THE EFFECTIVENESS OF WHOLE SLIDE IMAGING IN ASSESSING THE INVASIVE BREAST CARCINOMA CASES.

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Introduction

Nowadays, especially with the pandemic and restriction rules due to infection with SARS-CoV-2, digital pathology is gaining more and more ground. The purpose of the present study is to assessed the efficacy and the utility of WSI obtained from selected cases of breast invasive carcinoma, including both hematoxylin-eosin (H&E) and immunohistochemical slides obtained in our pathological department..

Figure 1

Method and material

Our study includes 100 invasive breast carcinoma cases, each case being composed of one H&E-stained glass slides and four immunohistochemical stained slides with estrogen receptor, progesterone receptor, KI67 and HER2-neu biomarkers. All the slides were scanned with HuronTissueScope 4000XT slide scanner (Figure 1).

All the slides were assessed by two experienced pathologists: firstly, at light microscopy and secondly, after nine weeks of washout period, the WSI of the same cases. The assessment of the immunostain of the WSI were done using the free QuPath program. SPSS version 26.0 was used to perform the statistical analysis in order to evaluate the concordance and agreement between the diagnosis of the two specialists

Results and discussion

Intra- and inter – observer agreement between the results of light microscopical and WSI assessment were realized using Cohen κ statistics. An excellent agreement was recorded for H&E stain diagnosis on light microscopy and WSI, but a less value was obtained when immunostains were evaluated by the two methods. An excellent concordance and reproducibility were noticed when only the WSI were used.

Conclusion

Our research provides further evidence of the high efficacy of WSI especial in the evaluation of immunohistochemical expression of immunohistochemical biomarkers, which are essential for establishing a tailored therapy for the patients with invasive breast carcinoma.

Acknowledgments

This research was performed in the Center for Research and Development of the Morphological and Genetic Studies of Malignant Pathology from the "Ovidius" University of Constanţa, POSCCE 2.2.1. Project ID: 1844, code SMIS:48750, CEDMOG, contract 627/11.03.2014.