

# The Value of Multimodal Ultrasound in Screening for Small Breast Cancer

**Rongxian Chu**\*

Department of Ultrasound, The Second Affiliated Hospital of Anhui Medical University, Hefei, China

## Email address:

275621007@qq.com (Rongxian Chu)

\*Corresponding author

## Abstract

**Background:** Breast cancer is one of the most common malignancies in women, posing a serious threat to women's life and health. Small breast cancer refers to breast cancer with a maximum tumor diameter of  $\leq 2$ cm. Due to its small size, it is difficult to detect through clinical palpation. Therefore, ultrasonic diagnosis is of great significance in the early detection of small breast cancer. **Objective:** To investigate the value of multimodal ultrasound in the screening of small breast cancer. **Methods:** A total of 86 female patients with small breast cancer who were admitted to our hospital from 2023 to 2024 were selected for breast examination in the ultrasound department of our hospital before surgery, and all breast nodules were confirmed by pathology. Multimodal ultrasound technology, including conventional ultrasound, MV-Flow technology, ultrasound elastography and artificial intelligence S-Detect technology, was used to examine the patient's breast nodules, record the evaluation results of various ultrasound techniques in detail, and evaluate axillary lymph nodes, and finally classify breast nodules according to the BI-RADS classification. The specificity, sensitivity and accuracy of multimodal ultrasound in the diagnosis of small breast cancer were evaluated using pathological results as the gold standard. **Results:** Routine ultrasound showed that 30 patients with small breast cancer were considered benign and 56 were considered malignant. MV-Flow technology showed that 64 cases had abundant blood supply and 22 cases had no blood supply. Elastography technology evaluation: 25 cases were benign and 61 cases were malignant, Artificial intelligence S-Detect technology evaluation: 15 cases were considered benign and 71 cases were considered malignant. BI-RADS classification: 2 cases of class 4A, 33 cases of class 4B, 48 cases of class 4C, and 3 cases of class 5. The accuracy rate of multimodal ultrasound technology in diagnosing small breast cancer is as high as 97.7%. **Conclusion:** Multimodal ultrasound technology has important value in the screening of small breast cancer, which can significantly improve the detection rate and diagnostic accuracy of small breast cancer.

## Keywords

Multimodal Ultrasound, Small Breast Cancer, MV-Flow Technology, S-Detect Technology