



### **Breast imaging in Romania**

**An interview with Dr. Mihai Lesaru, Associate Professor of Medicine and Pharmacy at the Radiology and Medical Imaging Department at Fundeni Clinical Institute, Carol Davila University of Medicine and Pharmacy, Bucharest, founder and current president of the Romanian Society of Breast Imaging and vice-president of the Romanian Society of Radiology and Imaging.**

**European Society of Radiology:** *Breast imaging is widely known for its role in the detection of breast cancer. Could you please briefly outline the advantages and disadvantages of the various modalities used in this regard?*

**Mihai Lesaru:** Breast imaging was a major step forward in breast cancer detection, permitting the discovery of infraclinical, non-palpable lesions. Mammography was the first method used for this, based on the observation that breast cancer often has calcification. Even now, mammography remains the only method that can accurately detect and characterise microcalcifications. This is its major advantage even in dense glandular breasts. One of its limits is a relatively high number of missed lesions, except in the case of microcalcifications in dense breasts. This is one of the reasons that we don't start the imaging investigation with mammography in women under 40 years old who have no family history of breast cancer. Tomosynthesis, the most recent improvement added to mammography, has proven to be useful in breast cancer detection enabling the visualisation of up to 27% more cancers compared with mammography alone.

Ultrasound is the method of choice for young women, symptomatic or asymptomatic, most of them having dense breasts. The sensitivity and specificity of ultrasound are high for this type of breast. The masses detected can be evaluated using classical signs first described by Stavros, but also elastography that was recently included in the 2013 BI-RADS lexicon.

Magnetic resonance imaging (MRI) is considered to be the best method for detecting and characterising breast lesions, with the highest sensitivity and specificity. The most frequent indications are local staging of tumours suspected to be malignant, prosthesis complications, follow-up of non-operated malignant tumours undergoing oncological treatment, and suspicion of relapse raised by mammography and ultrasound. However it is the most expensive and it can miss lesions like microcalcifications. So in the end the best method is to combine information provided by different methods in a final result.

**ESR:** *Early detection of breast cancer is the most important issue for reducing mortality, which is one reason for large-scale screening programmes. What kind of programmes are in place in your country and where do you see the advantages and possible disadvantages?*

**ML:** At this moment in Romania we have a screening pilot programme for breast cancer in Cluj Napoca County, conducted by Dr. Carmen Lisencu from the Oncological Institute Cluj Napoca, which includes about 5,000 patients. The final results should be available in autumn 2016. The advantages of screening programmes are well known by the medical world: finding small breast cancers reduces mortality, reducing the final costs of treatment. The main disadvantage is that the advantages are not visible immediately and the costs of implementation and maintenance of a screening programme for breast cancer are quite high.

**ESR:** *Are there any plans for a national screening programme in Romania?*

**ML:** Unfortunately at this moment we have no nationwide screening programme for breast cancer, but we hope to develop one using the results of the project pilot mentioned before. I don't know which political decision will be taken about fees for the examination.

**ESR:** *The most common method for breast examination is mammography. When detecting a possible malignancy, which steps are taken next? Are other modalities used for confirmation?*

**ML:** When detecting a possible malignancy, the next step is to confirm it using a biopsy: core needle, vacuum-assisted or surgical. It means that we take a sample from the detected lesion using special devices guided by different imaging methods. The fastest and easiest way to guide a biopsy is using ultrasound. Microcalcifications are sampled under mammographic control using stereotactic devices. Some of the breast lesions are detectable only by MRI, in which case the biopsy should be done under MRI control. This is followed by a histologic analysis of the tissue samples and after that the added immunochemistry provides the information needed for the treatment decision of the patient.

**ESR:** *Diagnosing disease might be the best-known use of imaging, but how can imaging be employed in other stages of breast disease management?*

**ML:** Imaging methods are used after diagnosis mainly for follow-up. Mammography and ultrasound are used to monitor patients with breast conservative surgery for breast cancer. MRI is used in cases where there is a suspicion of relapse, but also for monitoring the response of malignant tumours to chemotherapy.

At this moment there are also studies that are proving the value of imaging, especially MRI techniques like diffusion, for predicting the prognosis of a breast cancer and the response to chemotherapy. Radiologists are also trying to define imaging criteria in order to identify different histological types of cancers.

**ESR:** *What should patients keep in mind before undergoing an imaging exam? Do patients undergoing radiological exams generally experience any discomfort?*

**ML:** I think that the best thing that a patient should know is the purpose of the exam proposed. I am trying all the time to explain directly to the patient the indication of the exam. Once this step is done the eventual discomfort felt is accepted much more easily. When mammography is performed, the major discomfort claimed by the patient is the pain generated by the compression. There are many studies that show that the pain is the factor which leads to a significant number of women who are undergoing their first mammography to say that they will never come back to do a second one. The current technical progress is significantly reducing the discomfort caused by the examination and I have personally witnessed this progress and its benefits by changing three generations of mammography machines and examining the same patients. The women who understand the utility of every single part of the procedure are more compliant with the examination. Accomplishing this task implies a consistent dialogue between patient and the medical personal.

**ESR:** *How do radiologists' interpretations help in reaching a diagnosis? What kind of safeguards help to avoid mistakes in image interpretation and ensure consistency?*

**ML:** I think we have to keep in mind a fact defined very nicely by our colleague Laszlo Tabar in one recent meeting I attended: there is only one category of radiologist who has never missed a cancer: those who have never looked at a mammography. So analysing breast images exposes the radiologist to a high risk of malpractice. Therefore breast imaging radiologists need permanent training and a significantly high number of examinations in order to achieve a consistent skill level. Radiologists' conclusions are a cumulative result of technical, anatomical and pathological knowledge, but also interpretation skills, which result in a final evaluation of the chance that an image shows a cancer. So the greatest responsibility, especially in screening, is on the radiologist's shoulders. From my point of view, one of the most important safeguards should be the total focusing of the attention on the exam performed. Another issue in order to avoid mistakes is to analyse any image in correlation with clinical data and other imaging modalities when available. Anyway, mistakes can appear, but once detected, a mistake should be sincerely analysed to see what generated it: technical factors, patient factors, and lesion type are just a few aspects.

**ESR:** *When detecting a malignancy, how is the patient usually informed and by whom?*

**ML:** In Romania this is not well standardised. The radiologist usually informs the patient, but it can also be the surgeons or oncologists who sometimes translate BI-RADS 5 as: “madam, you have a cancer”. I am training my radiologist colleagues to give the result correctly concerning the risk of cancer, but in a way adapted to the emotions of the patient. We as radiologists should keep in mind that when we are talking about the breast, a symbol of women’s beauty, the patient-doctor relationship is loaded with emotion. The main problem is that in many situations the emotional stress of the patient significantly disturbs their perception of the reality. Consequently the information given is distorted, and even an infraclinical lesion that is perfectly curable, becomes a huge menace. We can imagine that we could even lose a patient in a car crash after the notification of a suspicious lesion, due to their emotional state. So doubling the radiological information with psychological support from a psychotherapist seems to be a more appropriate way. I am planning at this moment to collaborate with psychotherapists in order to achieve an improvement in the emotional impact.

***ESR:** Some imaging technology, such as x-ray and CT, uses ionising radiation. How do the risks associated with radiation exposure compare with the benefits? How can patient safety be ensured when using these modalities?*

**ML:** Using mammography correctly in concordance with medical indications, the age of the patient and suitable protocols is the best way to keep the balance between risk and benefits on the right side. For mammography, issues like quality control and quality assurance, type of receptors used (film or digital), and positioning of the patient are also aspects that should be checked in order to obtain the best quality image with the lowest radiation dose. In Romania, I have to admit that the quality assurance tests are performed in few places, and many facilities do not even have the quality assurance kits needed to perform the tests. This is a problem that should be solved before starting a screening programme. We should also keep in mind that as radiologists we have the right to refuse to perform a mammography if we think that it is not appropriate, but we also have to propose to the clinician an alternative imaging solution for the patient’s problem. So the clinician-radiologist dialogue can also reduce unnecessary irradiation.

***ESR:** How aware are patients of the risks of radiation exposure? How do you address the issue with them?*

**ML:** As in other European countries, in Romania the patient receives written information about the radiation risk of the exam, including the risk during pregnancy, and they should consent to the mammography being performed. The written consent is registered and kept in the facility. If they have questions the patients can address them to the medical staff.

***ESR:** How much interaction do you usually have with your patients? Could this be improved and, if yes, how?*

**ML:** From my point of view, this interaction involves two perspectives: medical and psychological. Usually I spend a lot of my practice time interacting with the patients, to find out their medical concerns and to give answers, to explain the findings of the examination in a simple way – like for example a cyst is just a kind of milk pouch. The major challenge is to give the bad news like a BI-RADS 5 lesion, to explain that the risk of cancer is very high, but it’s not the end of life, it’s just the start of an unwanted journey ... and so on. I feel sometimes that only the bad news has the power to penetrate deeply into our heads and souls, and after such news the patient is stuck in a negative perspective. With each patient I am improving my skills in communicating simply, more sympathetically and efficiently. Each patient is a new perspective on the same disease. Sometimes psychological advice could help to reduce confusion in my presentation, like reviewing together with the patient the information from the examination. But what is strange is that in the end, I see that there is no book to tell you how to feel, to teach you the empathy.

**ESR:** *How do you think breast imaging will evolve over the next decade and how will this change patient care? How involved are radiologists in these developments and what other physicians are involved in the process?*

**ML:** It's difficult to predict the evolution of imaging over ten years; for sure we will have techniques unknown today. If you want an example, shear-wave elastography was barely known in breast imaging ten years ago.

The goal of breast imaging can be defined simply: to detect smaller lesions with higher specificity. In mammography we expect to have higher resolution with less radiation and here the scanning photon counting detector seems to be a solution, both in mammography and tomosynthesis. Angio-mammography seems to be a promising technique for detecting and the local staging of breast cancer, but at this moment it needs further clinical confirmation.

3T MRI has already proven to be more efficient in detecting small cancers compared with 1.5T, but we already expect to have 7T MRI machines in current clinical use. The detection and quantitative evaluation of different chemical tumour components other than choline, which is already used in MR spectroscopy, could be found and could improve the identification of malignant tumours. Interventional techniques using tomosynthesis guidance are faster and we expect them to replace the stereotaxic guidance.

Radiologists are the specialists who validate the new techniques. At the same time they can develop new protocols and new clinical applications for any new technique proposed by companies. And here perhaps the most recent example in breast imaging is tomosynthesis and its progress until now, with applications in screening, diagnostic and interventional radiology. The physicians should express their needs in order to determine the search for imaging solutions. In fact any new technique or protocol implies a dialogue between physicians and radiologists, with questions and answers on both sides.

**Dr. Mihai Lesaru, MD PhD** is Associate Professor of Medicine and Pharmacy at Carol Davila University in Bucharest, specialising in breast imaging, with 15 years of experience in the field. He is the founder and current president of the Romanian Society of Breast Imaging and vice-president of the Romanian Society of Radiology and Imaging. As coordinator of the national breast imaging training programme, he is involved in the education and evaluation of residents and young radiologists. He is an author and co-author of more than 80 papers, 30 conference and congress abstracts and three book chapters. He was a member of the 'Breast' Scientific Committee for the European Congress of Radiology (ECR) in 2012 and 2013.

