An easy new technique for computer aided detection (CAD)mammograms

S. Mohan Kumar *, Prof. Dr. G.Balakrishnan ME., Ph.D. **

* Research Scholar, Department of Computer Sciencem Karpagam University, Coimbatore, Tamil Nadu 641021, India, E-Mail: mohankumar@janhoo.com, mohankumar.sugumar@gmail.com, Mobile: 7373944029
** Director, IGCE & Research Guide, Karpagam University, Coimbatore, Tamil Nadu, India

Abstract: Mammograms screenings, mammogram diagnosis, computer aided detection (CAD) technique for mammography, Magnetic resonance image (MRI) and several other algorithms are currently practiced by doctors, surgeons and radiologists to test breast cancer. All these mode of breast examinations have many drawbacks. The main problem with these methods is that the tests do not give us the real picture of the breast cancer. Even highly qualified and well experienced experts in this field miserably fail in the analysis of breast cancer. Consequently this leads to the death of the breast cancer patients. To over come all these burning issues a new physiotherapy practice have been proposed in this work.
[S. Mohan Kumar, G. Balakrishnan ME. **An easy new technique for computer aided detection (CAD) mammograms.** *Cancer Biology* 2012;2(2):11-12]. (ISSN: 2150-1041). http://www.cancerbio.net. 3

Key Words: Mammography, Cancer, CAD, MRI, physiotherapy.

1. On Mammograms

Cancer is an abnormal growth of cells which tend to proliferate in an uncontrolled way and, in some cases, to metastasize (spread). Cancer is not one disease. It is a group of more than 100 different and distinctive diseases. Cancer can involve any tissue of the body and have many different forms in each body area. Most cancers are named for the type of cell or organ in which they start. If a cancer spreads (metastasizes), the new tumor bears the same name as the original (primary) tumor. Cancer is the Latin word for crab. The ancients used the word to mean a malignancy, doubtless because of the crab-like tenacity a malignant tumor sometimes seems to show in grasping the tissues it invades. Cancer may also be called malignancy, a malignant tumor, or a neoplasm, literally, a new growth.

A mammogram is a safe test used to look for any problems with a woman's breasts. The test uses a special, low-dose x-ray machine to take pictures of both breasts. The results are recorded on x-ray film or directly onto a computer for a radiologist to examine.

Mammograms allow the doctor to have a closer look for breast lumps and changes in breast tissue. They can show small lumps or growths that a doctor or woman may not be able to feel when doing a clinical breast exam. "Mammography" is the best screening tool that doctors have for finding breast cancer.

If a lump is found, your doctor may order other tests, such as ultrasound or a biopsy--a test where a small amount of tissue is taken from the lump and area around the lump. The tissue is sent to a lab to look for cancer or changes that may mean cancer is likely to develop. Breast lumps or growths can be benign (not cancer) or malignant (cancer). Finding breast cancer early means that a woman has a better chance of surviving the disease. There are also more choices for treatment when breast cancer is found early.

Screening mammograms are done for women who have no symptoms of breast cancer. When you reach age 40, you should have a mammogram every one to two years.

Diagnostic mammograms are done when a woman has symptoms of breast cancer or a breast lump. This mammogram takes longer than screening mammograms because more pictures of the breast are taken.

Digital mammograms take an electronic image of the breast and store it directly in a computer. Current research has not shown that digital images are better at finding cancer than x-ray film images.

2. Drawbacks of mammograms

- Breast screening cannot prevent cancer
- Having a mammogram is uncomfortable
- Having a mammogram involves x-rays
- False-positive results may cause unnecessary worry
- Mammograms sometimes need to be repeated
- Breast screening occasionally misses a cancer
- Cancer may occur even in women having screening
- Can diagnose a cancer which never needed treating

3. Breast MRI (Magnetic Resonance Image)

MRI (magnetic resonance imaging) allows doctors to see inside the body without cutting anything open. MRI uses a large magnet and radio waves to look at organs and structures inside the body. It does not use radiation like an x-ray. An MRI can help doctors diagnose many types of medical conditions,

especially problems with the brain and spinal cord, the heart, and other organs deep inside the body. It is particularly effective at distinguishing the body's soft tissues.

3.1 Breast MRI advances

- More sensitive than mammograms, ultrasounds, and clinical breast exams
- Useful for women at high risk for breast cancer
- Finds invasive breast cancer well
- Excellent at imaging around breast implants
- Accurately images implant ruptures and leaked material
- No compression of breast tissue
- Effectively images dense breast tissue
- Helps evaluate inverted nipples
- Finds primary tumor if cancer has spread to lymph nodes in armpit
- Detects any remaining cancer after lumpectomy
- Helps determine whether lumpectomy or mastectomy will be best treatment
- Images both breasts simultaneously (useful for symmetrical comparison)

3.2 Breast MRI disadvantages:

- Not good at detecting DCIS
- Leads to many false-positive findings
- Additional follow-up examinations and biopsies
- May not show all calcifications
- May cause claustrophobia
- Requires use of injected contrast agent (Gadolinium)
- More expensive than mammogram ($100 vs $1000)
- Not widely available
- Slower than mammogram (30 – 60 minutes)

4. Breath technique for accurate computer aided detection of breast cancer

Dense breasts have less fatty tissue and more non-fatty tissue compared to breasts that aren't dense. One way to measure breast density is the thickness of tissue on a mammogram. Another categorizes breast patterns into four types depending on which type of tissue makes up most of the breast. Still, no one method of measuring breast density has been agreed upon by doctors. Breast density is not based on how your breasts feel during your self-exam or your doctor's physical exam. Dense breasts have more gland tissue that makes and drains milk and supportive tissue (also called stroma) that surrounds the gland. Breast density can be inherited, so if your mother has dense breasts, it's likely you will, too.

Research has shown that dense breasts can be 6 times more likely to develop cancer. Dense breast scan make it harder for mammograms to detect breast cancer; breast cancers (which look white like breast gland tissue) are easier to see on a mammogram when they're surrounded by fatty tissue (which looks dark).

The term physiotherapy has been added to medical dictionary only recently. The allopathic medical studies and research have no traditional or heritage values. Its history is only 100 to 150 years. But on the other hand, the Ayurveda, unani, siddha and herbal means of treatments began several thousands of years ago. The first ancient medical treatment is the application of herbals. The ayurveda and siddha have more than 10000 years history. This is followed by the unani branch. Yoga was firstly introduced by both ayurveda and siddha school of thoughts. Initially the allopathic did not admit the inclusion of yoga science. It cleverly renamed the yoga as physiotherapy. Now a days, each and every allopathic doctor on earth prescribe physiotherapy along with drugs. Particularly for ortho patients, physiotherapy is strongly recommended.And knowingly or unknowingly, many current examinations such as to take blood, to test the functioning of the heart, the optical test of eyes and all other intestines examinations involve physiotherapy.

Sennimalai Kalimuthu, research scientist in mathematics & yoga has come across a yoga posture for clear detection of breast cancer in women. He has not revealed this technique to anyone yet.If one wants more details, Kalimuthu can be caught at math.kalimuthu@gmail.com.

Authors:
S. Mohan Kumar
Research Scholar, Department of Computer Science, Karpagam University, Coimbatore, Tamil Nadu 641021, India
E-Mail: mohankumar@janhoo.com, mohankumar.sugumar@gmail.com
Mobile: 7373944029
Prof. Dr. G. Balakrishnan ME, Ph. D.
Director, IGCE & Research Guide, Karpagam University, Coimbatore, Tamil Nadu, India

References

[1] www.cbc.gov/cancer/nbccepwww.cdc.
[2] www.cancer.gov.
[3] www.medicare.gov.
[4] www.fda.gov/cdrh/mammography.
[5] healthfinder.gov.

4/15/2012