# Breast imaging: multidisciplinary approach - case report

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### Apstrakt

Breast cancer is the most common malignant tumor and one of the leading causes of premature death of women in The Republic of Serbia. The rates at which women get sick and die of breast cancer have been continually growing for the past few decades. In more than half of the cases, breast cancer is discovered in its advanced stage. In The Republic of Serbia, non-invasive breast cancer is found in only 1% of the cases, and the percentage of the illness localized only in breasts is just 37%. Taking these data into account, it is necessary to employ all available imaging methods and relevant medical specialties, and all with the aim of diagnosing breast cancer in its early stage, because that is the only possible way to completely cure this malicious disease.

**Ključne reči:** breast cancer, mammography, breast sonography, magnetic resonance

## PRIKAZI SLUČAJA

### Snimanje dojki: multidisciplinarni pristup - prikaz slučaja

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### Abstract

Rak dojke je najčešći maligni tumor i jedan od vodećih uzroka prevremene smrti žena u Republici Srbiji. Stope razboljevanja i umiranje od raka dojke su neprestano raste u poslednjih nekoliko decenija. U više od polovine slučajeva, rak dojke je otkrivena u poodmakloj fazi. U Republici Srbiji, neinvazivni rak dojke se nalazi samo u 1% slučajeva, a procenat bolesti lokalizovane samo u grudima je 37%. Uzimajući u obzir ove podatke, potrebno je upotrebiti sve dostupne metode snimanja i relevantne medicinske specijalnosti, a sve u cilju postavljanja dijagnoze raka dojke u ranoj fazi, jer je to jedini mogući način da se potpuno izleči ova teška bolest.

Key words: rak dojke, mamografija, ultrazvuk, magnetna rezonanca

#### Introduction

Over the last 20 years, breast cancer has shown a continual incidence and prevalence growth, and in Serbia the growth of mortality rate as well1. Breast cancer has become the leading cause of death of women 40 - 60 years old, with one out of eight women getting ill. Almost 80% of all malignant breast tumors are Invasive Ductal Carcinoma (IDC). Timely diagnosis of malignant breast diseases represents the road to the decrease of breast cancer mortality rate. In economically developed countries, thanks to screening<sup>2</sup>, mortality rate is constantly declining and the death rate fell by 30%. At the moment, the only way to control the disease is its early diagnosis when the malignant lesion is under 1cm, which results in locally advanced disease in only 10% of the cases, and fifteen-year survival in 95%. Tumors bigger that 2cm are 77% likely to locally metastasize to regional lymph nodes and ten-year survival in this case is almost  $60\%^5$ .

Baring these facts in mind, over the past two decades, with the development of the new technologies of mammography, echotomography and MR mammography, along with the introduction of BI RADS<sup>3</sup> classification of pathological changes, a new subspecialty for radiologists has emerged. The aim of technological progress is that every modality be as little invasive, easily applicable and cheap as possible.

BI RADS<sup>3</sup> classification was developed by American College of Radiology, as a better form of communication between radiologists and clinicians, i.e. oncology surgeons, and it is used for differentiation of test results, systematization and gradation of pathological changes into 0 - 6 categories, with each category giving a recommendation for further treatment of the patient. After mammography, sonography and MR mammography, both congruence and differences in BI RADS<sup>3</sup> classification are possible, and they can help with quicker

### CASE REPORTS

and more precise diagnosis. Mammography4 as a "gold standard" for breast diagnostic protocol, represents a modality for breast disease diagnosis and timely diagnosis of malignant lesions and microcalcifications. Sonography<sup>3</sup> as a non-invasive and easily accessible method represents an important modality for diagnosing palpable lesions in breasts. With the introduction of Magnetic resonance mammography (MRM)<sup>5</sup> as an indispensable protocol of diagnostic algorithm for undetermined cases with high specificity, clear visualization and differentiation between benign changes and malignant tumors are enabled.

### **Case report**

44-year old patient with positive family anamnesis for breast cancer, without problems during screening process at Radiotherapy department of MMA. Clinical tests on breasts and axillae presented palpatory nodulations with no convincing signs of third dimension on both sides. Axillae test results are clean. Ultrasound of both breasts presented dysplastic change of glandular tissue, pronouncedly adenomatous. At the joint of upper quadrants of the right breast, an oval, mildly lobular, well-defined mass 10mm x 6mm big. Ultrasonically benign characteristics. Test results match fibrolipoma. In the upper lateral quadrant of the left breast, high towards the front axillary line, a bigger adenomatous dysplastic plaque 31mm x 9mm big can be perceived. With immersed microcysts 6mm in diameter. No pathologically changed lymph nodes in axillae can be seen.

BI RADS presented on Picture 1. Mammography results were: Breasts type ACR-3, noticeably glandular structure with conspicuous adenomatosis. In the upper outer quadrant of the left breast there are visible signs of adenosis with densely distributed microcalcifications of mostly uniform appearance on the surface, 20mm x 20mm big. Infiltrative etiology cannot be excluded with certainty.



Picture 1. BI RADS 1. left



2. right

MRI breast scan preesnted: Axial T2, T2 FAT SAT sagittal tomogram and VIEWS 3D, pre- and postcontrast dynamic study of both breasts in the axial plane were done, section thickness 2mm. Subtraction (3T) was done in post-processing.



### CASE REPORTS

In the upper lateral quadrant of the left breast on the area of 53mm x 30mm, there is a multifocal, postcontrast lobular amplification, the curve formed is showing plateau, with its characteristics it matches DCIS. In the right breast, there are zones of post-contrast amplification of non mass type which correlate with dysplasia grade II/III. There are no pathological changes of lymph nodes in the axillae.

After these test results, The Breast Council decided that the patient be admitted to the clinic for surgical oncology, so as to be surgically treated. Partial resection of the left breast was done, and patohistological diagnosis were- Breast ductal carcinoma "in situ" (DICS).

Given the definitive patohistological result, the patient was presented to the council again, and the decision that radiotherapy be carried out on the remainder of the left breast was made. The patient is in good general state and she represents an excellent example of the multidisciplinary approach to diagnosing and treatment of breast cancer.

#### Disscusion

Breast cancer has a huge socio-medical importance (owing to the consequences that may stem from it) and demands routine use of all available diagnostic methods, obtaining adequate material for pathohistological confirmation and close cooperation with surgeons. Therefore, I want to emphasize once again the importance of teamwork in diagnosing and treatment of breast cancer, due to the fact that the early diagnosis of this disease is currently the only way of taking control over it2. Concretely, at this moment, the task of imaging2 is: the recognition of the earliest stage of breast cancer and as precise estimation of the extension of the disease as possible with the aim of adequate treatment planning, and regular monitoring of patients who received therapy because of possible residual disease.

#### Literature

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