Breast asymmetries in mammography: Management

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Learning objectives

Identify and describe asymmetries seen at mammography.

Apply the BI-RADS categorical system to establish an appropriate management process.

Background

Although there is a wide variation in breast parenchymal pattern, the breasts are generally symmetric structures with similar density and architecture. However, asymmetric breast tissue is encountered relatively frequently.

An asymmetric finding represents an area of tissue with fibroglandular density that is more extensive in one breast when judged relative to the corresponding region in the contralateral breast.

Asymmetric breast tissue is usually benign and secondary to variations in normal breast tissue, postoperative change, or hormone replacement therapy. However, an asymmetric area may indicate a developing mass or an underlying cancer.

Findings and procedure details

The Breast Imaging Reporting and Data System (BI-RADS) lexicon provides definitions for four different types of asymmetric breast findings: Asymmetry, global asymmetry, focal asymmetry and developing asymmetry.

Asymmetry

If a potential mass is seen in only a single view at standard mammography, it should be called an "asymmetry" until its three-dimensionality is confirmed. Asymmetries are planar and lack convex outward borders and the conspicuity of a three-dimensional mass (Fig. 1 on page 4).
80% of cases of asymmetry is caused by the superimposition of normal fibroglandular breast structures in a given mammographic projection, they usually contain interspersed fat, but true lesions may appear on only one view because on other views they are either obscured by overlapping dense parenchyma or are located outside the field of view.

It should first be determined whether the asymmetric finding is likely to have been included in the other projection (Fig. 2 on page 6, Fig. 3 on page 6). If not, the situation is usually remedied by repeated or additional views tailored to ensure that the proper amount of breast tissue is on the image receptor to assess the finding in question. If yes, tailored additional mammographic views should be obtained to differentiate a true lesion obscured by overlapping dense parenchyma on the other projection from summation shadow.

A straight lateral view for an asymmetry seen only on a mediolateral oblique (MLO) view and a rolled view for an asymmetry seen only on a craniocaudal (CC) view should be obtained.

If the asymmetry is not seen on additional views, which is sufficient for a confident diagnosis of summation shadow, the radiologist can render a BI-RADS category 1 assessment and recommend routine mammographic screening.

If the asymmetry is maintained even after the angle of projection is changed, additional views in other projections should be obtained.

For findings proved to be real, the next step should be to targeted ultrasonography (US) to characterize the lesion more clearly and specifically.

**Global Asymmetry**

This asymmetric finding involves a greater volume of breast tissue over a significant portion of the breast (at least a quadrant), relative to the corresponding region in the contralateral breast, without any associated mass, suspicious calcifications, or architectural distortions (Fig. 4 on page 7, Fig. 5 on page 8).

Global asymmetry it is usually due to normal variations or hormonal influence. This finding is almost always benign and requires no additional evaluation if there are no corresponding palpable abnormalities, architectural distortions, significant calcifications, or masses (BI-RADS Category 2).

**Focal asymmetry**
Focal asymmetry is visible as a confined asymmetry with a similar shape on two views but does not fit the criteria of a mass: that is, it lacks convex outer borders and conspicuity.

The vast majority of focal asymmetries represent an island of breast tissue, particularly when there is interspersed fat (Fig. 6 on page 9).

The island of breast tissue does not form a mass and demonstrates no associated architectural distortion, spiculation, or significant calcifications.

A lack of specific benign characteristics may warrant further evaluation. A focal asymmetry should be considered suspicious if its density is concentrated at its center. If the finding corresponds to a palpable abnormality, it is also considered suspicious. In these cases, additional evaluations are required to determine whether the focal asymmetry is actually a mass. Spot compression views, rolled views, or US may help spread or reorient tissue structures to help define and characterize an underlying lesion more clearly.

If no previous mammograms are available for comparison, nonpalpable focal asymmetries with no associated mammographic or sonographic abnormalities are often assessed as probably benign (BI-RADS category 3).

**Developing Asymmetry**

This is a focal asymmetry that is new, larger, or denser at current examination than at previous examinations. To identify such a lesion, comparison with previous mammograms is critical. It is important to compare the current study with previous studies performed at least 2 years earlier.

It is an uncommon mammographic finding, reported in less than 1% of examinations, but the likelihood of malignancy ranges from 13% to 27%.

It raises a reasonable degree of suspicion and requires additional evaluation in the absence of a history of hormonal therapy, surgery, trauma, or infection at the site. The finding of developing asymmetry at mammography, which is inherently suspicious (BI-RADS Category 4), should be evaluated with additional imaging or biopsy to identify possible cancer (Fig. 7 on page 10).

**Images for this section:**
**Fig. 1:** Asymmetry seen in left CC views. A potential lesion lacking the characteristics of a mass is seen only on the left CC view. A corresponding abnormality is not seen on the OML view.

**Fig. 2:** Asymmetry seen in left CC views.
Fig. 3: Patient corresponding to Fig.2: A corresponding abnormality is not clearly seen on the OML view.
**Fig. 4:** Global asymmetry seen in CC views. A much greater volume of breast tissue is seen over a substantial portion of the right breast relative to the corresponding region in the left breast, but there is no associated mass, suspicious calcifications, or architectural distortion.
Fig. 5: Global asymmetry seen in MLO views.
Fig. 6: Focal asymmetry seen in MLO views and CC views. There is interspersed fat.
Fig. 7: Developing asymmetry. There is associated architectural distortion and palpable abnormality.
Conclusion

Asymmetric breast findings are frequently encountered at screening and diagnostic mammography.

Once these lesions are detected at standard mammography, supplementary breast imaging with additional mammographic views, the knowledge of the patient's clinical history and US can be a key aspect of work-up.

Personal information

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