Suspicious to Guilty

Making a Glaucoma Diagnosis
Financial Disclosures

Alcon
Suspect
2011 December

History:
• 43 yr old South Asian female referred for moderate cupping with borderline IOP
• IOP at OD office: 19/19

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>OD:</td>
<td>-0.25 DS</td>
<td>20/20</td>
</tr>
<tr>
<td>OS:</td>
<td>pl</td>
<td>20/20</td>
</tr>
</tbody>
</table>
Suspect
2011 December

Findings:
• Anterior segment: NAD
• Posterior segment:
  • Large discs OU (0.65 OD 0.8 OS)
  • Possible inf thinning OS
• IOP in office: 16/16

Shaffer classification
# Suspect

**2011 May**

<table>
<thead>
<tr>
<th>Total dev</th>
<th>Pattern dev</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SITA-Standard</strong></td>
<td><strong>GHT: Within normal limits</strong></td>
</tr>
<tr>
<td><strong>OD</strong></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>26</td>
<td>31</td>
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<td>25</td>
<td>30</td>
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<td>29</td>
<td>30</td>
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<td>28</td>
<td>32</td>
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<tr>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>32</td>
<td>30</td>
</tr>
<tr>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>Fovea: OFF</td>
<td>VFI: 100%</td>
</tr>
<tr>
<td>MD: -0.04 dB</td>
<td>PSD: 1.59 dB</td>
</tr>
</tbody>
</table>

| **SITA-Standard** | **GHT: Borderline** |
| **OS** | |
| 22 | 20 | 26 | 23 |
| 27 | 28 | 28 | 28 | 24 |
| 24 | 28 | 29 | 28 | 30 | 25 |
| 26 | 23 | 28 | 28 | 28 | 25 | 22 |
| 27 | 28 | 28 | 28 | 27 | 24 | 22 |
| Fovea: OFF | VFI: 97% | FL: 2/14 | FN: 0% | FP: 1% |
| MD: -4.05 dB P < 1% | PSD: 1.62 dB |
Suspect
2011 December
**ONH and RNFL OU Analysis: Optic Disc Cube 200x200**

<table>
<thead>
<tr>
<th></th>
<th>OD</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average RNFL Thickness</td>
<td>91 µm</td>
<td>92 µm</td>
</tr>
<tr>
<td>RNFL Symmetry</td>
<td>93%</td>
<td></td>
</tr>
<tr>
<td>Rim Area</td>
<td>1.20 mm²</td>
<td>1.17 mm²</td>
</tr>
<tr>
<td>Disc Area</td>
<td>1.97 mm²</td>
<td>1.82 mm²</td>
</tr>
<tr>
<td>Average OD Ratio</td>
<td>0.62</td>
<td>0.59</td>
</tr>
<tr>
<td>Vertical OD Ratio</td>
<td>0.63</td>
<td>0.58</td>
</tr>
<tr>
<td>Cup Volume</td>
<td>0.250 mm³</td>
<td>0.198 mm³</td>
</tr>
</tbody>
</table>

**Neuro-retinal Rim Thickness**

- **RNFL Deviation Map**
  - Offset (-0.09, -0.09) mm
  - Extracted Horizontal Tomogram
  - Extracted Vertical Tomogram
  - RNFL Circular Tomogram

- **RNFL Thickness Map**
  - Offset (-0.03, 0.15) mm
  - Extracted Horizontal Tomogram
  - Extracted Vertical Tomogram
  - RNFL Circular Tomogram

**Distribution of Normals**
- 95% S
- 5% T
- 1% I

**Quadrant**
- 91
- 61
- 119

**Clock Hours**
- 92
- 84
- 88
- 110
- 119
- 120
- 105
- 70
- 53
- 87
- 74
- 104
- 123
- 130
- 60
- 47
Suspect
2011 December
OD
Suspect
2011 December

OS
Suspect
2011 December

OD

OS
Suspect
2011 December

OD

OS
Findings (1yr follow up):

- Anterior segment: AC slightly narrower
- Posterior segment: No change
- IOP in office: 12/18
Suspect
2012 December

**OD**

- **2012-12-06 SITA-Standard**
- **GHT: Outside normal limits**
- Fovea: 37 dB
- MD: -14.35 dB P < 0.5%
- VFI: 60%
- PSD: 10.96 dB P < 0.5%
- FL: 0/18
- FN: 40%
- FP: 0%
- No Progression Detected

**OS**

- **2012-12-06 SITA-Standard**
- **GHT: Outside normal limits**
- Fovea: 38 dB
- MD: -10.56 dB P < 0.5%
- VFI: 74%
- PSD: 7.44 dB P < 0.5%
- FL: 3/17
- FN: 10%
- FP: 1%
- No Progression Detected
20 months later
Suspect
2014 August

Findings (‘6/12’ follow up):
• Tighter angles
• PACS: Prophylactic LPI

Plateau  
Plateau

Suspect
2014 August
Suspect
2014 December

Findings:
• Resolved PACS s/p LPI OU
• Discharged back to community OD for ongoing monitoring
Suspect
2015 March

Referred back:
• IOP at OD office: 24/26
• Steroid response?
• IOP in office: 16/16
• Discharged - all testing normal

Plateau
Plateau
Suspect
2018 January

Referred back:
• IOP at OD office: 24/24
• IOP in office: 16/19
• PACS (possibly PAC)

Plateau and lens rise

0 1 2
2 1 0

Plateau and lens rise
### Suspect
#### 2018 September

<table>
<thead>
<tr>
<th></th>
<th>Highest</th>
<th>Lowest</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD</td>
<td>24 mm Hg</td>
<td>6 mm Hg</td>
<td>14.9 mm Hg</td>
</tr>
<tr>
<td>OS</td>
<td>34 mm Hg</td>
<td>8 mm Hg</td>
<td>20.6 mm Hg</td>
</tr>
</tbody>
</table>

**Measurement history**

- **IOP Trend (Left eye)**
- **IOP Trend (Right eye)**
- **IOP (OD)**
- **IOP (OS)**
Suspect
2018 September

- IOP measured highest in AM
- Normal fluctuation: 2-6mm
- IOP highest in early AM and when supine
- Glaucoma: >10mm

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Suspect
2018 October
Suspect
2018 September
Suspect
2018 September

2011 December
Suspect
2018 September

2011 December
Suspect
2018 September

RNFL Deviation Map

Disc Center (-0.09, 0.18) mm
Extracted Horizontal Tomogram
2013

RNFL Thickness Map

<table>
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<tr>
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<tbody>
<tr>
<td>Average RNFL Thickness</td>
<td>77 µm</td>
<td>79 µm</td>
</tr>
<tr>
<td>RNFL Symmetry</td>
<td>66%</td>
<td></td>
</tr>
<tr>
<td>Rim Area</td>
<td>0.95 mm²</td>
<td>0.93 mm²</td>
</tr>
<tr>
<td>Disc Area</td>
<td>2.10 mm²</td>
<td>2.22 mm²</td>
</tr>
<tr>
<td>Average C/D Ratio</td>
<td>0.74</td>
<td>0.76</td>
</tr>
<tr>
<td>Vertical C/D Ratio</td>
<td>0.73</td>
<td>0.74</td>
</tr>
<tr>
<td>Cup Volume</td>
<td>0.673 mm³</td>
<td>0.667 mm³</td>
</tr>
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Neuro-retinal Rim Thickness

Disc Center: (0.06, -0.15) mm

Extracted Horizontal Tomogram

Extracted Vertical Tomogram

RNFL Circular Tomogram

RNFL Quadrants

RNFL Clock Hours
2014
ONH and RNFL OU Analysis: Optic Disc Cube 200x200

Technician: Operator, Cirrus

Signal Strength: 7/10 5/10

Exam Date: 3/6/2018

Exam Time: 3:20 PM

Name: REQUEJO, JUAN AUGUSTO

Gender: Male

DOB: 8/19/1949

ID: 83604

RNFL Circular Tomogram

Extracted Horizontal Tomogram

Extracted Vertical Tomogram

RNFL Deviation Map

Disc Center: (-0.03, -0.06) mm

Disc Center: (0.24, 0.12) mm

Neuro-retinal Rim Thickness

RNFL Thickness

RNFL Quadrants

RNFL Clock Hours

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OS OD ONH and RNFL OU Analysis:

Optic Disc Cube 200x200

Signal Strength:
Technician: 7/10
Operator, Cirrus 5/10

RNFL Circular Tomogram
Extracted Horizontal Tomogram
Extracted Vertical Tomogram

RNFL Thickness Map
RNFL Deviation Map

RNFL Quadrants
RNFL Clock Hours

Disc Center (-0.03, -0.06) mm
Disc Center (0.24, 0.12) mm

Neuro-retinal Rim Thickness
RNFL Thickness

3/6/2018
eyeMD Institute

OS OD

Exam Date: 3/6/2018
Exam Time: 3:20 PM

Technician: Operator, Cirrus
Gender: Male
DOB: 8/19/1949
ID: 83604
Name: REQUEJO, JUAN AUGUSTO

Serial Number: 4000-5413

RNFL Thickness Map
RNFL Deviation Map

Doctor’s Signature
OCT-EMDI SW
Ver: 7.0.1.290
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Page 1 of 1

Comments
Diagnosis confirmed:

- Fluctuating IOP (18/18 in office)
- Nasal step OD
- Subtle RNFL thinning
- Mild Chronic Angle Closure Glaucoma

CACG
2018 October

Plateau and lens rise

Plateau and lens rise
CAGC
2018 October

Observation?
Treatment:
• Drops?
• Laser iridoplasty?
• Lensctomy +/- MIGS?

EAGLE (The Effectiveness in Angle-Closure Glaucoma of Lens Extraction) Study

Considerations with lensctomy?
• Asymptomatic for glaucoma
• UCVA: 20/20
• No cataract