Breast lesion biopsy reporting categories

Although most core biopsy samples can be readily categorized as normal, benign, or malignant, a small proportion of samples cannot. The "Guidelines for non-operative diagnostic procedures and reporting in breast cancer screening" of the Royal College of Pathologists have been devised in recognition of this and five reporting categories are used for breast cancer diagnostic biopsies.

Hence the 5 terms we aim to include in order to be able to save this information in a standard way:

- Breast lesion biopsy reporting categories: B1 normal tissue
- Breast lesion biopsy reporting categories: B2 benign lesion
- Breast lesion biopsy reporting categories: B3 lesion of uncertain malignant potential
- Breast lesion biopsy reporting categories: B4 suspicious
- Breast lesion biopsy reporting categories: B5 malignant

Sources:

- The Royal College of Pathologists. Guidelines for non-operative diagnostic procedures and reporting in breast cancer screening. 2021. London: The Royal College of Pathologists. www.rcpath.org.
- Ellis IO, Humphreys S, Michell M, Pinder SE, Wells CA, Zakhour HD; UK National Coordinating Commmittee for Breast Screening Pathology; European Commission Working Group on Breast Screening Pathology. Best Practice No 179. Guidelines for breast needle core biopsy handling and reporting in breast screening assessment. J Clin Pathol. 2004 Sep; 57(9):897-902. doi: 10.1136/jcp.2003.010983. PMID: 15333647; PMCID: PMC1770422.

Breast cancer triple-negative subtypes

Breast Cancer (BC) is pathologically classified as oestrogen-positive (ER+), HER2/ERBB2/NEU-positive (HER2+) and triple negative (TNBC) subtypes. TNBC is a highly diverse group of cancers that can be sub-divided into 6 subtypes: basal-like (BL1 and BL2), mesenchymal (M), mesenchymal stem-like (MSL), immunomodulatory (IM), and luminal androgen receptor (LAR), as well as an unspecified group (UNS).

As these data may be useful in biomarker selection, and to enable alignment of TNBC patients to appropriate targeted therapies in a future, we aim to save this information using a specific term for each of these previously identified and defined subtypes:

- Breast cancer triple-negative subtypes: Basal-like 1
- Breast cancer triple-negative subtypes: Basal-like 2
- Breast cancer triple-negative subtypes: Immunomodulatory
- Breast cancer triple-negative subtypes: Mesenchymal like
- Breast cancer triple-negative subtypes: Mesenchymal stem-like
- Breast cancer triple-negative subtypes: Luminal androgen receptor

Sources :

- Wang, DY., Jiang, Z., Ben-David, Y. et al. Molecular stratification within triple-negative breast cancer subtypes. Sci Rep 9, 19107 (2019). https://doi.org/10.1038/s41598-019-55710-w
- Lehmann, B. D. et al. Identification of human triple-negative breast cancer subtypes and preclinical models for selection of targeted therapies. J Clin Invest 121, 2750–2767, https://doi.org/10.1172/JCI45014 (2011).

Breast cancer recurrence location

Several studies were able to prove a difference in prognosis related to the specific site of local breast cancer recurrence. Recurrent tumors at the same specific site of the primary cancer usually show worst prognosis than ipsilateral tumor recurrence at a different site from primary cancer or contralateral cancer. In order to be able to include this detailed information that may help identify prognostic biomarkers, and help define future therapies, we think is relevant to include these terms:

- Breast cancer recurrence at the same site of the primary cancer
- Breast cancer ipsilateral recurrence at a site different from that of the primary tumor
- Breast cancer contralateral recurrence

Sources:

- Komoike Y, Akiyama F, Iino Y,et al. Analysis of ipsilateral breast tumor recurrences after breast-conserving treatment based on the classification of true recurrences and new primary tumors. Breast Cancer. 2005;12(2):104-11. doi: https://doi.org/10.2325/jbcs.12.104 . PMID: 15858440.
- Huang E, Buchholz TA, Meric F,et al. Classifying local disease recurrences after breast conservation therapy based on location and histology: new primary tumors have more favorable outcomes than true local disease recurrences. Cancer. 2002 Nov 15;95(10):2059-67. doi: https://10.1002/cncr.10952 . PMID: 12412158.
- Yi M, Buchholz TA, Meric-Bernstam F, Bedrosian I, et al. Classification of ipsilateral breast tumor recurrences after breast conservation therapy can predict patient prognosis and facilitate treatment planning. Ann Surg. 2011 Mar;253(3):572-9. doi: https://10.1097/SLA.0b013e318208fc2a . PMID: 21209588; PMCID: PMC4331097.

Prostate Imaging Reporting & Data System V2 (PI-RADS v2)

PI-RADS v2 was developed by members of the PI-RADS Steering Committee (formed by members of the European Society of Urogenital Radiology, American College of Radiology and the AdMeTech Foundation), several working groups with international representation, and administrative support from the ACR using the best available evidence and expert consensus opinion. It was designed to promote global standardization and diminish variation in the acquisition, interpretation, and reporting of prostate multi-parametric magnetic resonance imaging (mp MRI) examinations

PI-RADS™ v2.1 assessment uses a 5-point scale based on the likelihood (probability) that a combination of mpMRI findings on T2W, DWI, and DCE sequences correlates with the presence of a clinically significant cancer for each lesion in the prostate gland. Hence the 5 terms we aim to include in order to be able to save this information in a standard way:

- Prostate Imaging Reporting & Data System category 1
- Prostate Imaging Reporting & Data System category 2
- Prostate Imaging Reporting & Data System category 3
- Prostate Imaging Reporting & Data System category 4
- Prostate Imaging Reporting & Data System category 5

Source:

- Turkbey B, Rosenkrantz AB, Haider MA, et al. Prostate Imaging Reporting and Data System Version 2.1: 2019 Update of Prostate Imaging Reporting and Data System Version 2. Eur Urol. 2019;76(3):340-351. doi:10.1016/j.eururo.2019.02.033. PI-RADS 2019 v2.1

Rectal cancer imaging findings

The Updated recommendations from the 2016 European Society of Gastrointestinal and Abdominal Radiology (ESGAR) are used as clinical guidelines for primary staging and restaging of rectal cancer using MRI. The guidelines were constructed through consensus amongst 14 ESGAR pelvic imaging experts. This information is usually available in the MRI standardized report of patients with rectal cancer. We aim to save this information in a standard way within OMOP tables using the following terms:

- Extramural vascular invasion (imaging finding)
- Mesorectal fascia invasion (imaging finding)
- External anal sphincter invasion (imaging finding)
- Internal anal sphincter invasion (imaging finding)
- Distance of inferior border of tumor to anorectal junction (image finding)

As we have seen that some of these terms, as “Extramural vascular invasion”, are available as a standard concept to describe specifically histologic findings, we’ve added the “(imaging finding)” to the description in order to differentiate these terms.

Sources:

- Beets-Tan RGH, Lambregts DMJ, Maas M, et al. Magnetic resonance imaging for clinical management of rectal cancer: Updated recommendations from the 2016 European Society of Gastrointestinal and Abdominal Radiology (ESGAR) consensus meeting. Eur Radiol. 2018 Apr;28(4):1465-1475. doi: https://10.1007/s00330-017-5026-2
- This guideline evolved from previous one: Beets-Tan RG, Lambregts DM, Maas M, et al. Magnetic resonance imaging for the clinical management of rectal cancer patients: recommendations from the 2012 European Society of Gastrointestinal and Abdominal Radiology (ESGAR) consensus meeting. Eur Radiol. 2013 Sep;23(9):2522-31. doi: https://doi.org/10.1007/s00330-013-2864-4