THE DEGRADATION OF BREAST IMPLANTS – IN VIVO AND IN VITRO RESEARCH

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Introduction

Breast implants are used in aesthetic medicine to correct imperfections, as well as in oncology, for reconstruction. Regardless of the main cause of implantation, there are always one reason – a sense of beauty, restoration of lost self – confidence and attractiveness [1]. Unfortunately, each operation carries the risk of complications. The aim of the study was to analyze the degradation of breast implants – in vivo and in vitro.

Materials and Methods

For in vivo studies, samples were taken from implants removed from the body. In vitro tests were carried out in a bacterial solution (Patent nr P 409082) under laboratory conditions. They were dipped for 9 months.
A scanning electron microscope JSM-7800F (FIG. 1) was used to estimate the surface of the implants.

FIG. 1. Scanning electron microscope JSM-7800F.

Bacterial studies were carried out on biological microscope ZEISS Observer D1 (FIG. 2).

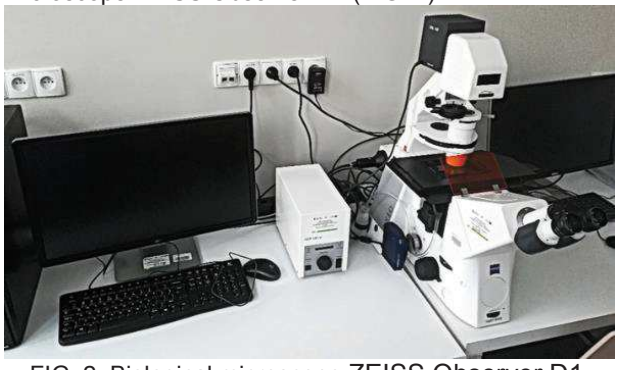

FIG. 2. Biological microscope ZEISS Observer D1.

The wettability of the material was tested with a goniometer Theta Life (FIG. 3).

FIG. 3. Theta Life.

Results and Discussion

The structure of the material is irregular with biofilm on it (FIGs. 4 and 5).

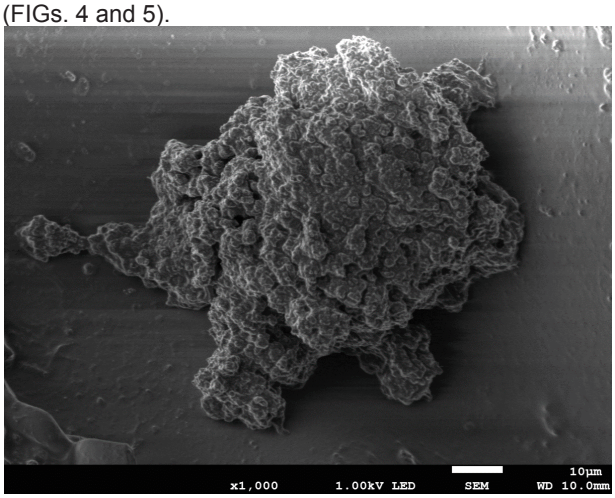

FIG. 4. Biofilm on the surface.

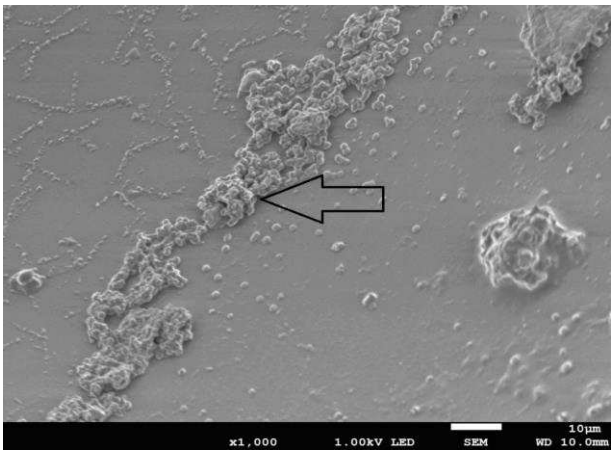

FIG. 5. The chains of bacteria on the surface.

Conclusions

1. The surface of the implants was covered with numerous bacteria and biofilm.
2. The surface wettability tests showed its hydrophobicity.

References

[1] Alderman A., Gutowski K., Ahuja A., Gray D., *ASPS clinical practice guideline summary on breast reconstruction with expanders and implants*. Plastic and Reconstructive Surgery, nr 134, 2014, s. 648-655