29p-S-2 超高分解能スペクトラルドメインOCTによる *in vivo* 3次元眼底計測

In vivo three-dimensional retinal imaging by ultra high resolution spectral domain optical coherence tomography

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Optical coherence tomography (OCT) is one of the promising tools for the retinal diagnosis. We had demonstrated *in vivo* three-dimensional (3D) imaging of human retina by spectral domain (SD-) OCT. Although this 3D OCT successfully visualized the morphological structure of the subject, there are further needs of high resolution for classifying the thin layers and small vessels.

Ultra high resolution (UHR-) SD-OCT has been developed using broadband source (λc=870nm, $\Delta\lambda$=170nm) with resolution of 4.4um. Frame (1024 lines) rate is 26.3fps and volume (1024x128 lines) time is 5s with the scanning speed of 27,000Hz and exposure time of 36us. Compare with former SD-OCT image, the axial resolution has been improved. We can find that each layer of retina and choroidal vessels were appeared more clearly. Specially, it is possible to recognize thin layers of retinal pigment epithelium with high contrast.

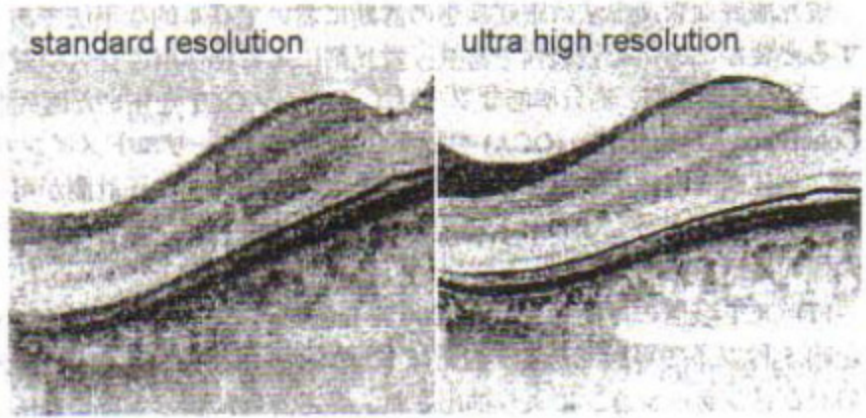

Fig. 1. OCT image of human retina. Left: SD-OCT λc=840nm $\Delta\lambda$=50nm. Right: UHR-SD-OCT λc=870nm, $\Delta\lambda$=170nm