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The S.Fyodorov EYE MICROSURGERY INSTITUTION

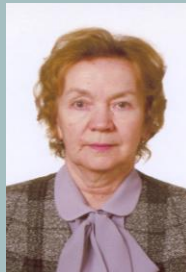
Retinal Pigment Epithelium After Energetic Cataract Surgery

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The authors have no financial interest in the subject matter of this abstract.



Unique surgical technology of laser cataract extraction developed under leadership of Prof. Fyodorov in 1994 by a group of authors:



V.Kopayeva
Y.Andreyev

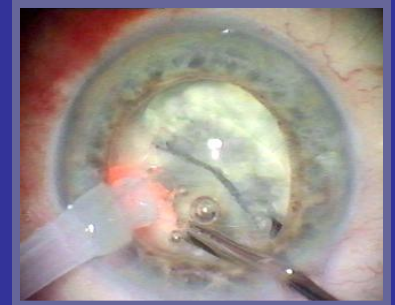
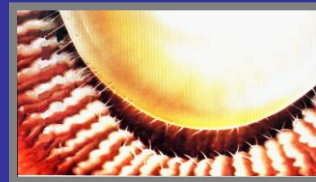
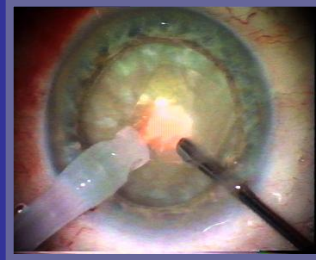


Nowadays the Russian technique of Laser Cataract Extraction (LCE) with Nd-YAG 1.44 mcm (endodissector) and He-Ne 0.63 mcm (biostimulator) is the only one laser surgery for hard and brunescant cataracts without manual fragmentation of the nucleus Without addition ultrasound energy

with spontaneous cracking

LCE surpasses ultrasound phacoemulsification in all parameters

Main LCE advantages are found in complicated cases (elder age, lens subluxation and zonular damage, diabetes mellitus, high myopia, pseudoexfoliation, compromised corneas)



Purpose:



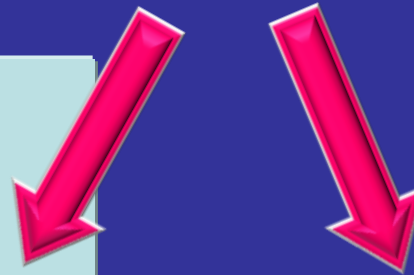
To compare
the condition of **retinal pigment epithelium**
after cataract extraction
by using energy
of *ultrasound and combined laser*
(Nd-YAG 1.44 mcm and He-Ne 0.63mcm).



Methods

***Electron transmission microscopy
of pigment epithelium
in macular area of retina
after:***

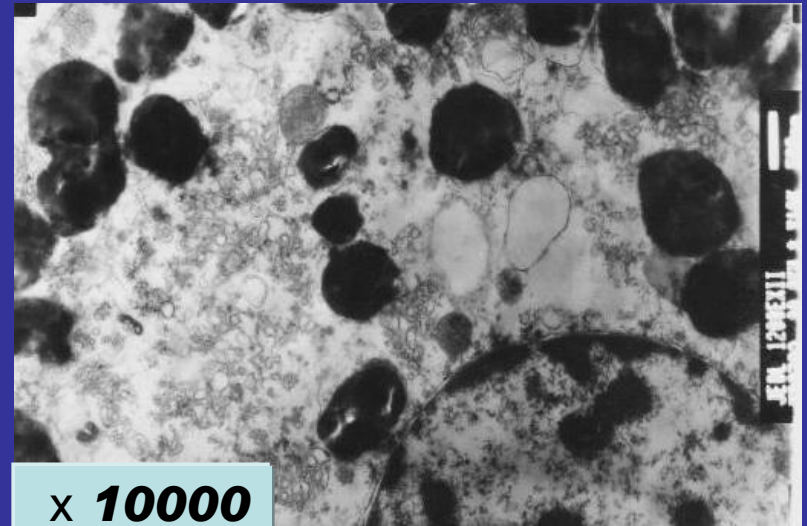
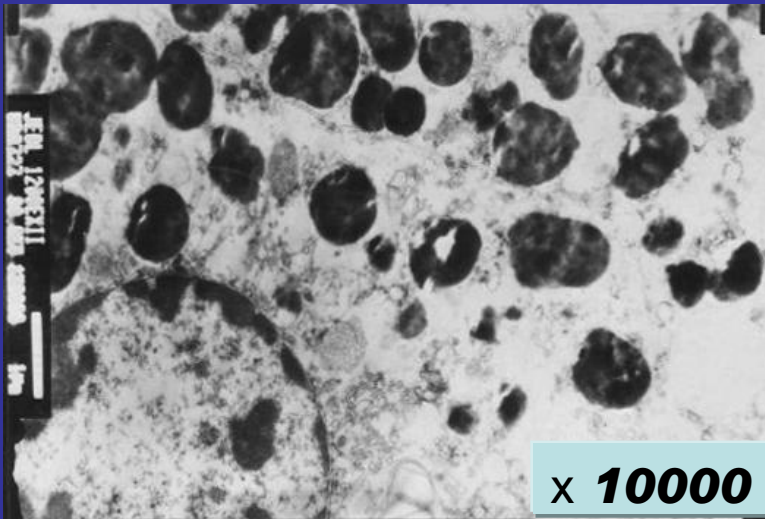
***Laser cataract extraction
in 3 left cadaver
human eyes
using the Russian device
“Rakot” (Nd-YAG 1.44 μm and
He-Ne 0.63mcm).***



***Ultrasound
phacoemulsification
(Millennium)
in 3 right (paired) eyes
of the same individuals
(male, 68-72 years).***

Results:

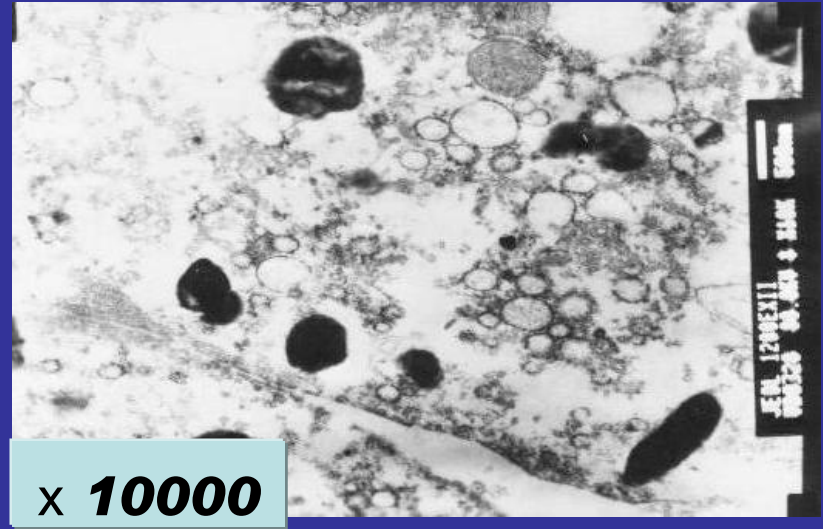
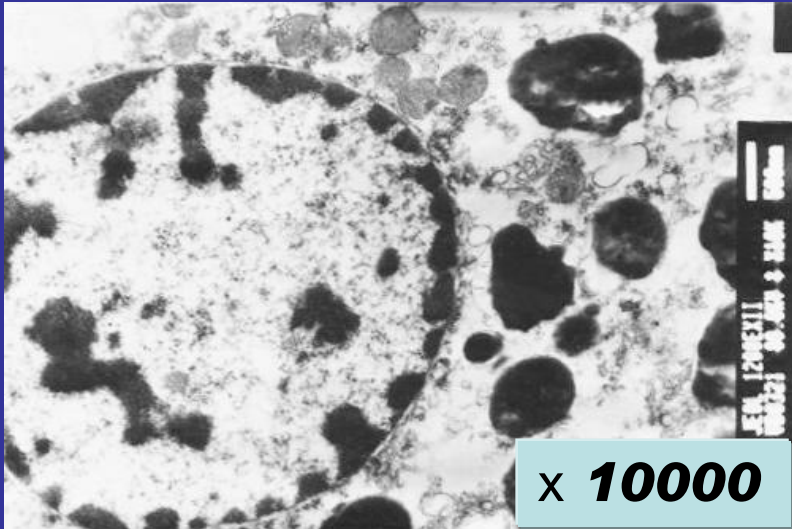
After laser operation



***the ultra-structure of nucleus,
nuclear membrane and chromatin
of retinal pigment epithelium
corresponds completely to the norm.***

Results:

After ultrasound phacoemulsification



***Optical density of cytoplasm cells is porous.
Many vacuoles compared with ultra-structure
after laser operation***

Conclusion:

***Combined Laser energy
for the posterior segment of the eye
is a safer one
of two energy types
which are used in cataract surgery.***