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The Role of Ultrasound in Detecting Residual or Recurrent Breast Carcinoma: A Case Report of a Patient Following Wide Excision in the Contralateral Breast

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Abstract. *Breast carcinoma represents the most prevalent malignancy among women, rendering routine surveillance using ultrasonography (USG) essential for early detection and monitoring. This case report describes a 49-year-old female presenting with a palpable mass and pain in the left breast, occurring one year after undergoing wide excision in the right breast, with prior histopathological findings of microglandular adenosis. Physical examination revealed bilateral breast masses without evidence of axillary lymphadenopathy. Breast ultrasonography demonstrated a cystic lesion with a solid component in the right breast and a cystic lesion in the left breast, both classified as BI-RADS III. This case underscores the critical role of post–wide excision surveillance using ultrasonography in identifying residual or recurrent lesions in the breast, including the contralateral side. Consistent monitoring and an appropriate clinical approach are expected to prevent diagnostic delays and improve clinical outcomes in patients with residual or recurrent breast lesions.*

Keywords: *Breast Carcinoma, Wide Excision, Ultrasound, Residual Lesions, Recurrent Lesions*

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INTRODUCTION

Breast cancer is the second most common type of cancer among women worldwide, with incidence rates rising each year (Arzanova & Mayrovitz, 2022; Tao et al., 2015; Arnold et al., 2022; Smolarz et al., 2022; Winters et al., 2017). According to 2020 data from *the Global Cancer Observatory* (GLOBOCAN), there were approximately 2.3 million new cases of breast cancer globally, with 685,000 deaths per year. In Indonesia, breast cancer ranks first with 65,858 new cases and is the leading cause of cancer-related deaths among women, with 22,000 deaths (Khoirunnisa et al., 2025; Rinaldi, 2024; Osborne et al., 2025; Kristina et al., 2025; Heryanto et al., 2025). Breast cancer typically originates in the ductal epithelium (ductal carcinoma) but can also arise in the breast lobules (lobular carcinoma) (Alshafie et al., 2024; Kunkler et al., 2023).

Breast cancer is influenced by several risk factors, such as advancing age, female gender, and a history of previous cancer, a family history of genetic mutations (BRCA1/BRCA2), as well as reproductive factors that increase estrogen exposure, such as early menarche and late menopause. The use of hormonal medications, obesity, alcohol consumption, radiation exposure,

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and environmental factors also contribute to an increased risk of breast cancer (Kamińska et al., 2015; Vegunta et al., 2020; Dumitrescu & Cotarla, 2020; Gray et al., 2009)

One of the main reasons for the high number of breast cancer deaths is the delay in patients seeking treatment (Rivera-Franco et al., 2018; Harirchi et al., 2015; Soh et al., 2022). Early detection of breast cancer can significantly improve patient survival rates. However, many patients present at an advanced stage due to nonspecific early symptoms, lack of access to healthcare services, and low awareness of early screening, resulting in lower *five-year survival rates* specifically 43% for stage III and 26% for stage IV. Patients with a history of previous excision remain at risk of *recurrence* the emergence of new lesions or even residual lesions either at the same site or in the contralateral breast (Van et al., 2015). Therefore, regular monitoring using effective and sensitive imaging modalities remains essential (Khurram et al., 2023; Qi et al., 2023).

Ultrasonography is a non-invasive diagnostic tool that plays a crucial role in the early detection of breast lesions. Ultrasound allows for the evaluation of a lesion's morphological characteristics, such as margins, *echogenicity*, and shape, and can distinguish between cystic and solid lesions (Ficarra et al., 2022; Musu et al., 2016; Lev & Lev, 2000; Athanasiou et al., 2014; Awali et al., 2024). Ultrasound examination is highly beneficial in assessing lesions in patients with a history of prior excision, particularly for detecting potential recurrent or residual lesions that may or may not be clinically palpable but are visible radiologically. Several existing studies indicate that the sensitivity of ultrasound in detecting breast cancer reaches 80–95%, particularly when combined with the results of medical history, physical examination, and biopsy.

The purpose of this case report is to highlight the need for a more detailed and thorough analysis of data, using a structured medical history, to identify risk factors, clinical symptoms, and the importance of physical examinations and diagnostic imaging such as ultrasound in detecting breast lesions in patients with a history of previous wide excision surgery. This is to prevent delayed diagnosis in both new and recurrent cases, so that a diagnosis can be established early and improve patient survival rates. Additionally, this report aims to emphasize the importance of applying medical ethics and professionalism, such as *informed consent*, empathetic communication, and maintaining patient confidentiality, with the goal of supporting the quality of care and improving the survival rates of breast cancer patients (Adam et al., 2023; Reimer et al., 2025; Amafah et al., 2023; Khoshnazar et al., 2016; Atashzadeh-Shoorideh et al., 2021; Prades et al., 2014).

METHODS

The research methodology in this study employs a qualitative approach using a case report design, aimed at providing an in-depth description of the patient's clinical condition and the diagnostic process conducted. This approach was chosen because it comprehensively reveals the relationship between clinical symptoms, medical history, and results of supportive examinations in a specific case. The primary focus of the study is on descriptive analysis of clinical findings in a breast cancer patient with a history of prior surgery, thereby enabling a contextual understanding of the potential for recurrent or residual lesions (Li et al., 2024). Data collection was conducted through several stages, including a structured medical history, a comprehensive physical examination, and supportive examinations such as breast ultrasound (USG). The medical history was used to systematically gather information regarding risk factors, medical history, and the patient's primary complaints. The physical examination was performed using inspection and palpation to assess the characteristics of the lump, while the ultrasound examination was used to evaluate the morphology of the lesion, including size, borders, and cystic or solid composition. All data obtained were then systematically documented as the basis for clinical analysis. Data analysis was conducted using a descriptive-analytical approach, interpreting clinical and radiological findings based on relevant medical literature. The researchers compared the examination results with applicable diagnostic criteria, such as the BIRADS classification, to determine the level of suspicion of malignancy. In addition, this study also considered medical

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ethical aspects, such as informed consent, patient confidentiality, and empathetic communication, as integral parts of the clinical research process. This approach is expected to contribute to improving the accuracy of early diagnosis and the quality of healthcare services for breast cancer patients.

RESULT AND DISCUSSION

A 49-year-old female patient presented with complaints of pain and a lump in her left breast that had been present for the past month. The pain was intermittent and had worsened over the past week. The lump felt enlarged and was not accompanied by other systemic symptoms such as fever or weight loss. The patient had a history of wide excision of the right breast in December 2023, with a pathological report indicating *microglandular adenosis*. No family history of cancer or comorbid conditions such as hypertension and diabetes mellitus was found. The patient's menarche occurred at age 12; she married at age 24 and her first child born at age 27; she has never used hormonal contraception, either oral or injectable.

Physical Examination: Inspection: appears asymmetrical; no abnormalities such as retraction, ulceration, or discoloration of the surrounding skin are observed. Nipples: Appear symmetrical, not inverted, no discharge. Palpation: Mammae Dextra: a small, well-defined mass with a firm consistency is palpable; it is mobile, not fixed to the skin or underlying tissue, and there is no tenderness; the overlying skin is not adherent and remains movable. The left breast (Mammae Sinistra) is palpable as a small, well-defined mass with a firm consistency; it is mobile, with no tenderness on palpation, and no signs of infiltration are visible. Right and Left Axillae: No lymph node enlargement was found. Axillary palpation was within normal limits; no masses, pain, or stiffness were palpable (Bedrosian et al., 2024; Yang et al., 2022; Beynon et al., 2018; Lanng et al., 2007).

Supportive mammary ultrasound findings show: Right breast: A cystic lesion with a solid component at the 2 o'clock position, measuring approximately 10 x 5 mm. Left breast: Cystic lesions measuring 8 x 4 mm and 4 x 2 mm at the 12 o'clock position. Right and left axillae are within normal limits; no lymph node enlargement is observed. Ultrasound findings: Cystic-solid lesion in the right breast and cystic lesion in the left breast (BIRADS III).

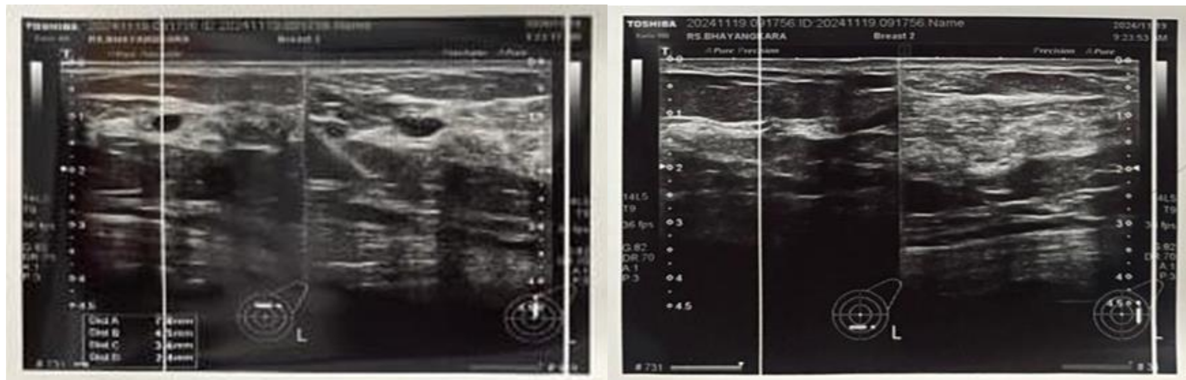

Figure 1. Left Breast: Cystic lesions measuring 8 x 4 mm and 4 x 2 mm at the 12 o'clock position and Left Axilla: Within normal limits; no lymph node enlargement is observed.

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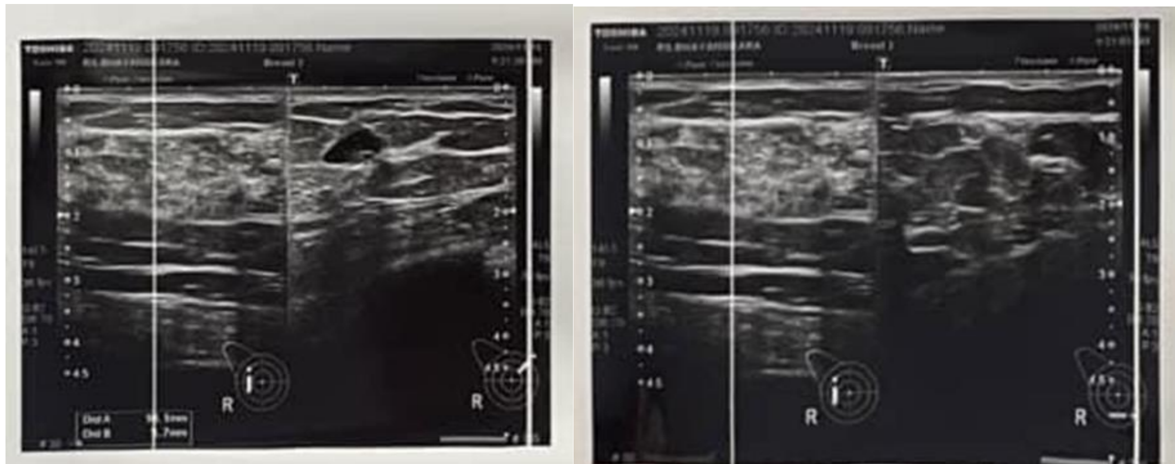

Figure 2. Right Breast: Cystic lesion with a solid component at the 2 o'clock position, measuring approximately 10 x 5 mm and Right Axilla: Within normal limits; no enlarged lymph nodes are visible.

Breast cancer is the most common cancer in women, with incidence rates continuing to rise each year. Although surgical procedures such as wide excision have been performed to remove tumors in the affected breast, the risk of new lesions or recurrence in the contralateral breast remains, as seen in the reported case. This 49-year-old patient presented with complaints of pain and a progressive mass in the left breast after undergoing wide excision of the right breast one year prior. The patient's medical history indicated that the histopathological findings from the right breast were *microglandular adenosis*, while the left breast revealed two small cystic lesions classified as BIRADS III. These findings indicate that although surgery was performed, further monitoring remains necessary to detect potential residual or recurrent lesions, which may increase the risk of developing contralateral breast cancer (Dvir et al., 2024; Ficarra et al., 2022).

Physical examination of the patient revealed masses in both breasts with the following clinical characteristics: well-defined borders, firm consistency, mobility, no tenderness on palpation, and no adhesion to the skin or underlying tissues. No dermatological abnormalities, such as skin retraction, ulceration, discoloration, or nipple discharge, were found. Axillary evaluation revealed no enlargement of regional lymph nodes (Shetty, M. K., & Carpenter, 2004; Pinheiro et al., 2014). These findings suggest the possibility of a benign lesion, such as a fibroadenoma, which is commonly found in young women and is characterized by a well-defined, painless, and clinically mobile mass. However, it is important to emphasize that further evaluation through imaging modalities and, if necessary, histopathological examination must still be performed to rule out the possibility of malignancy (Biparva et al., 2023; Xiong et al., 2025).

Breast ultrasound is a non-invasive imaging modality that plays a crucial role in the early detection of breast lesions, particularly in patients with a history of surgery such as wide excision. In this case report, ultrasound successfully identified cystic and solid lesions classified as BIRADS III, indicating that routine monitoring is necessary to assess the potential progression of the lesions. Based on the findings of Heidary et al. (2023), ultrasound has high sensitivity in detecting breast cancer, particularly in dense breast tissue, and can serve effectively as both a primary screening tool and a complement to mammography. This study found that ultrasound can detect most cases of cancer missed by mammography, making it an effective tool for breast cancer screening (Katsura et al., 2022).

In addition to its high sensitivity in detecting breast lesions, ultrasound (USG) also offers several advantages that make it a highly useful imaging modality in clinical practice. Ultrasound is a non-invasive method that does not use ionizing radiation, making it safe for repeated use, including in young patients and women with dense breast tissue. Furthermore, USG provides images that allow for the dynamic evaluation of lesion characteristics, such as borders, shape, and

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composition (cystic or solid), and can assist in interventional procedures such as fine-needle aspiration biopsy (FNAB) (Reimer et al., 2025; Sung et al., 2021).

However, ultrasound also has several limitations. One of the main drawbacks is its *operator-dependent* nature, meaning examination results are highly dependent on the examiner's experience and skill. Additionally, ultrasound has limitations in detecting very small lesions or microcalcifications, which are more sensitively detected using mammography. Ultrasound also has limitations in comprehensively evaluating the entire breast tissue compared to other modalities.12 Regular monitoring using ultrasound is highly recommended, especially in the first two years following surgery, to ensure there are no changes or developments indicative of breast cancer. In the pre-treatment phase, ultrasound is used to help assess the size and margins of the lesion, detect axillary involvement, and assist in selecting a treatment strategy. Meanwhile, in the post-treatment phase, ultrasound is useful for evaluating residual masses, detecting potential local recurrence, and monitoring postoperative scar tissue, such as after wide excision.

CONCLUSION

Breast carcinoma is a type of breast cancer with a high prevalence among women and a potential for recurrence even after wide excision. Ultrasound has proven to be a sensitive and specific non-invasive method for detecting cystic and solid lesions. However, ultrasound also has limitations, primarily due to its operator-dependent nature and suboptimal performance in detecting microcalcifications and very small lesions.

SUGGESTION

Therefore, the use of ultrasound plays a crucial role in screening and periodic monitoring, particularly in patients with a history of surgery; however, it must be combined with other modalities to achieve more accurate and comprehensive diagnostic results.

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