

BREAST CANCER: CONTRAST-ENHANCED MAGNETIC-RESONANCE IMAGING OF BREAST

STUDY: First / Follow-up, comparison with the study from _____

Specify magnetic field strength, coils used, type and dose of IV contrast administration

Specify Pulse sequences.

Skin and nipple area is not changed.

The structure of mammary gland tissues is preserved. There are no nodular neoplasms.

There is a group of small and structural lymph nodes in the axillary region on the right and left, preserving the fat center. They accumulate the contrast medium moderately.

If mass is present:

1. Size of the mass
2. Shape of the mass - round, oval, irregular
3. Borders of the mass - clear borders, with spicules, indistinct borders
4. Localization of the mass:
 - In the right or left breast
 - Breast quadrant and clock-face position (or central, retroareolar, and axillary tail descriptors)
 - If possible, indicate distance from nipple, skin, or chest wall in cm.
5. Findings before contrast injection:
 - Signal from the mass - signal intensity in T1- and T2-WI
 - Presence of nipple retraction, skin retraction
 - Invasion of nipple, skin, muscle, and chest wall.
 - High signal in T1-WI in the ductal area
 - Presence of cysts
 - Postoperative fluid - seroma, hematoma
 - Skin thickening or trabecular thickening after post-therapy
 - Distortion of the architecture of the breast
 - Presence of implants, its localization, its structure, presence of peri-implant fluid, etc.
 - Artifact signals from foreign bodies, metal clips, etc.
6. Lymph nodes:
 - Normal lymph nodes - localization, size, structure
 - Pathological lymph nodes - localization, size, presence of necrosis.
7. After contrast injection (for pathological enhancement):
 - Presence of artifact signals

- Focus: a tiny dot of enhancement that does not clearly represent the presence of a mass, and does not clearly show a mass on precontrast imaging
 - Mass:
 - Shape - oval, round, irregular
 - Contours and borders
 - Internal contrast enhancement - homogeneous, heterogeneous, along the edge of the mass, dark internal septa
 - Pattern of breast tissue enhancement - homogeneous, heterogeneous, focal, linear, segmental, regional, diffuse, etc.
8. If previous studies are available - comparison in dynamics
9. Conclusion - indicating BI-RADS category

American College of Radiology Breast Imaging Reporting & Data System (BI-RADS®)

Category 0 - Incomplete exam - requires follow-up exam - when the MRI exam is incomplete or there were technical errors that prevent proper interpretation of the exam

Category 1 - Negative - no masses detected - normal examination, no pathological contrast enhancement. The mammary glands are symmetrical, without masses, distortion of breast architecture, without the presence of suspicious zones of contrast enhancement

Category 2 - Benign changes - as in category 1, there are no pathological masses here. The radiologist may add the following findings to this category: presence of intramammary lymph node, implants, metal foreign bodies (after biopsy or surgical clips), fibroadenomas (with and without contrast enhancement), cysts, scars without contrast enhancement, postoperative fluid, fatty masses (lipoma, oil cyst, galactocele, hamartoma)

Category 3 - Probably benign changes - up to 98% for the presence of a benign process, often background parenchyma enhancement is present, must consider the patient's menstrual cycle - different cycles have different intensity of background enhancement; focus enhancement.
Follow-up imaging in 3 to 6 months

Category 4 - A mass suspicious of a malignant process - these may include atypical cysts, abscesses, non-solid masses with uneven, indistinct contours, masses larger than 5 mm, with a pathological signal and contrast enhancement.

Category 5 - High probability for the presence of a malignant process - has typical signs of breast cancer

Category 6 - Verified cancer - cancer confirmed by biopsy, but prior to surgical removal of the breast.