



Application of Digital breast tomosynthesis in the differentiation of suspicious breast densities. Case report.

Zastosowanie cyfrowej tomosyntezy w różnicowaniu podejrzanych zagęszczeń w piersiach. Opis przypadku.

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Abstract

Mammography is an effective tool in detecting suspicious breast lesions. However, like any method, it is not perfect. In mammography, we obtain 2D images that show superimposed tissues. Many times, this causes problems in differentiating truly suspicious densities from apparent lesions resulting from superimposition of glandular tissue from several sites. This case report aims to demonstrate the usefulness of digital tomosynthesis in differentiating densities of unclear nature.

Key words *diagnostics, mammography, tomosynthesis*

Streszczenie

Mammografia jest skutecznym narzędziem w wykrywaniu podejrzanych zmian w piersiach. Jednakże, jak każda metoda nie jest doskonała. W mammografii uzyskujemy obrazy 2D, które przedstawiają nałożone na siebie tkanki. Niejednokrotnie, powoduje to problemy w różnicowaniu rzeczywiście podejrzanych zagęszczeń od zmian pozornych wynikających z nałożenia się tkanki gruczołowej z kilku miejsc. Przedstawiony opis przypadku ma na celu pokazanie przydatności cyfrowej tomosyntezy w różnicowaniu zagęszczeń o niejasnym charakterze.

Słowa kluczowe *diagnostyka, mammografia, tomosynteza*

Case report

Mammography is an effective imaging tool for detecting breast cancer at an early stage. However, the overlap of tissues depicted on mammograms may create significant obstacles to the detection and diagnosis of abnormalities. Diagnostic testing initiated because of a questionable result at screening mammography frequently causes patients unnecessary anxiety and incurs increased medical costs [1]. Breast tomosynthesis is a valuable additional tool based on the acquisition of three-dimensional digital image data by performing a series of low-dose radiographic exposures. It provides “scroll through” reconstructed images thereby reducing the superimposition of overlapping breast tissue, which can mimic breast cancer, and provides improved detail of noncalcified mammographic findings seen in breast cancer. The margins of both benign and malignant lesions are more conspicuous at DBT, which allows increased reader confidence, and improved screening outcomes. It also assists in lesion localization and determining mammographic extent of disease in women with known or suspected breast cancer [2, 3].

In this study we would like to present a case of a 55-year-old female who presented to our radiology department for a routine, follow-up mammography. Patient has no personal or family history of breast cancer and has no concerning symptoms. Moreover, in the previously performed mammographies available for comparison (four and three years earlier), no abnormalities were found.

Mammography was performed routinely in oblique projection (MLO) and craniotomy-caudal projection (CC) (Fig. 1a and 1b).

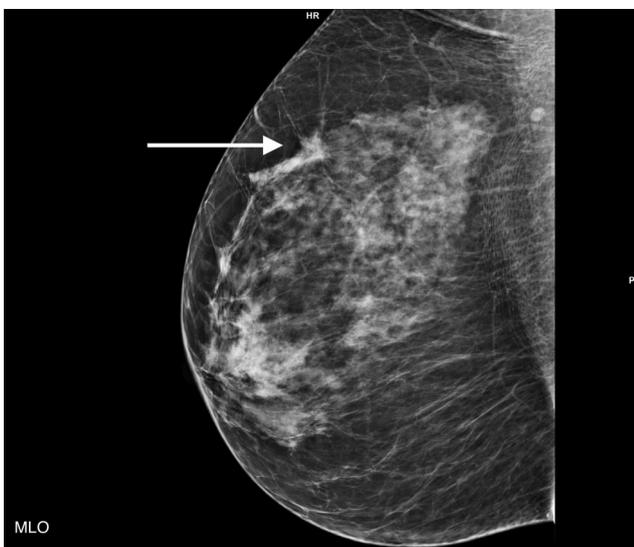


Figure 1a Mammography, MLO projection. The arrow points to a suspicious density.

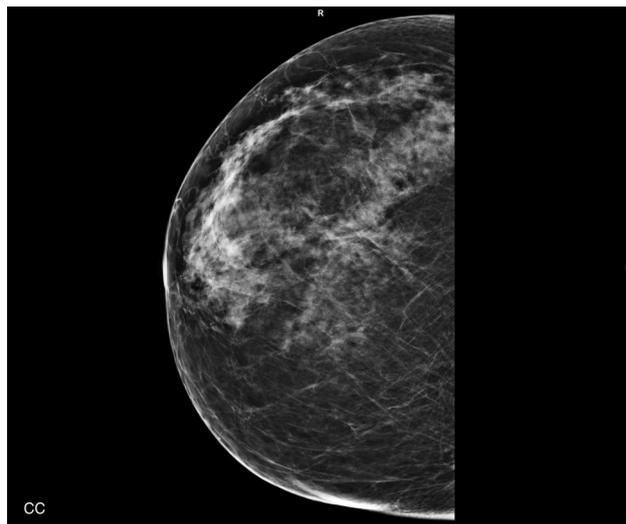


Figure 1b Mammography, CC projection. The arrow points to a suspicious density.

In MLO projection of the right breast in the localisation of upper-external quadrant an architectural distortion was found (measured 9x9mm). The architectural distortion was not clearly visible on CC projection. As it was a new found, not seen in the previous mammographies it raised our concern and we found it necessary to deepen the diagnostics (lesion of category BI-RADS 0 - a need for further information). Initially, we performed an ultrasound, which did not reveal any aberrations. To be assured, we also offered the patient a tomosynthesis, which was performed the following day (Fig. 2).

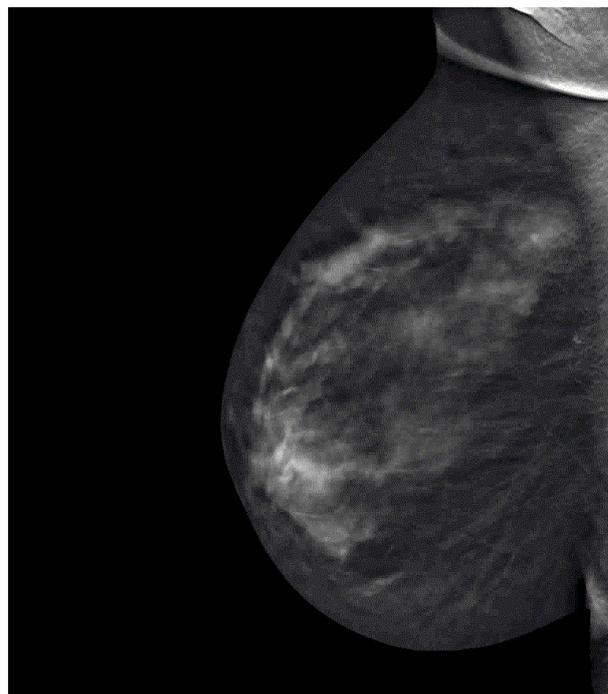


Figure 2 Tomosynthesis. The video shows a partial disappearance of the suspicious density. It was a result of tissue superimposition.

In the tomosynthesis an architectural distortion has partially disappeared and probably was an effect of tissue superimposition. Patient was discharged home with a BI-RADS 3 category (probably benign lesion) and a recommendation of short-term follow-up in 6 months. The following mammography and control ultrasound showed no significant abnormalities.

Conclusion

Digital tomosynthesis is a very useful method in improving characterization and determination of suspicious mammography findings, including normal structures which are only overlapping breast tissue giving asymmetric architectural distortion as well as differentiate benign, well circumscribed lesions from breast cancer.

As in the presented case, it allows safely and with high probability to exclude the malignant nature of the finding and reduce the use of other advanced diagnostic methods or even unnecessary biopsy. In addition, the patient receives a definitive diagnosis in a short time, saving the stress associated with uncertain diagnosis.

References

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