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The value of contrast enhanced ultrasound in the location of sentinel lymph node in breast cancer

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Sentinel lymph node (SLN) location and biopsy were designed to minimize side effects of axillary dissection with equivalent outcomes. This prospective study is to evaluate the feasibility of periareolar injection of contrast agent SonoVueTM followed by ultrasound (US) for identification and localization of SLN in breast cancer patients with clinically negative node. From July, 2017 through January, 2018, 130 women were enrolled in the study. SonoVueTM was injected periareolarly and followed by US to detect enhanced sentinel lymphatic channels (SLCs) and SLNs 1 minute later after massage. The patients were randomly divided into two groups to locate the first enhanced SLN: 1) US-guided marker placing; 2) US-guided nano-carbon (N) injection into SLN. Compare the number of SLNs detect by CEUS with blue dye (B) or N mapping, and the coincidence rate of the first SLN located by CEUS with those traced by the B and N. Lymph nodes that were dark, blue, with marker or clinically positive were considered sentinel nodes and to be biopsied. 121 of 130 patients with breast cancer patients injected with ultrasound contrast agents had detected a total of 254 enhanced SLNs (range 1-5, 2.1+1.05) compared with total of 342 SLNs (range 1-5, 2.83+1.10) mapping with B or N. Forty two of 45 first SLNs located with marker matched with first SLNs stained with N (42/45, 93.33%); 70 of 76 first SLNs using N injecting directly guided by CEUS matched with first SLNs stained with B (70/76, 92.1%). In another 9 cases without enhanced SLN, 4 of them did not stain with N or B, and 5 were stained. The sensitivity of SLNs detection by CEUS was 96.03% and the accuracy of locating the first SLN was 92.56% (112/121).

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