

Study for visualizing skin lesions by photoacoustic imaging

The aim of this study was to visualize cutaneous lesions using an optical ultrasonic microscope. A pilot study was recently completed, and further studies are needed to evaluate various skin lesions. This imaging technique also provided a new potential diagnostic method for future analysis.

/ Approach from imaging of skin lesions

Currently, the human eye can only observe the skin surface. The dermatologist observes the depth of the lesion by eye and touches it by hand to estimate the depth of the lesion and the nature of the disease based on the color, tone, texture, and hardness of the rash. However, there is a limit to the information that can be obtained with the eyes and hands, and skin biopsy has become essential for a definitive diagnosis. With the advancement of technology, it is now possible to observe the internal structure of the skin (blood vessels, etc.) using a light ultrasound microscope, similar to an X-ray. Last year, in collaboration with the Department of Anatomy and the Department of Plastic and Reconstructive Surgery, a pilot study was completed, titled “visualization of skin lesions using photoacoustic microscopy.” In the future, we aim to increase the number of target diseases and promote further research for clinical application, including the evaluation and diagnosis of lesions.