Downclassification and upclassification of suspicious breast masses using opto-acoustic imaging

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Malignant mass upgrade case 1
MAESTRO upgrade case 1
mammogram

IDC, gr II
Metastatic
axillary LN

IDC, gr II
MAESTRO upgrade case 1
mammogram
MAESTRO upgrade case 1 – conventional ultrasound (CDU) – multicentric mass UOQ right

CDU (7mm)  Color Doppler
MAESTRO upgrade case 1 – Imagio gray scale ultrasound (IUS) vs. OA – secondary mass UOQ right

[Image of CDU]

[Image of OA relative oxygenation map]

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MAESTRO upgrade case 1 – OA relative hemoglobin map vs Color Doppler – secondary mass UOQ right

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MAESTRO upgrade case 1 – OA total hemoglobin map vs Color Doppler – secondary mass UOQ right

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MAESTRO upgrade case 1
readings and histology

- CDU BI-RADS = 4b and CDU POM = 15%
- OA BI-RADS = 4c and POM = 90%
- Histology
  - Mass 1: IDC, grade II with grade 3 DCIS, -/-/-
  - Mass 2: IDC, grade II, -/-/-
  - Axillary LN = metastasis

OA facilitates upgrade to multicentric disease
Malignant mass upgrade case 2
MAESTRO OA upgrade case 2
mammogram
MAESTRO OA upgrade case 2
Conventional diagnostic Ultrasound - 5mm solid mass

5mm mass
MAESTRO OA upgrade case 2
OA 4-on-1

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MAESTRO OA upgrade case 2
OA 2-on-1 - intense deoxygenated blush
MAESTRO malignant mass upgrade case 2  readings and histology

- CDU BI-RADS = 4b and CDU POM = 45%
- OA BI-RADS = 4c and OA POM = 90%
- Histology = 5 mm IDC, grade I (BRS 4)
  - ER+
  - PR+
Benign mass downgrade case 1
MAESTRO – OA benign mass downgrade case 1 mammogram
MAESTRO – OA benign mass downgrade case 1
conventional gray scale diagnostic ultrasound (CDU)
MAESTRO – OA benign mass downgrade case 1
OA 4-on-1

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MAESTRO – OA benign mass downgrade case 1
Imagio CDU vs. OA

CDU

OA

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MAESTRO – OA benign mass downgrade case 1
readings and histology

• CDU BI-RADS = 4a and CDU POM = 5%
• OA BI-RADS = 3 and OA POM = 2%
• Histology = benign fibroadenoma
Benign mass downgrade case 2
MAESTRO – benign mass downgrade case 2
Screening MRI
MAESTRO – OA benign mass downgrade case 2
conventional gray scale diagnostic ultrasound (CDU)
MAESTRO – OA benign mass downgrade case 2
OA 6-on-1

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MAESTRO – OA benign mass downgrade case 2 
readings and histology

- MRI BI-RADS = 4a and MRI POM = 10%
- CDU BI-RADS = 4a and CDU POM = 5%
- OA BI-RADS = 2 and OA POM = 0%
- Histology = benign fibroadenoma
Summary

Imagio OA can be useful in:

• Downgrading POM and BI-RADS category of benign masses, with potential avoidance of negative biopsies and short interval imaging follow-up

• Upgrading the POM and BI-RADS category of malignant masses, increasing the certainty of malignancy prior to biopsy
Thank you