



# Clinical Case

Reversal of color perception and alteration of visual fields after defect acquired in a Commercial Pilot

Fernandes E.; Vera-Cruz H.; Andrade J.  
Cape-Verdean Civil Aviation Authority

# Identification

- ▶ Name: H. A. A. R.
- ▶ Age: 31 years (birth date 15/02/1986)
- ▶ Male
- ▶ Place of birth: Cape-Verde

# Reason for consultation

- ▶ Disturbance in the transition from light to dark environments



Consultation with the Ophthalmologist  
(Aeronautical Medical Examiner)

# History of current disease

- ▶ Started in April / 2013 (27 years)
- ▶ Visual disturbance in the transition from light to dark environments, with distortion of the image and feeling of "needing more time" for accommodation.
- ▶ Occasional red eye, predominantly left sided
- ▶ Denies ocular pain, ocular pruritus, excessive lacrimation

# History of current disease

- ▶ Denies head trauma
- ▶ Denies drug use (licit and illicit)
- ▶ Personal history: Gastritis by H. Pylori in 2013 – treated
- ▶ Unknown family history of hereditary pathology

# April / 2013- Physical examination (general)

- ▶ Weight: 92.1kg
- ▶ Height: 183cm (BMI 27,5)
- ▶ BP: 110 / 80mmHg HR: 62bpm
- ▶ Respiratory system without changes of normality
- ▶ Cardiac and vascular system, Abdomen and digestive system without changes of normality

# April / 2013- Physical examination (general)

- ▶ Genito-urinary system without changes of normality
- ▶ Nervous and endocrine system without changes of normality
- ▶ No mention of behavioral deviations or psychological changes

# April / 2013- Physical examination (Ophthalmology)

- ▶ Isometric and isochorical pupils
- ▶ Normal eye movements; Orthophoria (near and far)
- ▶ Transparent Optical means
- ▶ Normal funduscopy
- ▶ Intraocular BP 15/15 mmHg (RE / LE)
- ▶ Visual acuity 10/10 bilateral (at a distance); reading N5 at 30-50cm and N14 at 100cm (*N-type near vision charts*)



# April / 2013- Physical examination (Ophthalmology)

- ▶ ISHIARA TEST – 1/17
- ▶ Visual fields - confrontation - altered (bilaterally)
- ▶ Visual fields - computerized - altered [left eye](#) / [right eye](#)
  
- ▶ **Actions** - request confirmation of diagnosis to the Portuguese Civil Aviation Authority (Medical Department)

# April / 2013- Physical examination (Ophthalmology- Portugal)

- Observation of eyes (aspect and eyelids; biomicroscopy) – normal
- Intraocular Blood Pressure - 16 / 15mmHg (RE / LE) - blowing method
- Visual acuity - normal (near and far)
- Ophthalmoscopy – abnormal (change not specified)

# April / 2013- Physical examination (Ophthalmology- Portugal)

- ▶ Visual fields (confrontation) - abnormal bilaterally
- ▶ Visual fields (computerized) - [left eye](#) / [right eye](#)
- ▶ ISHIIHARA TEST - 24 errors (in 25 pictures) -  
**PROTOANOMALY**

# April / 2013- Physical examination (Ophthalmology- Portugal)

- ▶ Beyne Lantern – Did not do the exam due to device malfunction
- ▶ Neuro-image exams - not performed!

# Diagnosis

► Likely:

► **Acquired Protoanomaly** - Systemic disease?  
Drug toxicity? Pigmentary Retinopathy?

► Definitive - ??

# Actions

- ▶ Cancellation of Medical Certificate
- ▶ Withdrawal of Flight Licenses

# Currently

- Spontaneous reversal of the changes in **2 years**
- In 2015 the Pilot returned to Portugal and underwent a new certification process, having been certified, in September, to **Class 1** - *Single Pilot Commercial Operations Carrying Passengers* and **Class 2**
- Submitted to the Aeronautical Medical Council, in Cape Verde, on April 4th 2017, having been admitted for **Class 1** operations - *Commercial Pilot License (for aircraft carrier)*

# Bibliography

- ▶ “Manual of Civil Aviation Medicine” - Document 8984 da ICAO, Third edition (2012)
- ▶ “Annex 1 to the Convention on International Civil Aviation – Personnel Licensing” – Eleventh edition (2011)
- ▶ “Alteração da visão das cores- Perceção visual” – S.Mogo. Departamento de Física - Universidade da Beira Interior - 2016 / 17, available at <http://www.dfisica.ubi.pt/~smogo/disciplinas/alunos/Anomal-VCores.pdf>





# Thank you!

[elicha.fernandes@acivil.gov.cv](mailto:elicha.fernandes@acivil.gov.cv)