



CASE REPORT

Is screening mammography still a beneficial procedure? a case report

¹Amal Sayfuldeen Qari, ²Mohamed Khaled S. Zaky

¹College of Medicine, Taibah University, Madinah, Saudi Arabia

²MB,BCh; MSc; PhD; FRCSI, Professor of Surgery, Taibah University, KSA

Abstract:

Breast cancer is leading cancer in many countries worldwide. Screening mammography was first officially recommended by the American Cancer Society in 1976 and continues to be the most reliable way to screen for breast cancer till now. Recently, some articles were published about this technique's potential risks, asking whether it should be abandoned. In this article, a case study illustrating significant benefits that can be obtained in patients' best interests is presented.

Keywords: Breast cancer, Mammography, Screening, Mass, Case report

Copyright: © 2023 The Authors. Published by Innovative Journal. This is an open access article under the CCBY-NC-ND license

1 | INTRODUCTION

Breast cancer is the most common cancer in Saudi Arabia, in 2018, 29.7% of females were diagnosed with breast cancer. More than 9.6 million people die from cancer every year, making it the second largest cause of death globally[1,2]. To lower the rate of cancer deaths, screening must accelerate the diagnosis of tumors [2]. Mammography began in 1913, when a Berliner surgeon, Salomon A, performed a roentgen-histological study on 3,000 mastectomies. This work is the basis of mammography[3]. Recently, there are many papers discussing whether a mammogram is beneficial or not due to overdiagnosis, false positives, and radiation risks of mammographic screening. These risks are still not validated enough to stop using them. This case report shows the validity of the benefits of screening mammography.

Case report:

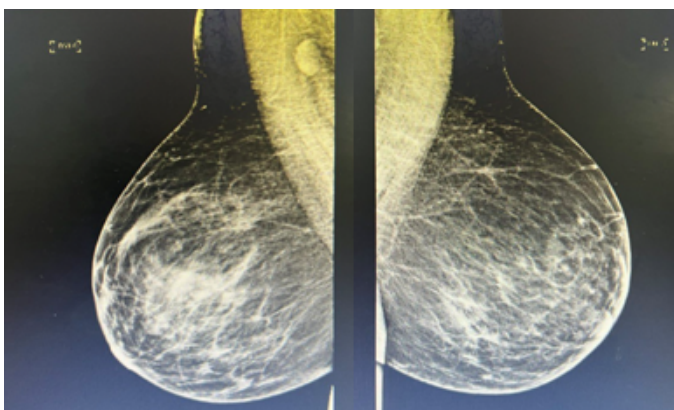
Hereby, we report a case of a 45-year-old female who underwent an opportunistic screening mammogram and accidentally discovered a mass in her breast. She is a mother of 5 children; her youngest is 5 years old. No history of active breastfeeding and no family history of any cancer. She is hypertensive (controlled by medical treatment) and there is a history of right nephrectomy.

Clinical findings:

Clinical examination showed a surprisingly large right breast mass on palpation, not associated with pain, skin changes, nipple discharge, or palpable axillary lymph nodes. Her vital signs were within normal range.

Diagnostic assessment:

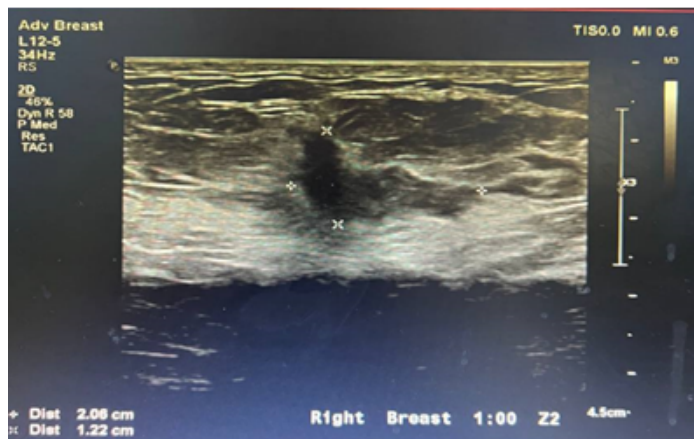
Lab results showed high creatinine of 126 umol/L and low HGB of 10.4 g/dL. The right breast mammogram showed a right inner central to upper mid-third irregular high-density mass with architectural distortion and internally grouped pleomorphic microcalcifications. There was no skin thickening or nipple retraction. Right axillary lymph nodes were prominent (Figure 1&2).



(Fig. 1&2: Bilateral mammography showing Rt. Breast mass with architectural distortion)

On breast ultrasound: (Figure 3)

An irregular heterogeneous anti-parallel hypoechoic mass seen at the right breast 1 o'clock mid-third measuring 2.1 * 1.2 * 1.1 cm with no posterior acoustic feature or internal vascular it's. Similar smaller ones are seen at the 12 o'clock anterior third measuring 1.1 * 0.8 * 0.7 cm. 3 o'clock retro areolar measuring 0.7 * 0.5 * cm and 8 o'clock mid third measuring 1.2 * 0.7 * 0.9 cm. No suspicious cystic or solid masses could be identified within the left breast. Bilateral benign-looking axillary LNs with preserved fatty hilum and maximal cortical thickness of 0.2 cm.



Magnetic resonance imaging (MRI):

of the Right breast showed: upper inner anterior to mid-third heterogeneous enhancing mass associated with architectural distortion measuring about 4 cm in maximum AP diameter. Another area of abnormal enhancement was seen at the central lower and inner mid-third measuring 1 cm. Foci of enhancement are noticed and likely represent part of enhancing fibro glandular tissue. No enlarged axillary lymph nodes. MRI of the Left breast showed: Multiple enhancing foci are noticed with no corresponding abnormal signal intensity on T2 likely representing part of enhancing fibro glandular tissue. No enlarged axillary lymph nodes. Biopsy: Ultrasound-guided right breast post-biopsy clip insertion confirms the location of the clip within the right upper inner quadrant mass. CT scan of abdomen and pelvis with IV contrast at arterial and Porto venous phase: No evidence of metastatic lesions in the abdomen or pelvis, nonspecific para-aortic sub centimetric lymph nodes, mural uterine lesion suggestive of fibroid in need of an ultrasonographic assessment, indeterminate right adrenal nodule likely adenoma for assessment by chemical shift.

Therapeutic approach:

Serial mammography screening in asymptomatic women can detect breast abnormalities early before any symptoms present. The report on Breast Cancer Screening was published in 1986 and became known as The Forrest Report, that introduce mammographic breast screening in the United Kingdom. It analyzed the costs and benefits in terms of quality-adjusted life years (QALYs)[9].

However, in 2011 Raftery et al reported that mammographic screening usually yields positive results when measured in terms of mortality or life years due to the exclusion of negative effects[10]. However, in 2022, Kosar concluded that for women between the ages of 50-69, the reduction in breast cancer mortality, as determined by the randomized trial for breast cancer screening, varies between 15-25%[12].

Early detection:

The incidence of advanced cancers (defined as those larger than 20 mm or belonging to higher stages) is not decreased by screening, according to some observational studies and a thoroughly done systematic review. The 8% decline in late-stage cancer reported in one study over 30 years could have been brought on by increased breast cancer awareness. In Denmark, for example, the average tumor size decreased by 9 mm in just 10 years. Furthermore, Norwegian researchers discovered that screening did not result in a decrease in advanced malignancies [11]. The goal of breast cancer screening is to provide benefits such as a reduction in breast cancer mortality. It has become necessary, recent years to weigh the advantages and disadvantages of breast screening as well as to assess its overall efficacy[13].

Over diagnosis and false-positive cases:

a WHO report defined false positive as an abnormal mammogram in a woman ultimately found to have no evidence of cancer. Overdiagnosis refers to the diagnosis and treatment of cancer that would never have caused symptoms. Thus, a false positive result can be found only in a woman without cancer, while overdiagnosis can only be made for women with cancer. According to the WHO study, the effectiveness of breast cancer screening programs should only be measured in terms of mortality, the measure that is most directly relevant to the goal of screening[10]. Decreasing screening effectiveness leads to marked increase in ratios of over diagnosed breast cancers for each breast cancer death prevented [8].

Psychologically, a false-positive alarm may cause distress in 2 different ways: A women who undergo mammography screening are called back for evaluation or uncertainty for several month associated with a recommendation for 6–12-month follow-up[7].

Radiation Injury:

Radiation protection in radiology is crucial generally, however, mammography screening shouldn't be discouraged because of the exceedingly minimal risk of radiation-induced harm [7].

New techniques:

To reduce overdiagnosis and increase the sensitivity and specificity of mammography. The sensitivity of mammography is relatively lower for women of young age with dense breasts and ultrasound has been added which improved diagnostic accuracy.

Also, color and power Doppler, US elastography, and automated breast ultrasound. Digital mammography is now the most crucial method for the early diagnosis of breast cancer and the preferred method in various guidelines[7].

2 | CONCLUSION

Screening mammography is still a valid option which can allow the patient more treatment options, better quality of life, and probably less cancer-related mortality. The potential risks can be alleviated by better technology. Breast self-examination and clinical examination should be greatly encouraged. Further studies are needed to answer the questions about overtreatment, and quality of life improvement.

Ethical approval :

Verbal informed consent for publication was taken from the patient who has a full capacity.

3 | REFERENCES

[1]. Alqahtani WS, Almuftareh NA, Domiaty DM, Albasher G, Alduwish MA, Alkhalaf H, Almuzzaini B, AL-marshidy SS, Alfraihi R, Elaslali AM, Ahmed HG, Almutlaq BA. 'Epidemiology of cancer in Saudi Arabia thru 2010-2019: a systematic review with constrained meta-analysis' AIMS Public Health 2020, 7(3): 679-96. DOI: 10.3934/publichealth.2020053

[2]. Bleyer, A., & Welch, H.G. 'Effect of three decades of screening mammography on breast-cancer incidence'. New England Journal of Medicine 2012, 367(21). DOI: 10.1056/NEJMoa1206809

[3.] Van Steen, A., & Van Tiggelen, R. 'Short history of mammography: a Belgian perspective'. JBR-BTR: organe de la Societe royale belge de radiologie (SRBR) = orgaan van de Koninklijke Belgische Vereniging voor Radiologie (KBVR) 2007, 90(3), 151–153.

[4]. World Health Organization 'WHO position paper on mammography screening summary of recommendation': WHO, Brochure, and flyer 2014

[5]. Picard J. D. Histoire de la mammographie [History of mammography]. Bulletin de l'Académie nationale de médecine 1998, 182(8), 1613–1620.

[6]. Heywang-Köbrunner, SH., Hacker, A. and Sedlacek, S. 'Advantages and disadvantages of mammography screening', Breast Care (Basel) 2011, 6(3), 199–207. DOI: 10.1159/000329005.

[7]. Grimm, LJ. Avery CS, Hendrick E, and Baker JA 'Benefits and risks of mammography screening in women ages 40 to 49 years', Journal of Primary Care and Community Health 2022, 13. DOI: 10.1177/21501327211058322.

[8]. Ding, R. Xiao Y, Mo M, Zheng Y, Jiang YZ, and Shao ZM 'Breast cancer screening and early diagnosis in Chinese women', Cancer Biology and Medicine 2022, 19(4), 450–467. doi: 10.20892/j.issn. 2095-3941. 2021.0676.

[9]. Christiansen SR, Autier P and Støvring H. 'Change in the effectiveness of mammography screening with decreasing breast cancer mortality: A population-based study', European Journal of Public Health 2022, 32(4), 630–635. doi: 10.1093/eurpub/ckac047.

[10]. Raftery, J. and Chorozoglou, M. 'Possible net harms of breast cancer screening: Updated modeling of Forrest report', *BMJ* 2011, 344(7839), pp. 1–8. doi: 10.1136/bmj.d7627.

[11]. Gøtzsche, PC. 'Mammography screening is harmful and should be abandoned', *Journal of the Royal Society of Medicine* 2015, 108(9), 341–345. doi: 10.1177/0141076815602452.

[12]. Kosar, M. S. 'Harms and benefits of mammography screening', 2022 21(5), pp. 7–16. DOI: 10.1186/s13058-015-0525-z

[13]. Cui, Z. Kawasaki H, Tsunematsu M, Cui Y, Rahman M, Yamaasaki S, Li Y, and Kakehashi M. 'Breast cancer screening and perceptions of harm among young adults in japan :results of a cross-sectional online survey 2023'. 2073–2087. DOI:<https://doi.org/10.3390/currenocol30020161>