Radiomic's data correlated with breast carcinoma in mammograms: a retrospective review

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Aims and objectives

to compare Radiomic's data between two groups of mammograms: breast cancer mammograms and the negative controlateral mammograms, same projection, in order to prove a quantitative value to detect the breast cancer.

Methods and materials

We reviewed a retrospective cohort of 1530 women patients with clinical Mammograms between April 2018 and September 2018 in an Italian Hospital. All the mammograms have been performed by the same device. We included the patients with breast cancer mass histopathology proved (we excluded microcalcificantion lesions) and images in full compliance with standard quality. We evaluated two different groups of images: first group made of mammograms with breast cancer and the second group made of controlateral mammograms without brast cancer and neither suspicius lesions.

We obtained Radiomic's data drawing ROI of the all mammogram, avoiding pectoral muscles, skin, macrocalcifications and the nipple.

Results

We obtained a final cohort of 84 images (CC and MLO mammograms) and a total of 43 cases of breast cancer, with different histopathology results (in one case the same mammogram showed two different breast cancers). We found differences of Radiomic's data between the two groups were statistically significant ($p<0.05$) for Compactness 1 ($p= 0.044$), Major Axis ($p= 0.043$) and Zone Percentage ($p= 0.042$).

Images for this section:

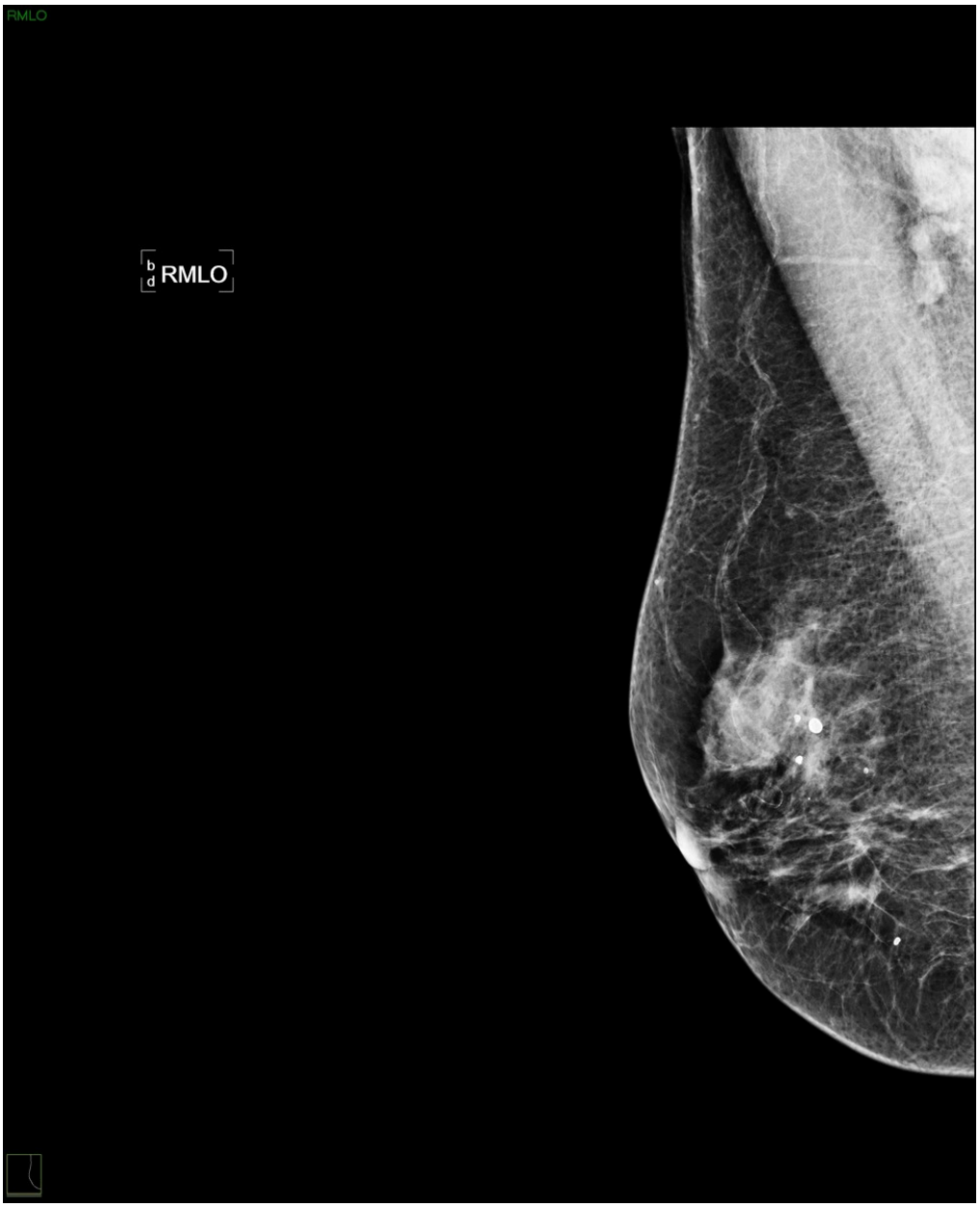

Fig. 1: Controlateral negative mammograms

Fig. 2: Mammogram LMLO with cancer in the lower quadrant

Fig. 3: ROI of the all mammogram, avoiding pectoral muscles, macrocalcifications and the nipple.

Conclusion

Our results show how Radiomic could provide a post processing quantitative value that could point out Mammograms with breast cancer comparing the controlateral negative mammogram. These results could provide a good tool for the breast Radiologist in the most challenging case of mammograms like in dense breast or in case of no previews exams available during the reporting.

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