

## Usefulness of SonoVue in the identification of sentinel nodes in patients with breast cancer

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## Purpose

Preoperative lymphoscintigraphy, introduced accordingly to sentinel lymph node biopsy (SLNB), is considered the gold standard for accurate axillary lymph node staging for breast cancer [4-9].

The technique, for the low radiation doses used (average absorbed doses of 0.5-1 mGy), is considered the almost devoid of carcinogenic potential.

However lymphoscintigraphy has limitations such as the need of specialized medical and technician personnel and having to follow the strict and precise protectionist rules.

Lymphatic imaging after intraparenchymal microbubble injection has been reported in animal models, and only few papers report human use.

The aim of our study was to investigate the dynamics of intradermal injection of microbubbles as they travel to draining SLNs and to identify and localize SLNs before surgery in patients with breast cancer.

## Methods and Materials

14 consecutive consenting women (mean age 61 years, range 39-70), with primary breast cancer were subjected to periareolar intradermal injection of 0.5 ml of SonoVue (Bracco Imaging, Milan, Italy), of the upper outer quadrant for the identification of the sentinel lymph node.

A IU 22 scanner (Philips Ultrasound, Bothell, WA, USA), with a 3-9 MHz linear transducer and Pulse-inversion harmonic imaging tool were used to image the progression of CEUS (contrast enhancement ultra sound).

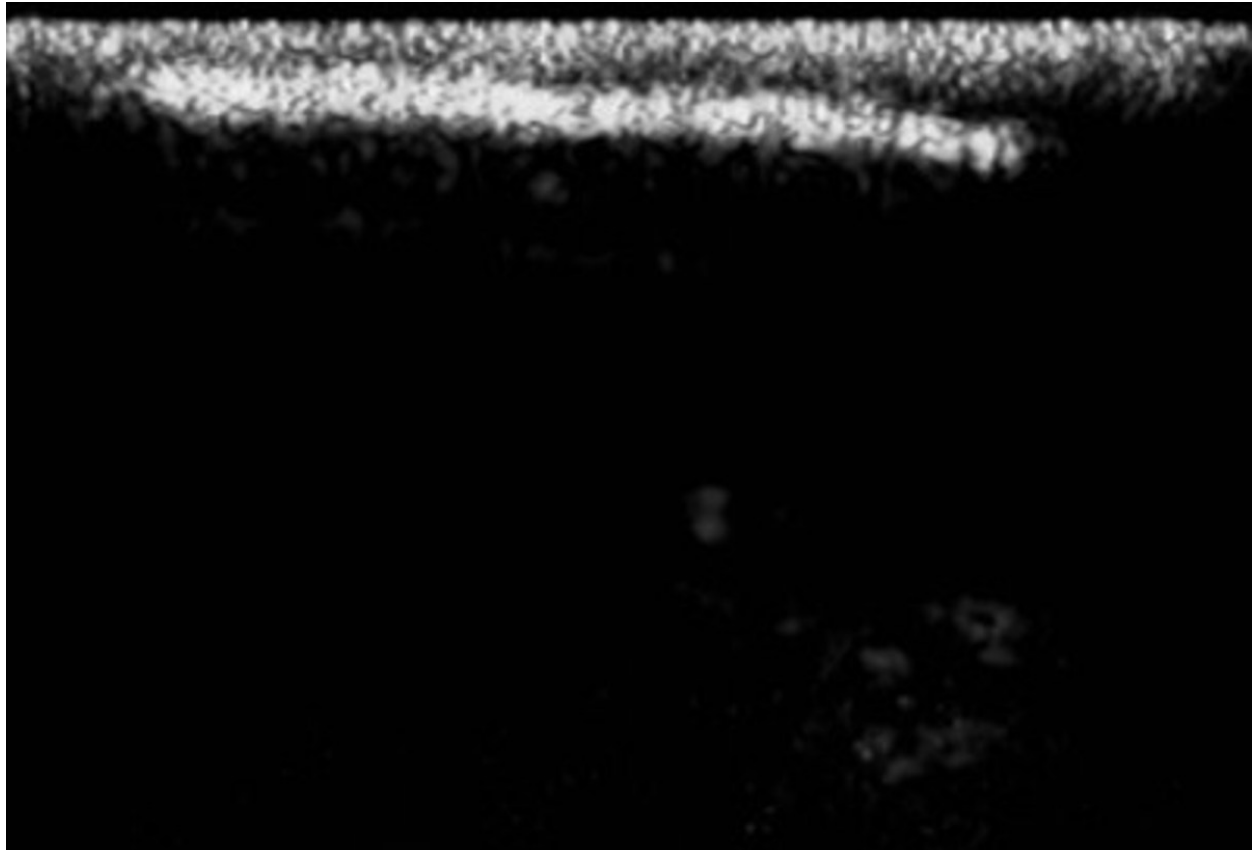
After introduction of the contrast agent the patients were monitored ultrasonographically for 120 minutes, performing a dermal massage.

## Results

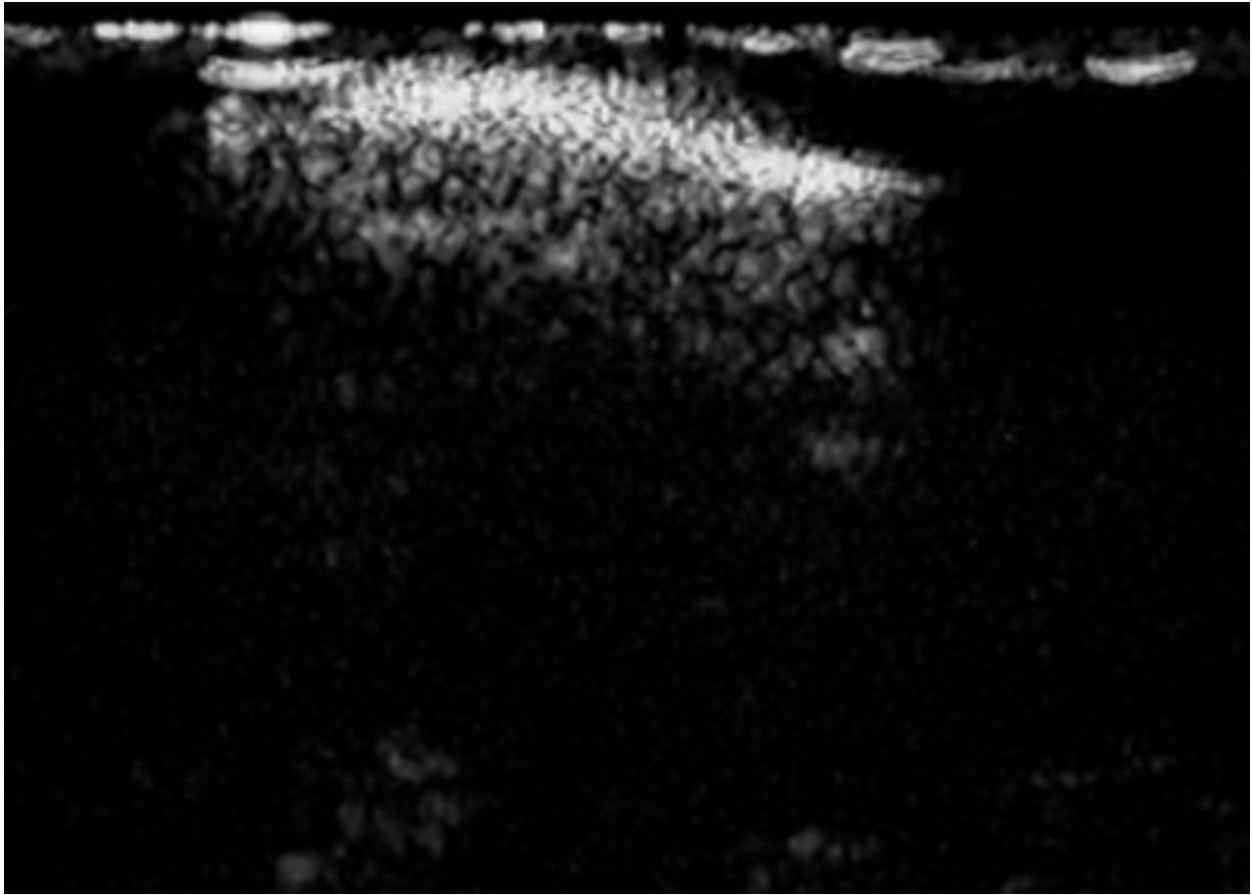
In all patients were identified lymphatic pathways that were followed only for few centimeters from the injection site of microbubbles.

In no patient was identified the sentinel node.

**Images for this section:**



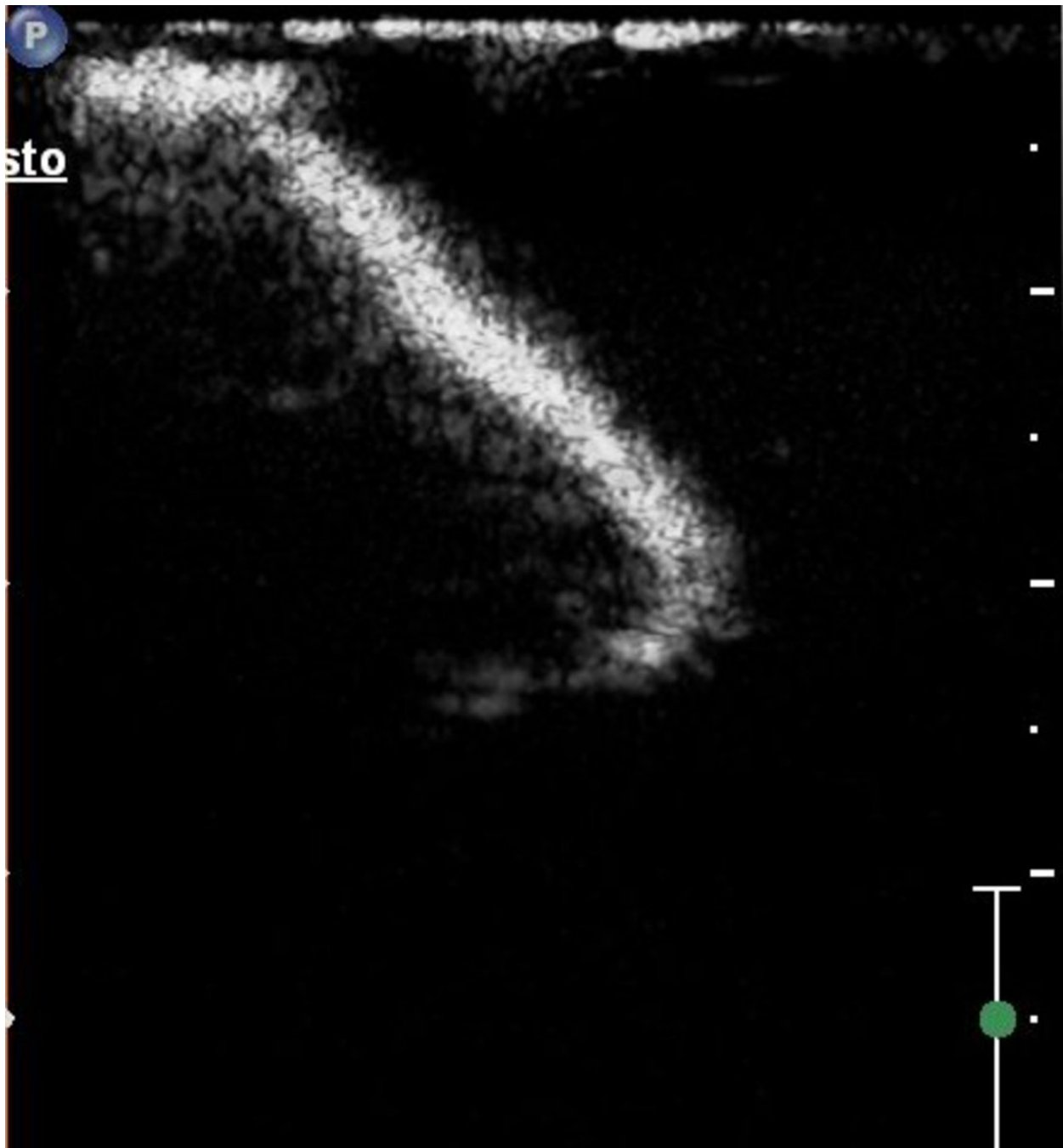
**Fig. 1:** US image, obtained 15 minutes after Sonovue injection into the subcutaneous layer of the areola, shows superficial lymphatic channels.



**Fig. 2:** US image obtained 30 minutes after Sonovue injection shows microbubbles move from injection site towards the axilla.



**Fig. 3:** US image, obtained 60 minutes after Sonovue injection, shows microbubbles in different lymphatic channels.



**Fig. 4:** After 120 minutes the lymphatics are well marked, but the bubbles do not reach the sentinel node that can not be identified.

## Conclusion

The echo scintigraphy with SonoVue in our experience does not seem to be a reproducible method for the study of the sentinel lymph node.

The few studies in the literature seem to confirm the reduced reliability of the method that needs to be improved.

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## Personal Information