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Comparison of Microwave Mamma Tomography (MMT) with Magnetic Resonance Imaging; Preliminary report of a new technique, Cerrahpasa experience

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Introduction: Breast cancer is the most common malignancy in women. Most effective method for treatment is early removal of cancer tissue. Widely used modalities in detection of breast cancer are mammography, magnetic resonance imaging (MRI), and ultrasonography. An alternative technique, which is in clinical trials phase, is microwave breast tomography (MMT). MMT is specific for cancer tissues. It relays on high contrast of dielectric coefficient between healthy and cancer tissue. This study aims to compare MRI and MMT with histopathology (HP) reports.

Methods: To evaluate the MMT in clinical settings, pre-operative MMT measurements are obtained from patients who has planned surgery and have a breast MRI, after informed consent was obtained. By using MMT outcomes, images were drawn using jet color mapping. A group of doctors blind to MRI and HP results were evaluated MMT images. MMT and MRI measurements of each patient is compared with HP reports of specimen.

Results: When dimensions of lesions detected in MMT compared with MRI and HP reports, MMT dimensions were more congruent with HP results. Median (minimum-maximum) lesion dimensions of MMT, HP, and MRI respectively are: 28.05 (11 – 35.7), 24 (10 - 35), and 25 (8 - 44). Median MMT/HP and MRI/HP ratios are 103% and 91%.

Conclusion: MMT results are more congruent with HP results than MRI, but larger series are required for further analysis.

Biography

I was born in 1985 in Konya. I graduated from Istanbul University, Cerrahpasa Medical Faculty (English Program). Between 2007-2009 I served on the student representative council. I began my General Surgery residency at the same faculty in 2011. In 2014, I was elected as President of the Turkish Surgical Society's Resident Committee. I'm currently listed as an editor in the journal Medicine. In addition, I'm one of the founding members of the Turkish Young Doctors' Platform and Association and currently their vice President. My research interests are endocrine surgery new technologies in medicine in terms of diagnostics and treatment modalities.

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