Multidisciplinary Approach in the Management of a Small, Non-Palpable Breast Tumor

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We present the case of a 46-year-old female patient who underwent senological assessment in the Radiology and Imaging Department of the Mureș County Emergency Clinical Hospital, Târgu Mureș, Romania. Her only complaint was right-sided breast pain; personal and family history did not reveal any relevant information. No abnormalities were detected upon inspection and palpation of the breasts. She did not attend breast screening so far, and as a result, she was referred to a mammogram.

Mammographic images were acquired in the standard craniocaudal and mediolateral oblique incidences. The examination revealed the presence of clustered pleomorphic microcalcifications localized in the upper outer quadrant (UOQ) of the right breast (Figure 1), normal findings in the left breast.

Contrast-enhanced magnetic resonance imaging was performed for further evaluation (Figure 2), which showed an inhomogeneous nodular mass, measuring 10/10.3 mm, with irregular margins, presenting diffusion restriction, type III enhancement with rapid wash-out, associating right axillary adenopathy. The mass was situated in the UOQ, distances measured from the areola and skin surface were 65 mm and 22 mm, respectively.

Targeted ultrasound examination (Figure 3) described a profoundly situated, hypoechoic lesion, with irregular margins, containing microcalcifications and increased vascularity on the color Doppler flow image. Ultrasound of the axilla revealed a lymph node with increased cortical thickness, measuring 7 mm. Based on the imaging studies, a 4c BI-RADS¹ score was assigned to the lesion, with a high suspicion for malignancy, and an ultrasound-guided core needle biopsy was performed. Histopathological and immunohistochemical examination of the specimen established the diagnosis of hormone receptor-positive invasive carcinoma of no special type (NST) with grade 2 histologic malignancy.

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FIGURE 1. Mammographical image of the right breast, in mediolateral-oblique incidence, containing a cluster of microcalcifications

Following oncologic consultation and ultrasound-guided hook wire marking (Figure 4) of the tumor, sectorectomy was performed with the excision of four axillary sentinel lymph nodes. The surgical piece was assessed by mammography, as well as histopathological and immunohistochemical examination. The surgical margins were clear. The final diagnosis was infiltrative breast carcinoma of no special type, grade 1 histopathological malignancy, associating cribriform intraductal carcinoma with intermediate grade of malignancy and a metastasis in one the four sentinel lymph nodes. Immunohistochemical evaluation, combined with in situ hybridization, concluded estrogen and progesterone receptor positivity, and Ki-67 and HER2 (human epidermal growth factor receptor 2) negativity. Hormonal adjuvant therapy was initiated within a week, and adjuvant radiotherapy was also recommended.

At the time of discovery, mammary neoplasms have an average size of 10–15 mm;^{2,3} those smaller than 1 cm can raise diagnostic and treatment problems. Imaging studies of the breast and preoperative core needle biopsy of suspicious nodules play a vital role in the diagnostic process, facilitate early diagnosis of cancer, and set the course for personalized treatment.^{4,5} In breast-conserving removal of non-palpable lesions preoperative marking is used in order to ensure clean surgical margins.⁶ The successful management of breast cancer requires senologist-coordinated interdisciplinary collaboration. The patient agreed

FIGURE 2. Contrast-enhanced magnetic resonance images of the lesion – inhomogeneous nodular mass with irregular margins, presenting diffusion restriction, type III enhancement. **A** – phase 1; **B** – phase 7

FIGURE 3. Ultrasound image of the hypoechoic lesion, with irregular shape and indistinct margin, measuring 6.5×7.4 mm in a “taller than wide” orientation

to the publication of her data and the institution where the patient had been admitted, approved the publication of the case.

CONFLICT OF INTEREST

Nothing to declare.

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FIGURE 4. Hook wire marking of the tumor. **A** – Insertion of the wire (white arrow) under ultrasound guidance; **B** – Post-procedural mammography in mediolateral oblique view – verifying the position of the wire; **C** – Post-excisional mammography in craniocaudal view – the surgical piece containing the hook wire