

# PHILIPS

## Ultrasound

### Clinical case study

eL18-4 PureWave linear array transducer

#### Category

Breast Assessment

#### Authors

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**The Philips eL18-4 PureWave linear array transducer is our first high-performance transducer featuring ultra-broadband PureWave crystal technology with multi-row array configuration, allowing for fine-elevation focusing capability.**

#### Reference

1 Taylor KJW, Merritt C, Piccoli C, Schmidt R, Rouse G, Fornage B, Rubin E, Georgian-Smith D, Winsberg F, Goldberg B, Mendelson E. Ultrasound as a complement to mammography and breast examination to characterize breast masses. *Ultrasound in Medicine and Biology*. 2002;28(1).

## The eL18-4 PureWave linear array with MicroFlow Imaging (MFI) in diagnosis of palpable breast masses

#### Overview

Diagnostic ultrasound is the complementary modality to mammography for evaluation of women with dense breast tissue. It is of significant value in evaluating palpable masses and has been utilized as a screening modality for women with dense breast tissue and for needle guidance for biopsies.

#### Patient history

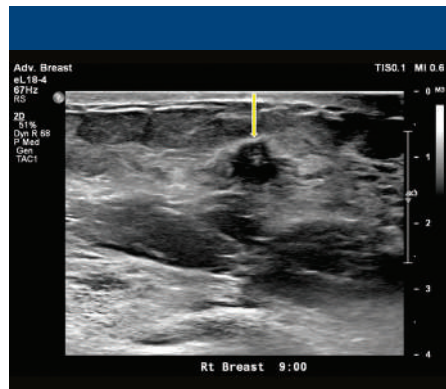
The patient is a 48-year-old female with an outside mammogram and an ultrasound at our office one year prior. Both were negative. The patient now presents with firmness in the upper outer quadrant of the right breast and was sent for evaluation of palpable mass. Initial clinical presentation was of a possible cyst.

#### Protocol

All quadrants of the right and left breast were scanned using the eL18-4 with MFI transducer to evaluate breast echogenicity, the presence and vascularity of masses, and assessment of the mammary ducts and lymph nodes. Four passes were made with an 18-gauge core biopsy needle.

#### Findings

Ultrasound imaging with the eL18-4 transducer reveals a hypoechoic, irregular, solid mass with punctate calcification and spiculations in a patient with echogenic breasts. The mass was biopsied and found to be invasive ductal cancer. This is a BIRADS 5 exam on ultrasound.



**Image of right breast using the eL18-4 transducer reveals a solid mass with calcification and spiculations.**

#### Conclusion

Clinical examinations are limited, particularly in women with echogenic breasts on ultrasound or dense breasts on mammography.<sup>1</sup> Review of prior mammogram and ultrasound were re-read as negative.

Although breast ultrasound is typically limited in the evaluation of breast cancer calcification, the eL18-4 transducer was diagnostic of punctate calcification reinforcing the diagnosis of breast cancer.

This confirms the high resolution capabilities of the eL18-4 transducer for screening breast ultrasound.

Results from case studies are not predictive of results in other cases. Results in other cases may vary.

# The eL18-4 PureWave linear array with MicroFlow Imaging (MFI) in diagnosis of breast pain and nipple discharge

## Overview

Diagnostic ultrasound is the complementary modality to mammography for evaluation of women with dense breast tissue. It is of significant value in evaluating palpable masses and has been utilized as a screening modality for women with dense breast tissue and for needle guidance for biopsies.

## Patient history

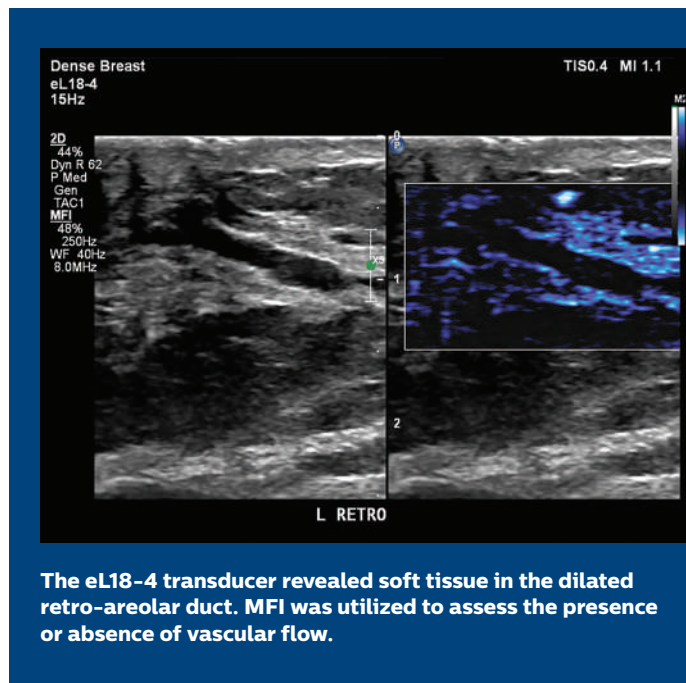
The patient was a 39-year-old female with left breast pain and clear nipple discharge. There was no redness or fever. There was no family history of breast cancer. Mammogram was negative. The patient breastfed during her last pregnancy at age 32.

## Protocol

All quadrants of the right and left breast were scanned using the eL18-4 with MFI imaging transducer to evaluate breast echogenicity, the presence of masses, vascularity of masses, and assessment of the mammary ducts and lymph nodes.

## Findings

Imaging reveals a hypoechoic mass within a dilated retroareolar duct. No vascular flow was seen with MFI. The mass was diagnosed as a papilloma with no features raising concern for cancer. No biopsy was performed.



**The eL18-4 transducer revealed soft tissue in the dilated retro-areolar duct. MFI was utilized to assess the presence or absence of vascular flow.**

## Conclusion

Breast ultrasound has proven to be of great value in the assessment of palpable masses and masses seen on mammography, and as a screening modality for women with dense breast tissue.<sup>1</sup> Improved ultrasound imaging through transducer research has led to greater confidence in evaluating patients with nipple discharge. No biopsy was required for the patient, thus saving patient discomfort from a biopsy and the cost of the procedure. Cytologic evaluation confirmed no malignancy.

This confirms the high-resolution capabilities of the eL18-4 transducer for evaluation of nipple discharge. Initial evaluation with ultrasound is suggested.

## Reference

1 Taylor KJW, Merritt C, Piccoli C, Schmidt R, Rouse G, Fornage B, Rubin E, Georgian-Smith D, Winsberg F, Goldberg B, Mendelson E. Ultrasound as a complement to mammography and breast examination to characterize breast masses. *Ultrasound in Medicine and Biology*. 2002;28(1).

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