

A Comparative Analysis of the Results of Breast MRI and Large Section Histology in Preoperative Evaluation of the Breast Cancer Extent

**O. S. Puchkova¹, V. E. Sinitsyn², S. Yu. Bogomazova⁴, E. A. Merzhina³,
V. P. Shirokiy⁴, D. A. Bazhenova³, E. V. Nenaidenko²**

¹ Il'inskiy Hospital, Moscow region

² Lomonosov Moscow State University

³ University Clinic, Medical Research and Education Center, Lomonosov Moscow State University

⁴ Federal Center of Medicine and Rehabilitation, Ministry of Healthcare of Russia, Moscow

Abstract

The aim of the study was to assess the sensitivity of MRI in preoperative measurement of the extent of breast cancer (BC), determine the presence or absence of correlation with standard and postoperative large-section histological examination. 169 patients were divided into 2 groups according to the modern X-ray classification L. Tabar. All patients underwent a core biopsy with subsequent histological examination. The first group consisted of 57 (33,7 %) women with tumors arising in the terminal ductal-lobular unit – acinar adenocarcinoma (AAB) unifocal and multifocal forms, and the second group – 112 (66,3 %) women with types of ductal adenocarcinoma in situ (in situ/DAB) and ductal adenocarcinoma in situ associated with the acinar form of breast cancer (AAB – DAB). Pathologic findings on mammography were assessed using the modern classification of L. Tabar. Standard and large section histology were used after surgery. The results of tumor size evaluation according to the large-section histological examination and MRI of the breast in women with breast cancer originating in the main duct (DAB) were characterized by good comparability. Estimates of the size of the tumor of acinar origin, both unifocal and multifocal forms, obtained with the standard histological examination, were significantly lower (81,8 % of cases). Extent of breast cancer originating in the main ducts preoperatively measured by breast MRI correlates with data from a large-section histology study. Large-section histology allows to more accurately assess the correlation of histological and diagnostic methods, reducing the number of repeated surgical interventions.

Key words: Ductal Adenocarcinoma in Situ, Large Section Histology, Contrast-Enhanced Magnetic Resonance Imaging of the Breast.

References

1. *Tabár L., Dean P. B., Lindhe N., Ingvarsson M.* The ongoing revolution in breast imaging calls for a similar revolution in breast pathology. *Int. J. Breast Cancer.* 2012. V. 2012:489345.
2. *Amornsiripanitch N., Lam D., Rahbar H.* Advances in breast MRI in the setting of ductal carcinoma in situ // *Seminars in Roentgenol.* 2018. V. 5. № 4.
3. *Tot T., Tabár L.* Mammographic-pathologic correlation of ductal carcinoma in situ of the breast using two- and three-dimensional large histologic sections // *Semin Breast Dis.* 2005. V. 8. № 3. P. 144–151.

4. *Colin C., Devouassoux-Shisheboran M., Sardanelli F.* Is breast cancer overdiagnosis also nested in pathologic misclassification? // Radiol. 2014. V. 273. № 3. P. 652–655.
-

Authors

Puchkova Ol'ga Sergeevna, Radiologist of Department of Radilogy, Il'inskiy Hospital.
Address: 2/2, Rublevskoe Predmest'e, poselenie Il'inskoe, Moscow region, Russia, 143421.
Тел.: +7 (903) 273-02-17. E-mail: helgasoul@yandex.ru
ORCID.org/0000-0002-1182-1002

Sinitsyn Valentin Evgenyevich, M.D. Med., Professor, Head of Department of Radiology and Radiotherapy, Faculty of Fundamental Medicine, Lomonosov Moscow State University.
Address: 27 /1, Lomonosovskiy pr-t, Moscow, Russia, 119991.
Phone number: +7 (916) 655-24-64. E-mail: vsini@mail.ru
ORCID.org/0000-0002-5649-2193

Mershina Elena Aleksandrovna, Ph. D. Med., Head of Department of Tomography, University Clinic, Medical Research and Education Center, Lomonosov Moscow State University.
Address: 27 /1, Lomonosovskiy pr-t, Moscow, Russia, 119991.
Phone number: +7 (903) 965-50-76. E-mail: Elena_mershina@mail.ru
ORCID.org/0000-0002-5649-2193

Shirokiy Vyacheslav Pavlovich, Ph. D. Med., Head of Breast Center, Center of Radiation Diagnostics, Federal Center of Treatment and Rehabilitation, Ministry of Healthcare of Russia.
Address: Russia, Moscow, sh. Ivankovskoe 3, 125367,
Phone number: +7 (903) 240-03-09. E-mail: shirokiy_v@mail.ru
ORCID.org/0000-0002-5649-2193

Bogomazova Svetlana Yur'evna, Ph. D. Med., Head of Department of Pathomorphology, Center of Radiation Diagnostics Federal Center of Treatment and Rehabilitation, Ministry of Healthcare of Russia.
Address: Russia, Moscow, sh. Ivankovskoe 3, 125367.
Phone number: +7 (903) 000-88-66. E-mail: bogomazova@list.ru
ORCID.org/0000-0001-5349-9114

Bazhenova Dar'ya Anatol'evna, Radiologist of Department of Tomography, University clinic, Medical Research and Education Center, Lomonosov Moscow State University.
Address: 27 /1, Lomonosovskiy pr-t, Moscow, Russia, 119991.
Phone number: +7 (919) 964-71-28 E-mail: bazhenova.darya@gmail.com
ORCID.org/0000-0002-7757-6273

Nenaydenko Elizaveta Valentinovna, Resident Chair of Radiology and Radiotherapy, Faculty of Fundamental Medicine, Lomonosov Moscow State University.
Address: 27 /1, Lomonosovskiy pr-t, Moscow, Russia, 119991.
Phone number: +7 (929) 908-01-73. E-mail: nenajdenko@gmail.com
ORCID.org/0000-0003-1505-2797