer. She reports the pain has been of 1-week duration and she has experienced this previously but only prior to her menstrual cycle and never as severe, as long duration or focal as the current pain.
   - A. Bilateral diagnostic mammogram
   - B. Reassurance
   - C. Aspiration of the cyst
   - D. Referral to a surgical team for excision to reduce pain

   Answer: B

   Rationale: In this case, according to the ACR appropriateness criteria the patient is in the category of variant 3 which is the scenario of noncyclical, focal breast pain in a patient under 30 years of age. This would indicate diagnostic imaging, and given her age less than 30, targeted ultrasound alone would be performed.

   Reference: https://acsearch.acr.org/docs/3091546/Narrative/

2. A 45-year-old patient presents with focal pain increasing over the last 2 days and now which has become excruciating. She has also developed erythema of the breast and fever. Her primary care physician has not seen her, yet after a call to her primary care, breast imaging has been recommended. Her last screening mammogram was 9 months ago.

   Imaging which should be performed in this setting is:
   - A. Targeted ultrasound alone
   - B. Bilateral diagnostic mammogram alone
   - C. Bilateral diagnostic mammogram and targeted breast ultrasound
   - D. MRI of both breasts

   Answer: C
Rationale: Given the history, the differential diagnosis will include infection and malignancy. Based on imaging, these cannot be distinguished and ultimately biopsy may be needed. The most typical process is trials of oral antibiotics to see if there is improvement with follow up imaging in 4 to 6 weeks and ultimately biopsy if the findings do not entirely resolve.


3. This is a 35 year old patient who presented with three days of pain in the lateral aspect of the right breast. The pain is associated with a linear change in the skin where there is a subtle tubular lump.

The next step is:
A. Bilateral diagnostic mammogram
B. Bilateral breast MRI
C. Directed right lateral breast ultrasound
D. Clinical exam only

Answer: C

Rationale: This is an example both by history and ultrasound of Mondor’s disease in the breast. Faage first described this condition in 1869. Henry Mondor, a French surgeon, further characterized this condition in 1939, hence the name.

This occurs most commonly in women 30 to 60 years of age. Incidence rates of 0.5-0.8% have been reported, however, it reflects the only the symptomatic population so is likely an underestimate as many cases likely go unrecognized. The etiology is thrombosis of a superficial vessel, which may stick to the deep dermis. This can be complete or partial occlusion of the vein. This is most commonly of unknown cause but can be associated with trauma, dehydration, hypercoagulable states and prior venous catheters. There are some reports of association with breast cancer but these are largely unsubstantiated. This is most common in the upper outer breast with involvement of the lateral thoracic vein or the thoraco-epigastric vein. Mammography may show a tubular superficial density and is best seen in the setting of fatty tissue. The ultrasound findings are an occluded or partially occluded superficial vein as seen in the image provided.

This is typically self-limited over up to 6 weeks. Supportive therapy with anti-inflammatory medications and warm compresses. Follow up imaging with ultrasound may be performed to demonstrate complete resolution.


4. A 75-year-old woman who takes Coumadin for atrial fibrillation. She underwent normal screening mammography 3 months ago with almost entirely breast tissue noted. Her pain is focal, non cyclical and began abruptly 4 days ago. She does exercise regularly and has two rescue grey hound dogs from the local racetrack who jump up on her frequently. Ultrasound was performed and one image is below.

The ultrasound image shows a superficial echogenic mass suggesting:
   A. A hematoma
   B. A lipoma
   C. A mass suspicious for malignancy
   D. A complicated cyst

Answer: A

Rationale: Hematomas evolve over time and have variable ultrasound appearance depending on the time frame. In general, when a hematoma is recent, little or no bruising is noted on the skip and pain is often the presenting symptom. Imaging by ultrasound at that time often shows a homogeneous, avascular echogenic mass associated with the focal pain. This is shown in the case example provided. Over time, the hematoma begins to have more cystic components as the blood products break down and can have the appearance of complex cystic mass with mural nodules or thickening and thick septa.

5. 54 yo male with a right palpable lump at inner chest wall (shown to be a lipoma on ultrasound), and he reports right sub-areolar breast pain for several months after starting a statin for high cholesterol.

What should be the imaging step for breast pain in a 54-year-old male?
A. Bilateral breast MRI
B. Bilateral diagnostic mammography
C. Directed breast ultrasound to the area of pain
D. Clinical follow up only

Answer: B

Rationale: Gynecomastia is the swelling of breast tissue in men or boys and may be unilateral or bilateral process, but when bilateral, is commonly asymmetric. The presentation is often a palpable lump, but pain can be severe as well.
This is seen in infants, adolescents at puberty and in adult men age 50 to 80. This is common and affects approximately 1 in 4 adult men at some time in their lives. The cause is an imbalance of estrogen and testosterone, which can occur from a wide variety of etiologies including as a side effect of many prescription drugs. Additionally, this may be seen with excessive alcohol use, illicit drugs including marijuana, heroin, methadone and amphetamines.

The diagnosis is typically made based on imaging alone, yet image guided biopsy may be needed for histologic proof particularly if the images is atypical. Treatment can be related to removal of the medication or drugs leading to the tissue development. If the medications cannot be changed or stopped, reassurance can be used, as this is not a progressive or dangerous process. Tamoxifen can be helpful and surgical excision is curative, but have potential complications.


6. This is a 49-year-old woman who reports 6 months of diffuse bilateral breast pain lasting 6 to 8 days prior to the start of her menstrual period and resolving by day 1 to 3 of her cycle. She has noted this since she stopped taking birth control pills 7 months ago. Her last screening mammogram was 13 months ago. She has no family history of breast cancer and no prior breast biopsy history personally.

The image algorithm should be:
A. Bilateral diagnostic mammography and breast ultrasound directed to the areas of pain.
B. Bilateral diagnostic mammography alone.
C. Bilateral screening mammography alone.
D. Bilateral ultrasound only.

Answer: A

Rationale: Per the ACR appropriateness guidelines (variant 2), over the age of 40 with cyclical pain either unilateral or bilateral diagnostic mammography, DBT or FFDM, should be performed and combined with breast ultrasound. This offers the best imaging assessment of pain in this age group with
cyclical pain. If the woman is less than age 40 (variant 1), the recommendations would be for ultrasound to begin the evaluation.

