VIA MEDICA

EDITORIAL

Ginekologia Polska
2022, vol. 93, no. 6, 441–443

ISSN 0017–0011, e-ISSN 2543–6767

DOI 10.5603/GP.a2022.0065

Editorial

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Breast cancer is a heterogeneous disease of significant social importance. For many years it has been the most common malignant tumor in women in Poland and in many countries throughout the world. The incidence of breast cancer in women over 30 is systematically increasing. In Poland in 2018, according to the National Cancer Registry, there were 18,869 cases of BC in women and 154 in men. At the same time, a total of 6,895 and 75 deaths were recorded for women and men, respectively [1, 2]. The neoplasm is characterised by a varied clinical course and a wide spectrum of morphological images in radiological studies. In recent years, there have been many developments in terms of the knowledge base, diagnostic methods, and new therapeutic options for breast cancer. Currently, breast cancer treatment consists of a comprehensive approach to the diagnostic and therapeutic processes. Three main imaging methods are used in the diagnosis of breast cancer: ultrasonography, mammography, and magnetic resonance imaging [1, 3, 4]. Each of these methods plays a special role in diagnostics. Ultrasonography is used mainly in young women and those with glandular or mixed breast structure [4]. Contemporary breast ultrasonography means not only mapping the morphology of focal lesions and their surroundings but also involves a combination of additional techniques such as sonoelastography and colour Doppler. These techniques allow an increase in the accuracy of imaging and qualification of patients for biopsy or observation [1, 5]. Early diagnosis of breast cancer and knowledge of its oncological characteristics based on biopsy findings facilitate the choice of optimal therapy, including surgical treatment which, in selected cases, is preceded by neoadjuvant chemotherapy. Treatment of early breast cancer is complex and includes a combination of surgical methods (breast conserving therapy, BCT), radiotherapy, systemic therapies (chemotherapy, hormone therapy, molecularly targeted therapies), and adjunctive therapy in various sequences [1, 3]. The use of predictive bio- markers such as the histological type of BC (invasive or preinvasive forms), the expression of ER/PgR (estrogen receptor (ER) and progesterone receptor), Ki67 (proliferation index) and HER2 (human epidermal growth factor receptor 2), genomic signatures, if available, stage of the primary tumor, condition of the axillary lymph nodes, and patient's preferences, affect the choice and sequence of therapies. These methods, especially systemic treatment, have undergone significant changes over the years. Neoadjuvant chemotherapy (NAC), first introduced in 1970, has been used in locally advanced breast cancer (LABC) and inflammatory BC to reduce tumor size and improve the radical nature of surgical treatment, including BCT. Currently, decisions regarding neoadjuvant treatment should be based on the anticipated sensitivity to particular types of treatment, the benefits of their use, and the individual risk of relapse. Additionally, short-term and long-term toxicity, the biological age of the patients, and their general health and comorbidities should be considered. In the current recommendations of all scientific oncological societies, neoadjuvant chemotherapy is recommended not only in locoregional advanced breast cancer but also in the early stages of the following subtypes: triple-negative breast cancer (TNBC) and in combination with molecularly targeted treatment in the subtypes with the presence of HER2 receptors (luminal B HER2 positive and HER2 positive non-luminal subtypes [1, 5]. Neoadjuvant chemotherapy can also be used in cases of HER2 negative luminal B cancer with low expression of hormone receptors, high grade (G3), and in young individuals (≤ 35 years of age), stage II or III [1, 3] (Fig. 1. A–C).

Many processes, both benign and malignant can mimic primary breast cancer [6, 7]. Many of the can be differentiated from the breast cancer based on imaging tests, whereas other will finally require a histopathological confirmation. Most common benign breast tumors in women are fibroadenomas and cysts [6]. High-resolution imaging test as mammography and ultrasonography (USG) and exact criteria of assessment and images interpretation application in most cases allow to differentiate breast cancer from fibroadenomas and cysts.

However, due to partial convergence in image of benign and malignant lesions, new or growing breast lesion that

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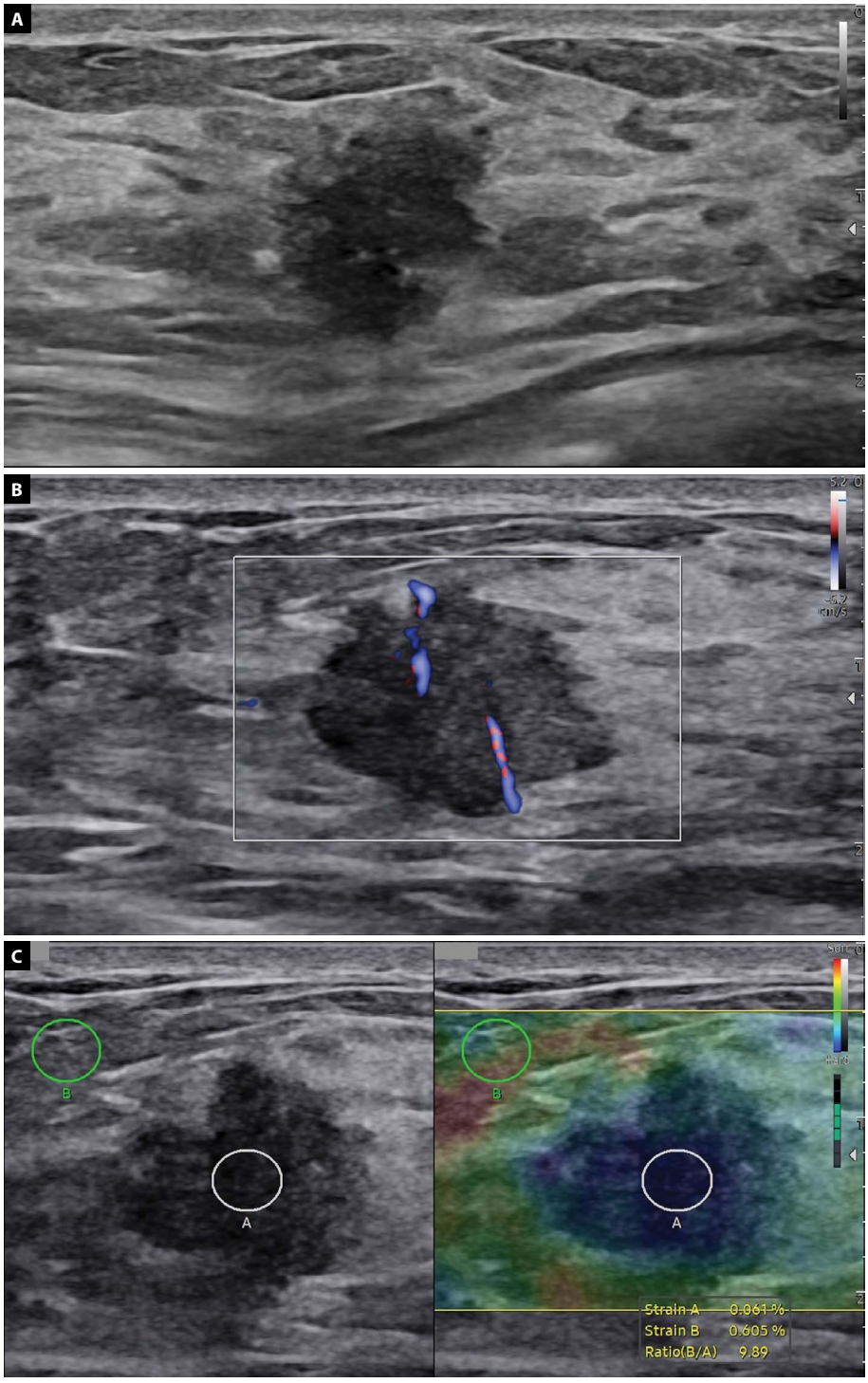

Figure 1. A–C. A 31-year-old patient. The B-mode examination shows an irregularly shaped tumour with indistinct margins, with enhancement behind the lesion (**A**). In the PD small vessels are visible on the periphery of the lesion and inside (**B**). SE – strain elastography on, the lesion is hard; Ratio 9,89. BIRADS 5 (**C**). Histopathology: Luminal B subtype

does not present all typical features of benign lesion (*e.g.*, hamartoma) requires performing a biopsy.

Apart from lesions associated with ducto-lobular system, structures originating from mesenchymal stroma of the breast may mimic a breast cancer.

Such structures include typical tumors originating from the stroma like pseudovascular stromal hyperplasia (PASH) and other, which originate from supporting tissues, including fibrous, vascular, lymphatic, nervous tissues and skin. The second group includes focular fibrotic lesions (diabetic

mastopathy) [8], fibromatosis, malignant histiocytic tumors, vascular malformations, vascular sarcomas, neuromas, lymphomas and sarcomas form the adipose tissue. In addition, image mimicking breast cancer may arise due to inflammation (reaction to foreign body, breast inflammation, abscess), trauma (hematoma, steatonecrosis), lactation related changes and metastasis of other, not related to breast, cancers.

Additionally, multiparametric ultrasonography analysis of breast cancer features is helpful in detecting aggressive subtypes, assigning the appropriate BIRADS classification category, and referring patients for biopsies [1].

Another interesting method with possible future application is contact thermography, which was proven to be a safe, practical a complementary method of breast pathologies diagnosis in the GP's or gynecologist's office [9]. While its future practical applications are yet to be implemented, it should be noted that contact thermography is not a sufficient method for breast cancer prevention, and it can be only regarded as a complementary method in the diagnosis of breast pathologies.

Despite large and various possibilities of imaging techniques, in some cases options of certain radiological diagnosis are limited, even when few of the techniques are combined [10]. Ultrasonography plays a role of easy to access, available technique, however its results should be later confirmed in more accurate and specific techniques like, magnetic resonance imaging or computed tomography.

I encourage you to read the current issue of our magazine. As usual, we publish many very interesting articles that can be fascinating reading even during the holidays.

By recommending the content, they record more interesting and interesting materials with the new issue of Polish Gynecology, I wish you a wonderful and eventful holiday.

Conflict of interest

None declared.

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