

3.01 Assessing post-operative outer retinal changes
in patients after successful retinal detachment surgery

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Purpose: Patients who have undergone successful repair of
retinal detachment (RD) often complain of visual disturbance
although visual acuity outcome is good. Photoreceptor loss could
be one of the mechanisms of visual dysfunction, which was
assessed in this study with both electrophysiology and imaging.

Methods: Patients with successful unilateral retinal detachment
surgery with visual acuity between 20/25 and 20/20 vision were
assessed with multifocal ERG, OCT (both b and c-scan), and
adaptive optics imaging in both eyes. MfERG responses (Vision
Monitor, Metrovision) were compared with photoreceptor
counts performed with adaptive optics (RTx1, Imagine Eyes).

Results: Ten patients met the inclusion criteria. However,
reliable images with adaptive optics could be obtained only in
three cases. On mfERG, the P1 amplitudes of the RD eyes were
between 602 and 1062 nV; in the contralateral non-operated eyes,
the amplitude was between 1403 and 1553 nV. The P1 amplitude
ratio (RD eye/non-operated eye) ranged between 0.43 and 0.68.
The mean cone density in the central 2_ was between 2356 and
3985 cones/degree in the RD eye versus 4732–5741 cones/
degree in the contralateral eye. Cone density ratio between the
RD eye and the non-operated eye ranged between 0,49 and 0,69.

Conclusions: The cone densities and the central mfERG responses
in macula-off RD eyes were found to be reduced compared with the
contralateral non-operated eyes. This photoreceptor loss could
occur despite successful retinal detachment surgery and good
apparent functional outcome. The mfERG responses appeared to be
correlated with the measured cone densities.