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BIRADS™ mammography: Exercises

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Abstract

Some radiological cases are presented in this article to train the reader to the BIRADS™ classification in mammography. Each case is described according to the fourth American version of the BIRADS™ lexicon. Some classifications difficulties will also be presented, in order to show the complexity and the observer variability, commonly encountered in BIRADS™ 3 and 4 categories.

Keywords: BIRADS™ classification; BIRADS™ 3 category; Mammography; Training; Microcalcifications; Breast

1. Illustrating cases of BIRADS™ mammography classification

An oval shape mass is visible on this view. Contours are well circumscribed (arrows), a mixed content with fat and glandular tissue is visible within the mass. The diagnosis is an hamartoma. This is a typical example of the BIRADS™ 2 classification in mammography. No further examination is necessary (Fig. 1).

Macrocalcifications are dense, linear and needle-shape, following the ducts and oriented toward the nipple, which is very suggestive of a plasma cell mastitis (arrows). This a typically benign disease of the breast which can be classified in the BIRADS™ 2 category (Fig. 2).

Multiple round calcified masses are visible in the right breast. The peripheral calcifications are typical of calcified fibroadenoma. No further examination is necessary. BIRADS™ 2 category (Fig. 3).

This view shows at least three microcalcifications clusters. All microcalcifications are round, homogeneous, isodense and monomorphous. These microcalcifications do not look like milk or calcium calcifications, because of their round shape on the ML view.

If they are recently detected, it is recommended to perform a short follow-up at 6, 12, 24 and 48 months to insure of their stability. They are classified in the BIRADS™ 3 category (Fig. 4).

An oval, homogeneous mass is visible in the right breast. Contours are well circumscribed and lobulated (arrow). Ultrasonography showed an homogeneous solid mass. Because of the solid content, the classification is BIRADS™ 3. The first follow-up should be performed 4 months later, conversely to microcalcifications (Fig. 5).

An extended area of thin and amorphous microcalcifications is visible in the upper and outer quadrant of the left breast (arrows). These microcalcifications were stable since 5 years. The BIRADS™ category is BIRADS™ 4 and as the calcifications are not evolutive, the attended result is benign: BIRADS™ 4a. Vacuum macrobiopsy revealed benign lobular microcalcifications (Fig. 6).

This oval mass is partially well circumscribed. The inferior border of the mass is indistinct (ill-defined) (arrow). Ultrasound showed a solid, homogeneous mass. Because of the contours, the mass is categorized in BIRADS™ 4b. A biopsy is recommended and the radiologist has to compare the histologic results to the mammographic features. Ultrasound guided biopsy revealed a cellular adenofibroma (Fig. 7).

An architectural distorsion is visible in the upper and outer quadrant of the right breast (arrows). Ultrasound was normal. This image is suspicious of malignancy and can be classified as BIRADS™ 4c. Stereotactic biopsy revealed a 7 mm DIC (Fig. 8).

A cluster of microcalcifications is visible in the upper quadrant of the left breast. Microcalcifications are homogenous and some look like milk calcifications (arrows). Categorization is

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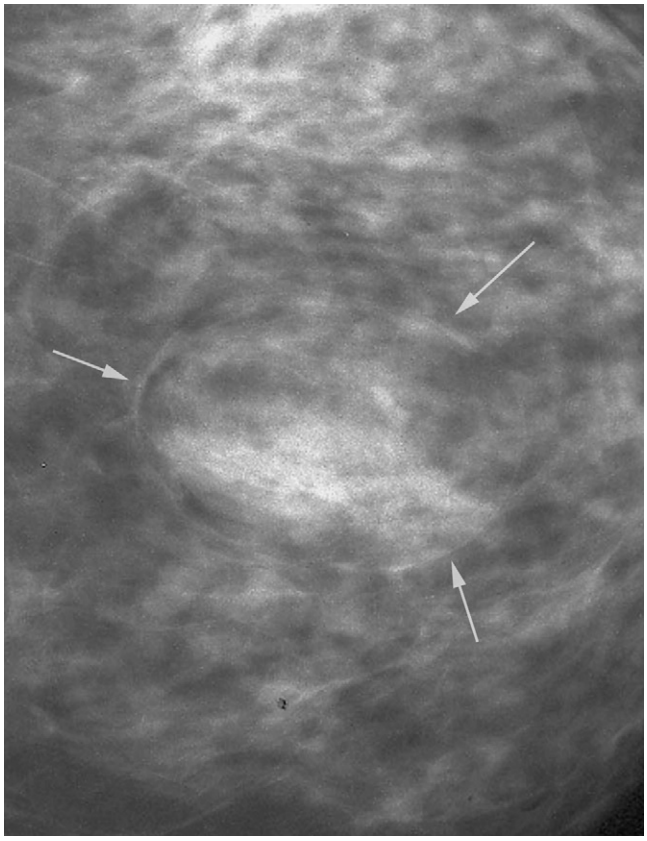

Fig. 1. 53-Year-old woman. No palpable mass. Cranio-caudal (CC) view of the left breast. Hamartoma.

Fig. 2. 55-Year-old woman. Medio-lateral (ML) view of the right breast. Plasma cell mastitis.

Fig. 3. 60-Year-old women. ML view of the right breast. Multiple calcified fibroadenoma.

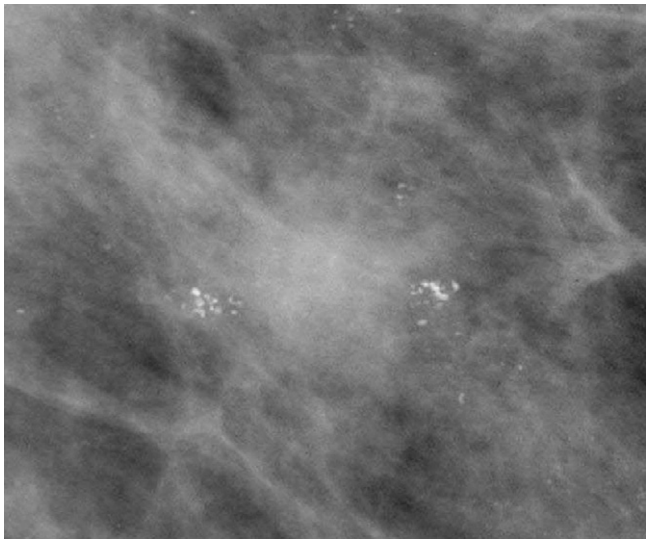

Fig. 4. 45-Year-old woman. Magnification ML view of the right breast. Lobular benign microcalcifications.