

Abnormalities in the Breast Detected by Mammography

Agim Dokaj¹, Tahir Hysa²

¹Regional Hospital of Shkodra, Albania

²University Hospital Centre "Mother Theresa", Tirana, Albania

Abstract: *This is a prospective study. 246 women over 40 years were included in a large scale screening program at regional hospital in Shkodra during the year 2014. The average age of the first mammogram was 48.7 years, ranging from 40 to 70 years. The decision to seek mammography performed was the idea of the patient at 4% of cases and it was indicated by the physician or a nurse as part of the breast cancer screening program in 96%. As expected, menopause was present in less than 50% of women aged 50 years or younger and in 96% in older women. The main finding of the examination were ductectasia (64%), cystic formations (34%), fibroadenoma (33%), intramammary nodules (17%), lipoma (9%), axillary adenopathy (2.6%), ca mammae (2%), microcalcification (1.3%), skin retraction (1.3%). Mammography is the most common method for detecting abnormalities in the breast.*

Keywords: breast, examination, screening, mammography, abnormality

1. Introduction

Mammography is used to detect a number of abnormalities, the two main ones being calcifications and masses. Calcifications are tiny mineral deposits within the breast tissue that appear as small white regions on the mammogram films (1). There are two types of calcifications: microcalcifications and macrocalcifications (see below). A mass is any group of cells clustered together more densely than the surrounding tissue. A cyst (pocket of fluid) may also appear as a mass on mammography. Radiologists may often use ultrasound to help differentiate between a solid mass and a cyst. Calcifications, masses and other conditions that may appear on a mammogram: *Microcalcifications* are tiny (less than 1/50 of an inch or 1/2 of a millimeter) specks of calcium in the breast. When many microcalcifications are seen in one area, they are referred to as a cluster and may indicate a small cancer. About half of the cancers detected by mammography appear as a cluster of microcalcifications (2). Microcalcifications are the most common mammographic sign of ductal carcinoma in situ (an early cancer confined to the breast ducts). Almost 90% of cases of ductal carcinoma in situ are associated with microcalcifications. An area of microcalcifications seen on a mammogram does not always indicate that cancer is present. The shape and arrangement of microcalcifications help the radiologist judge the likelihood of cancer. In some cases, the microcalcifications do not indicate a need for a biopsy. Instead, a physician may advise a follow-up mammogram, typically within 6 months. In other cases, the microcalcifications are more suspicious and a stereotactic biopsy is recommended. Only approximately 17% of calcifications requiring biopsy are cancerous. The radiologist may describe the shape of suspicious microcalcifications on the mammogram report as "pleomorphic" or "polymorphic." (3,4). Macrocalcifications are coarse (large) calcium deposits that are often associated with benign fibrocystic change or with degenerative changes in the breasts, such as aging of the breast arteries, old injuries, or inflammation. Macrocalcification deposits are associated with benign (non-cancerous) conditions and do

not usually require a biopsy. Macrocalcifications are found in approximately 50% of women over the age of 50. Masses: Another important change seen on a mammogram is the presence of a mass, which may occur with or without associated calcifications. A mass is any group of cells clustered together more densely than the surrounding tissue. A cyst (a non-cancerous collection of fluid in the breast) may appear as a mass on a mammogram film (5,6). A cyst cannot be diagnosed by physical exam alone nor can it be diagnosed by mammography alone, although certain signs can suggest the presence of a cyst or cysts. To confirm that a mass is a cyst, either breast ultrasound or aspiration with a needle is required. If a mass is not a cyst, then further imaging may be ordered. As with calcifications, a mass can be caused by benign breast conditions or by breast cancer. Some masses can be monitored with periodic mammography while others may require biopsy. The size, shape, and margins (edges) of the mass help the radiologist in evaluating the likelihood of cancer (7,8). Prior mammograms may help show that a mass is unchanged for many years, indicating a benign condition and helping to avoid unnecessary biopsy. Therefore, it is important for women to bring their previous mammogram films with them if they change mammogram facilities.

Density: The glandular tissue of the breasts, or breast density, shows up as white areas on a mammogram film. In general, younger women have denser breasts than older women. Breast density can make it more difficult to detect microcalcifications and other masses with mammography, since breast abnormalities also show up as white areas on the mammogram. After menopause, the glandular tissue of the breasts is replaced with fat, typically making abnormalities easier to detect with mammography (9,10). Therefore, most physicians do not recommend that women begin receiving annual screening mammograms until they reach 40 years of age unless they are at high risk of developing breast cancer. Breast Imaging Reporting and Database System (BI-RADS) is shown in table 1. We report the results of a mammographic examination in the framework of a screening program.

2. Materials and Methods

This is a prospective study. 246 women over 40 years were included in a large scale screening program at regional hospital in Shkodraduring the year 2014. Various variables were studied asdegree of obesity (according to Body Mass Index), age of menarche and menopause, tobacco (at least one cigarette per day) and alcohol consumption (at least one drink per week), contraceptive use (type and duration of use), hormone replacement therapy, number of pregnancies, cesarean sections and abortions, age and duration of the first lactation, history of mammography, who requested the study and family history of breast cancer, and 4 mammographic features (BD, BI-RADS and pathological findings, benign and malignant). Measurements of weight, height, waist, and hip were made in each patient.

3. Results and Discussion

The average age of the first mammogram was 48.7 years, ranging from 40 to 70 years. The decision to seek mammography performed was the idea of the patient at 4% of cases and it was indicated by the physician or a nurse as part of the breast cancer screening program in 96%. As expected, menopause was present in less than 50% of women aged 50 years or younger and in 96% in older women. The main finding of the examination were ductectasia (64%), cystic formations (34%), fibroadenoma (33%), intramammary nodules (17%), lipoma (9%), axillary adenopathy (2.6%), ca mammae (2%), microcalcification (1.3%), skin retraction (1.3%).

4. Conclusion

Mammography is the most common method for detecting abnormalities in the breast (11,12). This screening technique is an x-ray that uses very low levels of radiation. It can find 85%–90% of breast cancers. Mammography makes it possible to see tiny cancers that may measure as little as half a centi-meter (about one-fifth of an inch). Generally, a lump can't be felt until it's at least twice that size. The abnormalities that show up on a mammogram may be benign or malignant. Research shows that annual screening mammography performed on large populations of women who otherwise have no breast complaints may save lives in women ages 50 and older and suggests that it possibly reduces mortality in women ages 40–49. The American Cancer Society and other medical groups recommend that women have an annual mammogram starting at age 40. Women who are at high risk for breast cancer because of a family history or other factors may begin screening at an earlier age (13,14). (A family history of breast cancer may raise the possibility of performing genetic testing.) The downside of mammography is that it has increased the number of surgical biopsies in women who do not have breast cancer, and may increase a patient's anxiety level. As with any surgical procedure, complications may occur following a biopsy.

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Table 1: Breast Imaging Reporting and Database System (BI-RADS)

Category	Assessment	Follow-up
0	Need additional imaging evaluation	Additional imaging needed before a category can be assigned
1	Negative	Continue regular screening mammograms (for women over age 40)
2	Benign (noncancerous) finding	Continue regular screening mammograms (for women over age 40)
3	Probably benign	Receive a 6-month follow-up mammogram
4	Suspicious abnormality	May require biopsy
5	Highly suggestive of malignancy (cancer)	Requires biopsy
6	Known biopsy-proven malignancy (cancer)	Biopsy confirms presence of cancer before treatment begins