CONTRAST ENHANCED SPECTRAL MAMMOGRAPHY IS WELL-SUITED TO CURRENT PRACTICE

«Effective treatment starts with an accurate diagnosis». It was with this aphorism that Luc Katz (Clinical Research Manager) introduced his presentation to the CESM Academy 2014, which was held in Rome on 13 and 14 November last year. It was an idea that seemed to motivate each of the speakers invited to the event to share their experience of Contrast Enhanced Spectral Mammography (CESM), a new imaging technique for the diagnosis of breast cancer. Following the injection of an iodinated contrast medium, CESM makes visible unusual blood flow patterns in the breast that are characteristic of malignant tumours. Two images are created per view, in exactly the same position, one a standard mammography, the other one that enables any contrast-enhanced areas to be seen. Suspicious lesions acquire greater density, whereas benign lesions show less contrast enhancement. It must first of all be specified that the exam is conducted on symptomatic patients (who have already undergone mammography and ultrasound) and is not used for general screening.
A fast process to help reduce anxiety

The authors, who took turns to speak during the presentation, shared their experience of the technique in their day-to-day practice and identified what they had found to be the advantages of using CESM. In addition to image quality, which they illustrated using clinical examples, they were at pains to stress how easy it was to carry out the exam and to include it in the normal scheduling of a radiology department, all the more so since the exam can be conducted rapidly, in under 10 minutes (including injection of the contrast medium).

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Dr Felix Diekman

They all insisted on the need for the patient to be fully informed and for any contraindications to be identified, chiefly allergy to iodinated contrast media or renal insufficiency. Pregnancy and breast-feeding are also contraindications, as is the presence of breast implants. Dr Felix Diekman (St Joseph-Stift – Bremen, Germany) takes the view that the injection of a contrast medium ought not to pose an obstacle to the carrying out of CESM, since, to a large extent, injection scanners have made this a familiar type of procedure for doctors and patients. At the practical level, apart from the injection of a contrast medium, the exam is conducted just like a conventional mammography, which is beneficial for patients who are claustrophobic or who refuse or are afraid of MRI. In comparison with MRI, the advantage of CESM is that it is considerably cheaper, and can be carried out quickly, which both practitioners and patients appreciate, and which means shorter waiting times between visits, a potential source of anxiety.
An invaluable tool for diagnosing and monitoring mammary lesions in daily practice

The speakers emphasised the value of the technique in doubtful situations as often is the case with dense breasts. CESM will be very useful as a decision-making tool when suspicious images arise in mammography and ultrasound, which cannot be accurately characterised. In the case of a confirmed lesion, the technique gives a precise indication of its form, location, extent and number of tumour foci, particulars which usually are determined prior to any surgical intervention.

Dr Clarisse Dromain

Dr Clarisse Dromain (IGR, Paris, France) highlights the fact that by locating lesions with total accuracy, CESM can assist with the ultrasound exam of a tumour made visible by means of conventional mammography but difficult to locate by means of ultrasound: CESM makes it easier to help locate within the breast.
Clinically proven

A number of clinical cases have illustrated the benefit of CESM. Focus on two cases presented by Dr Antonietta Ancona (AO S. Paolo-Bari, Italy).

This 53 year-old patient presented with a palpable mass in the left breast. Mammography had revealed opacity in the upper quadrant of the left breast, classified as BIRADS 4. But whereas ultrasound found 4 lesions (BIRADS 4), MRI showed only 3 (BIRADS 5). Given the clinical scenario of dense breasts, the surgeon wanted a more accurate pre-operative diagnosis and a CESM was performed, which attested to the existence of 4 lesions, classed as BIRADS 5. The histology confirmed the presence of a multifocal invasive ductal carcinoma (4 lesions).

Also noteworthy is the case of this 50 year-old woman who also presented with a palpable mass in the left breast. The mammography revealed architectural distortion of the upper quadrant, classed as BIRADS 4, which ultrasound reclassified as BIRADS 5, and which was confirmed by MRI. CESM revealed that it was in fact a radial scar which was finally classified as BIRADS 3.

Finally, although Dr A. Ancona announced a positive predictive value of 88% and a positive negative value of 90% for CESM in a series of 308 patients and 353 lesions, in Dr F(1). Diekmann’s view it was the images obtained that constituted the most compelling proof of the benefit of the technique.

It should furthermore be pointed out that all participants stressed the fact that the images obtained were appreciated by surgeons as they resembled the conventional mammographic images that they were used to interpreting.