MOLECULAR AND BIOLOGICAL STRUCTURE OF BREAST CANCER AND ITS IMPORTANCE IN MEDICINE

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Abstract: *Compared with other fields of medicine, there is hardly an area that has seen such fast development as the world of breast cancer. Indeed, the way we treat breast cancer has changed fundamentally over the past decades. Breast imaging has always been an integral part of this change, and it undergoes constant adjustment to new ways of thinking. This relates not only to the technical tools we use for diagnosing breast cancer but also to the way diagnostic information is used to guide treatment. There is a constant change of concepts for and attitudes toward breast cancer, and a constant flux of new ideas, new treatment approaches, and new insights into the molecular and biological behavior of this disease.*

Keywords: *mammologist, breast cancer, mammography, breast ultrasound, breast MRI.*

INTRODUCTION

Diagnostic or treatment approaches that are considered useful today may be abandoned tomorrow. Approaches that seem irrelevant or far too extravagant today may prove clinically useful and adequate next year. Radiologists must constantly question what they do, and align their clinical aims and research objectives with the changing needs of contemporary breast oncology. Moreover, knowledge about the past helps better understand present debates and controversies. Accordingly, in this article, we provide an overview on the evolution of breast imaging and breast cancer treatment, describe current areas of research, and offer an outlook regarding the years to come. Nowadays, breast imaging rocks.

METHODOLOGY

Compared with other fields of medicine, or other sectors in the field of imaging, there is hardly an area that has seen such fast development over the past decades. This relates not only to the technical tools we use for our clinical task of diagnosing disease that requires treatment. Indeed, the way we treat breast cancer has changed constantly and fundamentally over the past decades. Breast imaging has always been an integral part of this change, and it undergoes constant adjustment to new ways of thinking. Breast cancer

is now usually small and node-negative at the time of diagnosis, and women are treated by a multi-disciplinary team of experts who all strive to make her not only survive, but to also keep her female integrity. If diagnosed early, breast cancer now represents a highly curable disease.

DISCUSSION

Breast imaging is special. Nowhere else, possibly with the sole exception of dedicated interventional radiology, is the radiologist as visible as in the breast imaging arena. Here, the radiologist is integrated in a multidisciplinary team, where he or she is recognized as a physician who assumes direct and personal patient responsibility and genuinely cares for patients. The radiologist may accompany a woman for many years for screening. When signs or symptoms of breast cancer arise, or in case a screening abnormality is found, the radiologist will be the first to discuss these findings with the patient and her family. It is usually the radiologist alone who decides whether biopsy is needed or not. He or she will then do the biopsy and discuss the pathology results with the patient, her family, and other health care providers. The radiologist is experienced in communicating to a patient and her family that breast cancer is present, and knows how to respond to sorrow and anxieties. The radiologist will then, often enough, be asked to help find a breast surgeon for the patient and will thus become a referring physician for other disciplines.

RESULT

Breast imaging was the first specialty in the field of imaging, where standardized wording, and then standardized reporting, was developed to ensure that our messages are clear and unambiguously taken.1 Breast radiologists were first to systematically communicate factors that would interfere with a correct diagnosis, such as breast density or background enhancement. On pathophysiological grounds, overdiagnosis, but also underdiagnosis, of breast cancer due to mammographic screening is plausible. Radiographic breast imaging (digital mammography, but also digital breast tomosynthesis) is based mainly on the depiction of regressive changes. Mammographic hallmarks of breast cancer are architectural distortions, spiculated masses, and calcifications. This reflects pathophysiological changes such as fibrosis and necrosis, in other words effects that are caused by cancer hypoxia and that lead to slowed growth and cell death.

CONCLUSION

Even before the discussion around overdiagnosis, it was well established that mammography preferably detects slowly growing cancers. Cancers detected through mammographic screening are known to enjoy a better prognosis than cancers of the

same size and stage that were not diagnosable through mammography, an effect known as "length time bias".Overdiagnosis is a length time bias put to extreme. On the other hand, if a cancer is successful in maintaining its need for perfusion, it will not develop necrosis or calcifications and will not cause architectural distortions. Biologically important breast cancers are therefore frequently occult on mammography and, if they are detectable on mammography or ultrasound, may mimic fibroadenomas or even cysts.

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