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Current Trends in Ophthalmology and Visual Science

Zarate JO. Ophthalmol and Vis Sci: CTOVS -104.

DOI: 10.29011/CTOVS-104. 100004

Short Communication

Digital Optical Biopsy of the Pigment Epithelium of Retina

Jorge Oscar Zarate*

Department of Pathology, Universityof Buenos Aires (UBA)and Maimonides University, Argentina

***Corresponding author:** Jorge Oscar Zarate, Department of Pathology, Buenos Aires University, Buenos Aires, Argentina. Tel: +541145101100; Email: zjorgeoscar@yahoo.com.ar

Citation: Zarate JO (2018) Digital Optical Biopsyof the Pigment Epithelium of Retina. Ophthalmol and Vis Sci: CTOVS -104. DOI: 10.29011/CTOVS-104. 100004

Received Date: 28 May, 2018; **Accepted Date:** 23 June, 2018; **Published Date:** 29 June, 2018

Communication

The digital optical biopsy is a process we are studying for more than 10 years, in order to transform images from Optical Coherence Tomography (OCT) to a preparation of histological (Figure1) and Cytological Microscopic Nature (Figure 2).

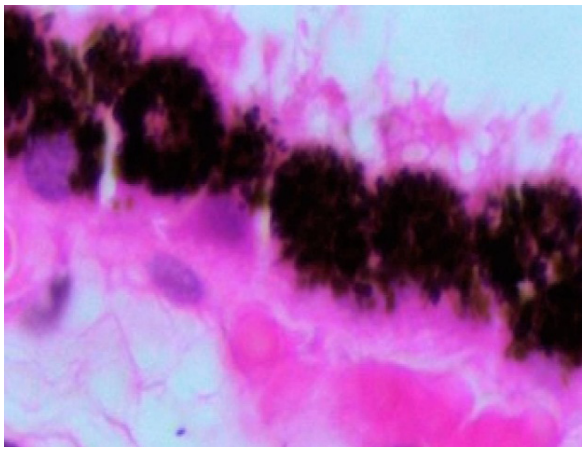

Figure 1: Optical Coherence Tomography.

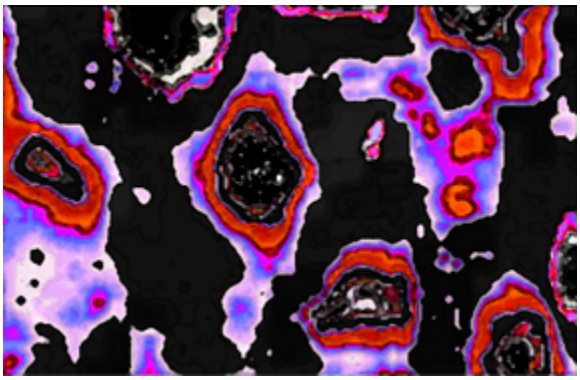

Figure 2: Cytological Microscopic Nature.

The results obtained so far are encouraging, still in the beginning stage in structuring a software, essential to replace the 40 steps we do at present (time factor), and methodological reproducibility (precision factor) element.

The basis of this method is to accept the hypothesis that supports the pixels as binary image units, taking into consideration their different types (shape, clustering, etc.) Which are arranged as a comparison - genome, giving the tissue specificity expressed?

We think that the same procedure can be used on the basis of complementary imaging studies (ultrasound, resonances, video endoscopy, etc.), with other tissues of other organs and systems. Ni microscopes or tissue processing, seem essential to diagnose an injury, in those areas where the digital image capture is implemented to study. Part of the methodology, based primarily on the pixelografía-pixelometría and, taken as a form of geometry, ranging from scheduled acquisition and sharing of digital images, neatly arranged in the areas of material to study.

Determination of the values of pixels, and processing in all its measurable skills, both metric and geometric. Processing and reconstruction of new features in the image, with pulse sequences and levels of inference. Mutual information results with multimodal histograms and estimate deviations and errors.

Comprehensive use of data stored in a digital image based on the concept based on the integration of the time factor in it. Every digital image has inside, apart from their resolving power, which integrates information in milliseconds different morphological cuts. Its maximum capacity for information and detecting the pixels are in that shape, able to be used by tools smart enough to remove it.

These considerations led to the practice of many examples in the study of the morphology of the retina, and specifically about pigment epithelium (in our case), allow us to infer that analogous or similar steps of energy can be obtained histological images of different tissue biopsies noninvasive.