**CESM versus conventional mammography**

**Contrast enhanced digital mammography: Is it useful in detecting lesions in edematous breast?**
Conclusion: Dual-energy contrast-enhanced digital mammography is a useful technique in identification of lesions in mammographically dense edematous breasts and proved to be a useful tool in the follow-up of cases presenting by edema after conservative breast surgery and chemotherapy. [Link](#)

**Clinical utility of dual-energy contrast-enhanced spectral mammography for breast microcalcifications without associated mass: a preliminary analysis.**
Conclusion: DE-CESM provides additional enhancement information for diagnosing breast microcalcifications and measuring cancer sizes with high correlation to surgicohistology. [Link](#)

**Contrast-enhanced spectral mammography: Impact of the qualitative morphology descriptors on the diagnosis of breast lesions.**
Conclusion: The assessment of the morphology and enhancement characteristics of breast lesions on CESM enhances the performance of digital mammography in the differentiation between benign and malignant breast lesions. [Link](#)

**Evaluation of low-energy contrast-enhanced spectral mammography images by comparing them to full-field digital mammography using EUREF image quality criteria.**
Conclusion: Low-energy CESM images are non-inferior to FFDM images. From this perspective FFDM can be omitted in patients with an indication for CESM. [Link](#)

**Dual-energy contrast-enhanced spectral mammography (CESM).**
Conclusion: Imaging with contrast agents in breast cancer was already known from previous magnetic resonance imaging and computed tomography studies. However, high costs, limited availability-or high radiation dose-led to the development of contrast-enhanced spectral mammography (CESM). [Link](#)

**Contrast-enhanced spectral mammography: Does mammography provide additional clinical benefits or can some radiation exposure be avoided?**
Conclusion: CESM alone has the same sensitivity and better size assessment as CESM + MG and was significantly better than MG with only 6.2 % increase in AGD. The combination of CESM + MG led to systematic size overestimation. When a CESM examination is planned, additional MG can be avoided, with the possibility of saving up to 61 % of radiation dose, especially in patients with dense breasts. [Link](#)

**Use of contrast-enhanced spectral mammography for intramammary cancer staging: preliminary results.**
Conclusion: CESM is accurate in size measurements of small breast tumors. On average CESM leads to a slight overestimation of tumor size, whereas US tends to underestimate tumor size. Assessment of the breast tissue can be limited by the scattered radiation artifact and background enhancement of breast tissue. CESM seems to be helpful in the characterization of breast tissue around microcalcifications. [Link](#)
Diagnostic performance of dual-energy contrast-enhanced subtracted mammography in dense breasts compared to mammography alone: inter observer blind-reading analysis.
Conclusion: CESM provided additional information with consistent improvement of the cancer diagnosis in dense breasts compared to MX alone. The prediction of the diagnosis could be improved by the interpretation of a significant number of cases in the presence of 6 % benign contrast enhancement in this study. Link

Dual-energy contrast-enhanced mammography.
Conclusion: Dual-energy contrast-enhanced mammography is a new, apparently promising technique in breast cancer that provides information about the degree of vascularization of the lesion in addition to the morphological information provided by conventional mammography. Link

Contrast-enhanced spectral mammography in patients referred from the breast cancer screening programme.
Conclusion: CESM increases diagnostic performance of conventional mammography, even in lower prevalence patient populations such as referrals from breast cancer screening. Link

Conclusion: Dual-energy contrast-enhanced mammography is a recent, seemingly promising technique, in the management of breast cancer. The main advantages consist of its easy installation, the good tolerance and the comfort in the interpretation of difficult to read mammograms. However, the indications and the role of dual-energy contrast-enhanced mammography still have to be determined within the diagnostic strategy of breast tumors. New studies are expected, especially to compare dual-energy contrast-enhanced mammography with breast MRI. Link

Evaluation of contrast-enhanced digital mammography.
Conclusion: The addition of dynamic digital subtraction mammography to conventional mammography can significantly improve diagnostic quality. The increased sensitivity is particularly pronounced in the case of dense breast tissue. Link

Dual-energy contrast-enhanced digital mammography: initial clinical results of a multireader, multicase study.
Conclusion: Dual-energy contrast-enhanced digital mammography as an adjunct to MX ± US improves diagnostic accuracy compared to MX ± US alone. Addition of iodinated contrast agent to MX facilitates the visualization of breast lesions. Link

Contrast-enhanced digital mammography.
Conclusion: The potential clinical applications of CESM are the clarification of mammographically equivocal lesions, the detection of occult lesions on standard mammography, particularly in dense breasts, the determination of the extent of disease, the assessment of recurrent disease and the monitoring of the response to chemotherapy. CEDM should result in a simple way to enhance the detection and the characterization of breast lesions. Link

Evaluation of tumor angiogenesis of breast carcinoma using contrast-enhanced digital mammography.
Conclusion: Contrast-enhanced digital mammography is able to depict angiogenesis in breast carcinoma. Breast compression and projective images acquisition alter the quantitative assessment of enhancement parameters. Link

Digital mammography using iodine-based contrast media: initial clinical experience with dynamic contrast medium enhancement.
Conclusion: The results of this preliminary study suggest that contrast-enhanced digital mammography is a potentially useful tool for the detection and the differentiation of benign and malignant breast lesions. Link

Use of iodine-based contrast media in digital full-field mammography--initial experience.
Conclusion: Contrast-enhanced digital mammography has a potential for improving the visualization of breast tumors in mammography using special beam filtering, adjusted x-ray parameters, proper timing, and suitable subtraction software. Link
Dual-energy contrast-enhanced digital subtraction mammography: feasibility.
Conclusion: Contrast Enhanced Spectrum Mammography was performed in 26 subjects with mammographic or clinical findings that warranted biopsy. Of the 26 subjects, 13 had invasive cancers. Eleven of these tumors enhanced strongly, one enhanced moderately, and one enhanced weakly. The duct in one patient with ductal carcinoma in situ was weakly enhancing. In the other 12 patients, benign tissue enhanced diffusely in two and weakly focally in two. These results indicate that the technique is feasible and worthy of further study. [Link]

Contrast-enhanced digital mammography: Initial clinical experience.
Conclusion: The results of this preliminary study suggest that contrast-enhanced digital mammography potentially may be useful in identification of lesions in the mammographically dense breast. Further investigation of contrast-enhanced digital mammography as a diagnostic tool for breast cancer is warranted. [Link]

CESM versus MRI

Contrast-enhanced spectral mammography (CESM) and contrast enhanced MRI (CEMRI): Patient preferences and tolerance.
Conclusion: Our data suggest that overall, patients prefer the experience of CESM to CEMRI, adding support for the role of CESM as a possible alternative to CEMRI for breast cancer staging. [Link]

The quality of tumor size assessment by contrast-enhanced spectral mammography and the benefit of additional breast MRI.
Conclusion: Quality of tumor size measurement using CESM is good and matches the quality of these measurement assessed by breast MRI. Additional measurements using breast MRI did not improve the quality of tumor size measurements. [Link]

Comparison between Breast MRI and Contrast-Enhanced Spectral Mammography.
Conclusion: Our results indicate that CESM has the potential to be a valuable diagnostic method that enables accurate detection of malignant breast lesions, has high negative predictive value, and a false-positive rate similar to that of breast MRI. [Link]

Contrast-enhanced spectral mammography versus MRI: Initial results in the detection of breast cancer and assessment of tumour size.
Conclusion: Initial results show a better sensitivity of CESM and MRI in breast cancer detection than MG and a good correlation with postoperative histology in size assessment. [Link]

Conclusion: Bilateral dual-energy contrast agent-enhanced digital mammography was feasible and easily accomplished. It was used to detect known primary tumors at a rate comparable to that of MR imaging and higher than that of conventional digital mammography. DE CE digital mammography had a lower sensitivity for detecting additional ipsilateral cancers than did MR imaging, but the specificity was higher. [Link]

Novel functional methods in the evaluation of breast lesions.
Conclusion: Novel techniques for functional evaluation of breasts are currently available, presenting promising results and, in some cases, a performance similar to MRI. Their indications might be the same as for MRI, with the advantage of lower cost. Further results should be expected in order to define a procedure flowchart and thus making a good use of the advantages of each technology with minimum injury and risk for the population. [Link]

Contrast enhanced spectral mammography: better than MRI?
Conclusion: CESM allows imaging the effect of tumor angiogenesis. This technology thus holds the potential for better depiction of malignant lesions within dense breast tissue. [Link]
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SenoBright is intended to be used as an adjunct following mammography and ultrasound exams to localize a known or suspected lesion.

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JB32475XX(1)