

عنوان مقاله:

Microwave Imaging for Breast Cancer Detection: Measurement Techniques and Recent Developments

محل انتشار:

یازدهمین کنگره بین المللی سرطان پستان (سال: 1394)

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خلاصه مقاله:

Introduction: The rate of false positives in X-ray mammography is relatively high. CT and MRI provide very precise diagnostic results. However, these techniques have a disadvantage in that the patient is exposed to strong magnetic fields and radiation. Further, in X-ray mammography, the patient experiences temporary pain and discomfort. Furthermore, radiation is also a problem in this technology. This investigation is intended to show the Microwave imaging can be a good alternative in appropriate circumstances. Methods: This review is derived from comprehensive study which has been accomplished by using databases such as IEEE Transactions on (Biomedical Engineering), (Antennas and Propagation), PubMed, covering the period from 2000 to 2015. Discussion: Microwave imaging is based on the electrical property differences in materials. There are several approaches that can be used to reconstruct images from microwave signals: such as ultra wide band Radar Imaging, Microwave Tomography and Time-Reversal FDTD methods. For all approaches a microwave pulse is used to irradiate the breast, and resulting backscatter waves are recorded. Breast microwave imaging techniques, optimization methods, Advantages, disadvantages and challenges of this method will be discussed in this review. Conclusion: In the last two decades, studies have indicated that Microwave imaging can be considered as a promising alternative cancer diagnostics method that is safe, noninvasive, sensitive, and inexpensive.

کلمات کلیدی:

Breast Microwave imaging, breast cancer detection

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