



Background

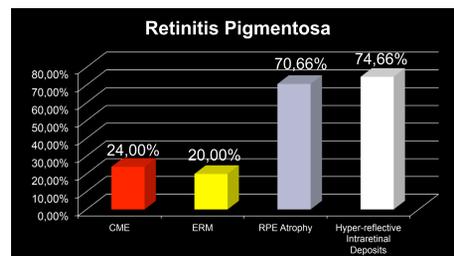
Retinitis Pigmentosa is the most common retinal dystrophy, characterized mainly by pigmentary changes in the peripheral retina. SD-OCT provides a high resolution image that shows precise details of retinal layers and its structural changes.¹²

Purpose

To determine the retinal changes in the macular area in retinitis pigmentosa (RP) with spectral domain optical coherence tomography (SD-OCT).

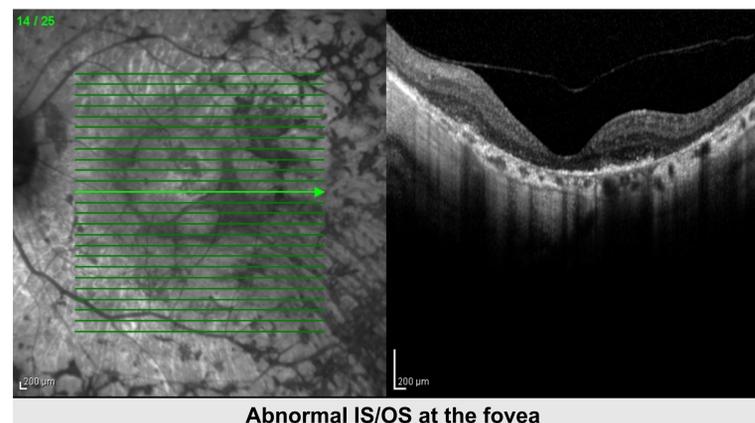
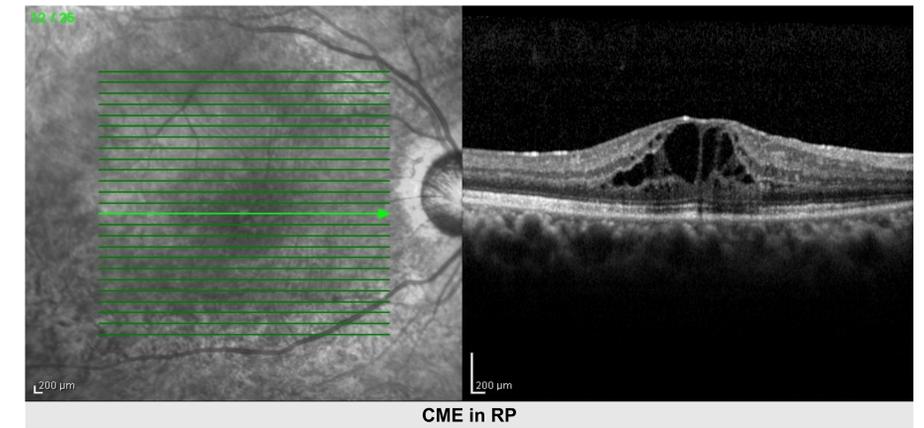
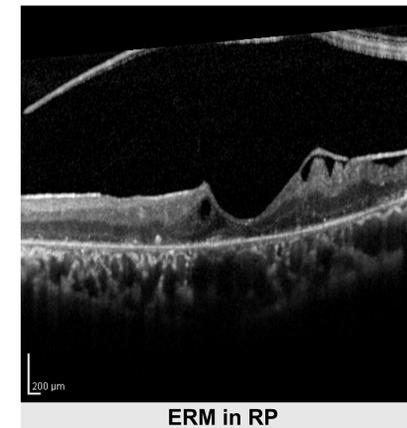
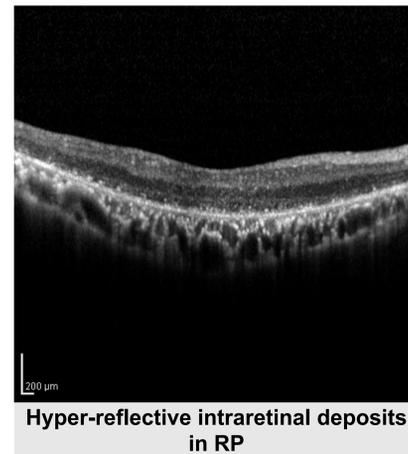
Methods

Prospective, descriptive, transversal study. We took images of the macular area with SD-OCT in patients with RP. We included 75 eyes of patients with RP. Diagnosis was done by clinical examination, as well as retinal fluorescein angiography, electroretinogram and electrooculogram. SD-OCT (Spectralis®, Heidelberg Engineering) of the macular area was performed in all cases, using a macular cube of 20°, with an Average Real Time of 26. Central macular thickness (CMT), central and total macular volume, structural findings of the retinal layers and retinal pigment epithelium (RPE) were analyzed. We made a correlation between the best corrected visual acuity (BCVA) and the findings in the macular area seen by SD-OCT.



Results

We analyzed images of 75 eyes from 38 patients with SD-OCT (22 male, 16 female). Age ranged from 13 to 75 years, mean age of 42.82 years. BCVA was 20/50 (LogMAR 0.4). Mean CMT of 197.48 μ , mean minimal macular thickness of 188.50 μ . Mean total macular volume of 7.267 mm³. Mean central macular volume of 0.1908 mm³. OCT findings showed hyper-reflective intraretinal deposits above the RPE in 56 eyes (74.66%), RPE atrophy in 53 eyes (70.66%), abnormal inner segments and outer segments junction (IS/OS) at the foveal area in 34 eyes (45.33%) and epiretinal membrane in 15 eyes (20.0%). Cystoid macular edema was observed in 18 eyes (24.0%) which correlated with a mean BCVA of 20/100. There was a significant difference in the BCVA in patients with an abnormal IS/OS with a mean of LogMAR 0.97 +/- 0.87 (20/200) vs. without an abnormal IS/OS LogMAR 0.28 +/- 0.24 (20/40); P < 0.0001. There was a significant difference in the BCVA in patients with a normal foveal depression with a mean of LogMAR 0.35 +/- 0.32 (20/50) vs. abnormal foveal depression LogMAR 0.98 +/- 0.93 (20/200); P < 0.001.



Conclusions

Our results suggest that SD-OCT shows characteristic findings in RP, mainly hyper-reflective intraretinal deposits above the RPE, RPE atrophy. An abnormal IS/OS and an abnormal foveal depression significantly reduces BCVA.

References

1. Han IC, Jaffe GJ. Comparison of Spectral- and Time-Domain Optical Coherence Tomography for Retinal Thickness Measurements in Healthy and Diseased Eyes. *Am J Ophthalmol.* 2009;147(5): 847-858.
2. Sugita T, Kondo M, Piao CH, et al. Correlation between Macular Volume and Focal Macular Electroretinogram in Patients with Retinitis Pigmentosa. *IOVS.* 2008; 49(8):3551-3558.



Methods

- Prospective, Descriptive, transversal study.
- SD-OCT of the macular area in patients with retinitis pigmentosa (RP).
- Central macular thickness (CMT)
- Mean Total Macular volume (TMV)
- Mean Central Macular Volume (CMV)
- Structural characteristics of the retina and retinal pigment epithelium (RPE)
- Correlation between the best corrected visual acuity (BCVA) and the findings in the macular area seen by SD-OCT

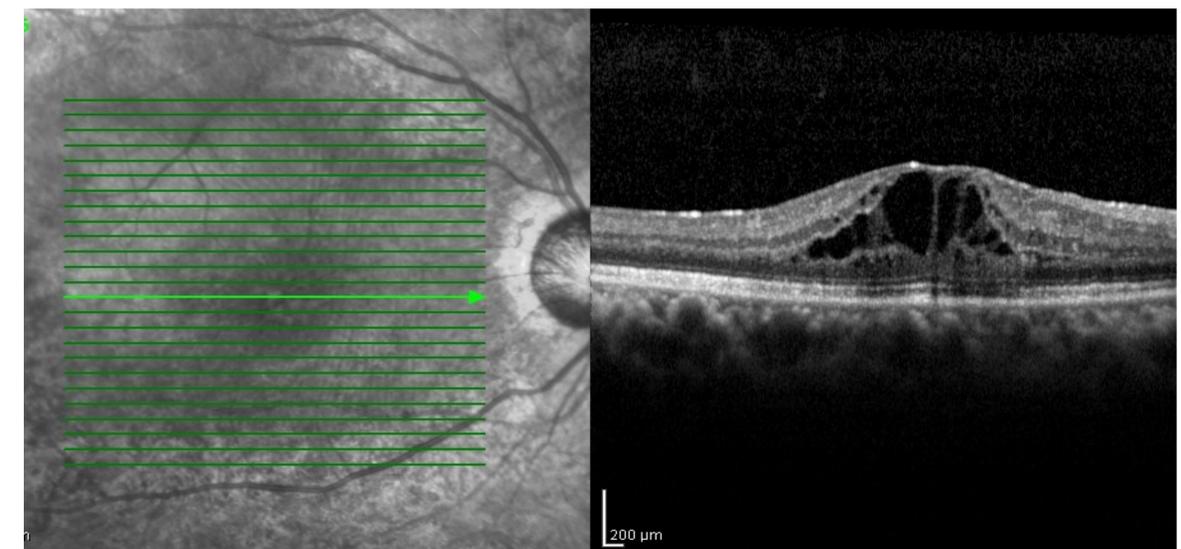
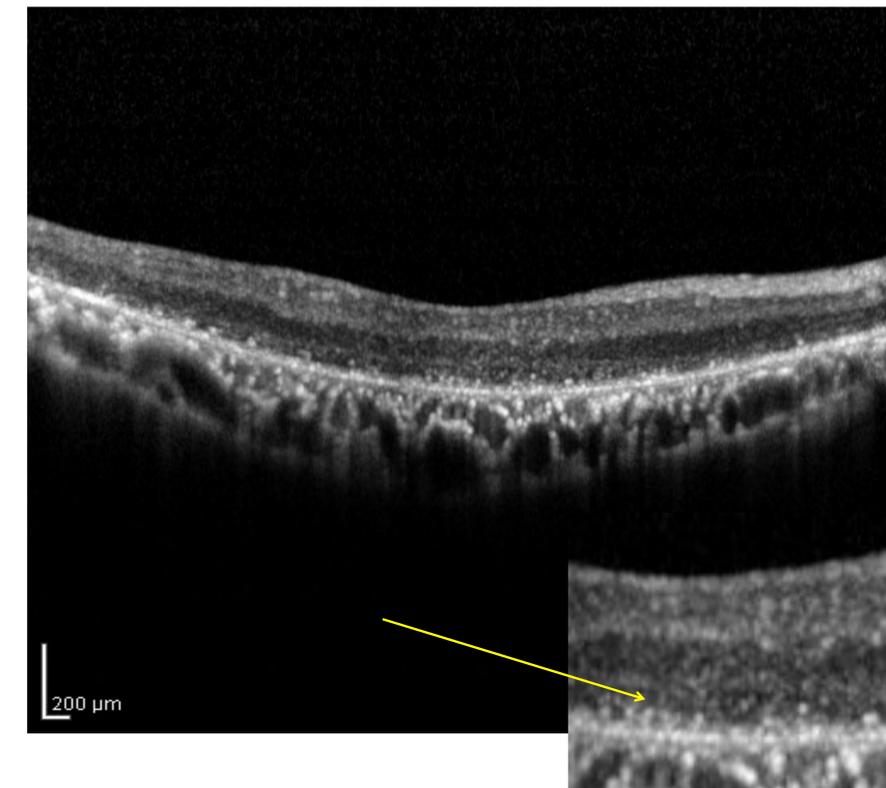


Results

- 75 eyes from 38 patients with SD-OCT (22 male, 16 female)
- Age ranged from 13 to 75 years (Mean of 42.82)
- BCVA of 20/50 (LogMAR 0.4 [0-2.7])
- SD-OCT in RP:
 - Mean CMT of **197.48 μ**
 - Mean TMV 7.267 mm³
 - Mean CMV 0.1908 mm³

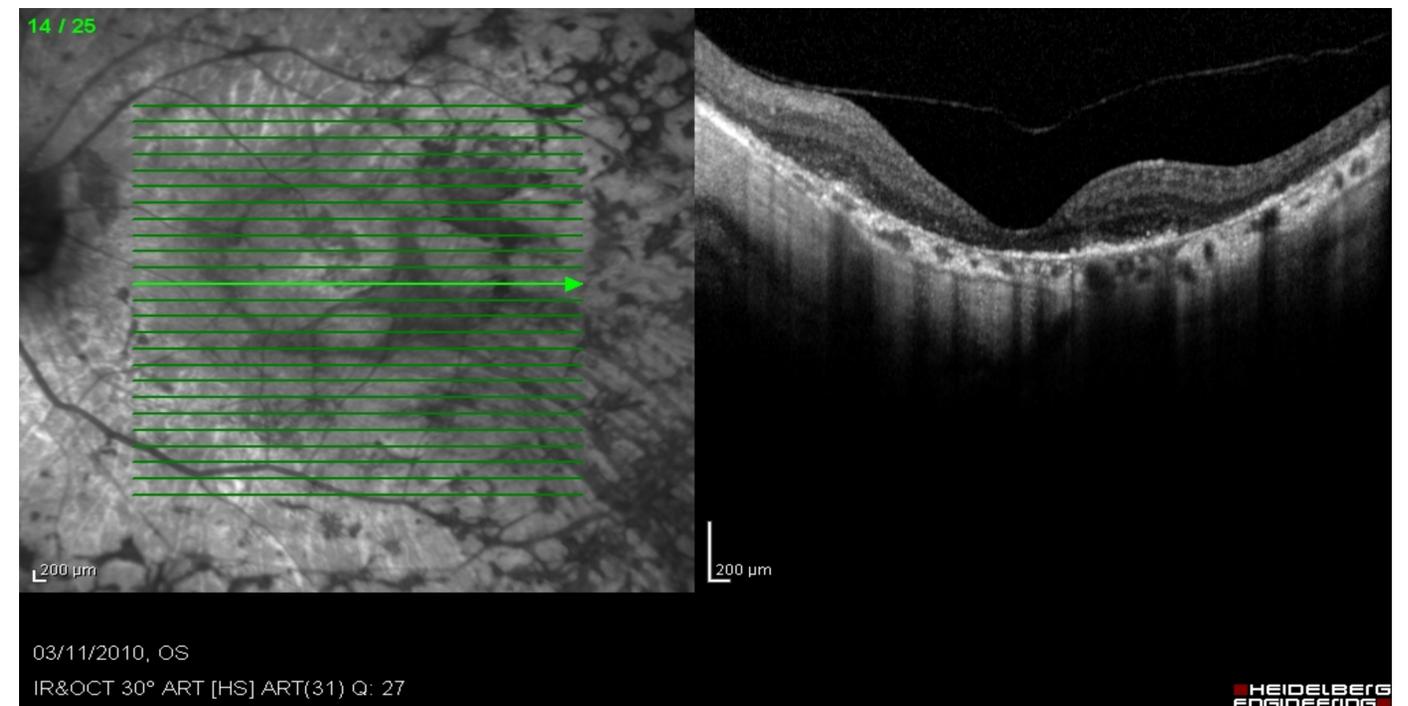
Results

Retinal Findings	Percentage (N=75)
Hyper-reflective intraretinal deposits above the RPE	56 (74.66%)
EPR atrophy	53 (70.66%)
Abnormal IS/OS at fovea	34 (45.33%)
Cystoid macular edema	18 (24%)
Epiretinal membrane	15 (20%)



Results

SD-OCT Findings	BCVA		p <
	logMAR	Standard Deviation	
Abnormal IS/OS at fovea	-0.974	0.873	0.0001
Abnormal Foveal Depression	-0.986	0.934	0.001





Conclusions

- SD-OCT shows characteristic findings in RP, mainly hyper-reflective intraretinal deposits above the RPE, RPE atrophy.
- An abnormal IS/OS and an abnormal foveal depression significantly reduces BCVA.