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Adds Tomosynthesis to Its Suite of State-of-the-Art Digital Mammography Technologies



One of the largest teaching hospitals in France, the University Hospital of Montpellier prides itself on utilising state-of-the-art technology to provide the highest levels of patient care, teaching, and research. Its radiology department is the major imaging resource for women's health in the area, supporting the University Hospital as well as a second local hospital and two groups of affiliated surgeons. Six years ago, the hospital replaced its analog mammography system with a Hologic Selenia digital mammography system. More recently, the hospital added a Hologic Selenia Dimensions tomosynthesis (2D and 3D) mammography system.

"Tomosynthesis adds to our ability to detect breast cancer," explains Professor Patrice Taourel, head of the Radiology Department. "It increases specificity. We can see more and be more exacting in our diagnosis. It increases radiologists' confidence in their diagnosis and reduces the number of unnecessary recalls."

Technology Enables Better Visualisation

The hospital radiology department offers comprehensive care for breast cancer detection, performing approximately 6,500 mammograms, 150 stereotactic breast biopsies, and 50 MRI breast biopsies a year. The transition from analog to digital mammography enabled the seven radiologists specialising in breast imaging to see more during the exam.

"Digital technology provides much better image clarity and higher quality images than analog technology, which makes it easier to identify abnormalities, especially microcalcifications," explains Professor Taourel. "It gives us a new way of interpreting the mammogram; we can increase contrast, magnify an area, or alter the brightness of an image."

The difference in the quality of images between analog and digital mammography is dramatic, and digital mammography has proven to be a superior modality for detecting breast cancer. But 20 – 30% of cancers remain undetected even with digital mammography, and a significant number of women receive a call back for a second exam. So, when Hologic's tomosynthesis three-dimensional technology became available, the University Hospital of Montpellier became one of the first sites in France to implement the technology. *"Tomosynthesis supplements mammography,"* states Professor Taourel. *"It is proven to improve sensitivity and specificity ... It works, and it is available."*

2D and 3D Technology:

Better Views of the Breast

Tomosynthesis technology provides major improvements over digital mammography. First, tomosynthesis systems reduce the interference of overlapping tissue, leaving cancer undetected.

Second, tomosynthesis systems provide three-dimensional views of the breast making it easier for doctors to see cancer, especially in higher-risk women with dense breasts. Digital mammography systems take two-dimensional views of the breast by projecting all the breast tissue into one image. With tomosynthesis, the x-ray tube rotates around the breast taking 15 images breast with a limited angular scan, enabling doctors to see much more of the breast and identify abnormalities that may be hidden by dense or overlapping tissue.

The University Hospital's imaging department uses a wide range of modalities, including X-ray, ultrasound, MRI, and a combination of two-dimensional and three dimensional imaging. "Tomosynthesis supplements mammography," states Professor Taourel. *"We use it on a systematic basis for patients who need more detailed views. From the beginning, we established a protocol to use tomosynthesis for all women who fit the*

stereotype of:

- It is their first mammogram and they do not have comparison films;
- They have risk factors, such as family history;
- They have a history of breast cancer and are looking for other lesions, or
- They want a second opinion."

"However, use and benefits of tomosynthesis in a systematic way for well defined cases still need to be evaluated," continues Professor Taourel.

"Our workflow has not changed with tomosynthesis; it only requires several more seconds. For the patient, the change is almost transparent. For our radiologists, they need only to familiarise themselves with the new images they can see with tomosynthesis. It was the same when we went from analogue to digital technology. The images are different, you see a lot more, and radiologists need to be properly trained to become familiar with these new images."

Tomosynthesis Saves Time

Well-known for his work with breast imaging MRI, Professor Taourel thinks MRI is still the best imaging modality, but it is not necessary or practical as a breast imaging tool for all women. "Tomosynthesis can be used easily for patients. It takes less time and can be used at the first point of contact with a patient. It is very helpful for breast health."

"The main advantage of tomosynthesis is you can see more," concludes Professor Taourel. "It is fantastic. The increased specificity reduces the number of women we recall and the increased sensitivity increases our level of confidence. My dream is to use tomosynthesis to guide biopsies."

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