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A biologically "old" breast cancer subtype in a very young woman: a plea of ignorance

Marcin Sniadecki[1], Magdalena Krajewska[1], Maria Stasiak[1], Aleksandra Walkiewicz[1], Pawel W. Guzik[2]

[1]Chair of Gynecology, Obstetrics and Neonatology, Department of Gynecology, Gynecologic Oncology and Gynecologic Endocrinology, Medical University of Gdansk, Poland

[2]Clinical Department of Gynecology and Obstetrics, City Hospital, Rzeszow, Poland

CASE REPORT

A 27-year-old patient, a physician by profession, attended a gynecologist for a first ultrasound (US) breast examination. Until then, she had no oncological burdens or chronic diseases, had been using hormonal contraception (HC) for 11 years, and had not performed breast self-examination. On US examination, an oval lesion in the right breast (6:30), assessed according to the Breast Imaging Reporting and Data System (BIRADS) score 3, was detected and a follow-up examination was recommended for 6 months' time. At the follow-up examination after 7 months, the lesion was classified as BIRADS-US-4b (Fig. 1). The patient was referred for a core-needle biopsy. Histopathological examination of a specimen revealed invasive breast carcinoma of no special type G-1 [World Health Organization (WHO): invasive breast carcinoma of no special type (NST)] luminal A phenotype (cT1c, cN0, cMx). Then an magnetic resonance imaging was performed which confirmed the presence of a 16 mm lesion suspected for malignancy. At the patient's request, breast-conserving surgery with adjuvant radiotherapy was rejected, and instead, the surgical treatment was subcutaneous mastectomy with reconstruction (Fig. 2). Hormone therapy with tamoxifen and goserelin was then commenced.

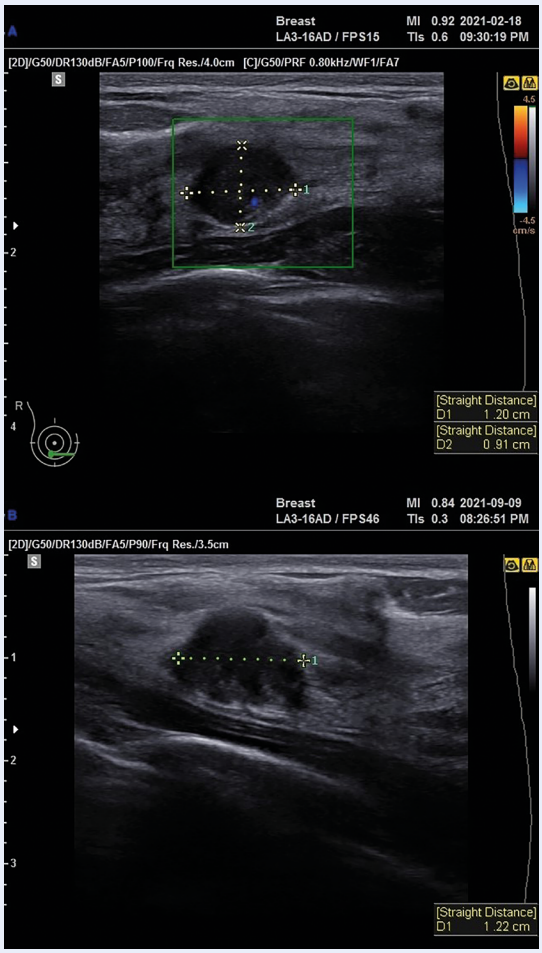

Figure 1. Ultrasound images (B-mode presentation) of the same lesion; **A.** Relatively well delineated lesion, BI-RADS 3; **B.** Slightly ill-defined margins, BI-RADS-4b

DISCUSSION

It is significant that in women < 35 years of age with breast cancer (BC), we observe a higher frequency of BC with triple negative subtypes and significantly fewer luminal A subtypes compared to older premenopausal and postmenopausal women [1]. After sequencing 70 genes, including *BRCA 1/2*, we found no mutations that could predispose our patient to BC at a young

Corresponding author:
Marcin Sniadecki
Chair of Gynecology, Obstetrics and Neonatology, Department of Gynecology, Gynecologic Oncology and Gynecologic Endocrinology, Medical University of Gdansk, Poland
e-mail: marcinsniadecki@gumed.edu.pl

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age. Analysis of additional, known risk factors for BC, *i.e.*, age, family history, body mass index, physical activity, smoking, pregnancy, and breastfeeding, revealed no significantly increased risk of BC. The protective effects on the occurrence of luminal BC of a woman's number of births and a young age at first birth do not include HER2-negative subtypes, which suggests that this risk may be mainly influenced by hormonal mechanisms related to sex hormones [2]. Considering that the patient in our study is nulliparous, the potential influence of taking HC must be discussed. Currently, there is no unequivocal correlation between the use of HC and an increased risk of BC. In some population studies, a slight increase in risk was observed, mainly during the first 5 years of contraceptive use [3]. For the first year, the patient took a combined oral pill, and for the remainder, a intrauterine device containing 19.5 mg of levonorgestrel. According to the Polish Society of Gynecologists and Obstetricians guidelines, an OB&GYN specialist should perform a breast examination before starting HC, and then repeat the examination annually. It is worth noting that these recommendations do not specify the breast examination type that should be undertaken (by default, this is clinical breast examination). The low sensitivity of breast palpation is widely known, so that cannot be recommended as a screening test. Our patient may have been more willing to keep the breast if the lesion had been detected several years earlier and had been a few millimeters in size, preserving, among other things, the possibility of breastfeeding and further prevention of BC [4]. However, in cases of young women, early detection is more likely to be diagnosed with US than mammography. In addition, it should be noted that the BC may not have been luminal A and may have been more aggressive in behavior. Indeed, the patient also decided to remove and reconstruct the other breast. US examination at the age of 16 and further regular examinations could protect the patient from this "favorable" course of BC in our patient.

Figure 2. 27-year-old patient after subcutaneous mastectomy with reconstruction of the right breast due to breast cancer

CONCLUSIONS

The development of optimal strategies for the prevention of breast diseases in young and very young women is important, because these women are currently excluded from secondary prevention through screening tests [5]. The age at which breast US should be examined either non-systemically (*i.e.*, by gynecologists during routine visits) or systemically requires further analysis. In the light of the noticeably worsening statistics of BC incidence among young women, it seems reasonable for gynecologists to eliminate the practice of excluding these group of patients from BC screenings as though they are not at risk of developing BC. This is especially so, given that gynecological US check-ups are performed much more regularly, and yet the risk of gynecological cancers is significantly lower than that of BC.

Article information and declarations

Conflict of interest

All authors declare no conflict of interest.

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