Objective
Locating 56 breast lesions in enhanced MRI with second-look ultrasound and additional MRI-fusion technology.

Method
Retrospective review of 56 MRI-enhanced lesions is performed. Cases from January 2012 to December 2017 with lesions of ACR-BIRADS-MR 4 category and above, including focal and non-mass regional enhancement. Second look includes evaluating the lesion’s location relative to the mammary zones, lesion to nipple distance and surrounding tissues, as well as its depth, characteristics including (size, margin and shape) and nearby landmarks. When second look ultrasound failed, we apply additional MRI fusion technology for biopsy guidance. Histological results by biopsy or pathological findings by surgery are obtained. In other cases, 6 - 12 months MRI follow up to guarantee no upgrade or progress of the lesions.

Result
Second-look ultrasound identified 30 correlates, about 53.6%(30/56) in detecting efficacy and ultrasound guided biopsy confirmed 5 malignancy (16.7%,5/30, including 3 ductal carcinoma in situ, 1 infiltrating ductal carcinoma and 1 cystadenocarcinoma.

In 26 second look ultrasound occult lesions, we successfully located additional 10 with MRI-fusion technology, then real-time MRI-fusion ultrasound guided biopsy, histology proved 1 malignancy (1DCIS,10%,1/10).

Additional MRI-fusion technology and second look ultrasound in total found 40 lesions out of 56 lesions (71.4% in detection accuracy, 40/56) and biopsy prove 6 malignancy (15% malignancy out of 40 biopsied lesion). 2 lesions of MR BI-RADS 5 were treated with surgery promptly by panel discussion although second look ultrasound and MRI-fusion guidance failed.

Conclusion
Second-look ultrasound and additional MRI-fusion technology substantially improves clinical decision making, and maybe an economical alternative for MRI-guided biopsy.