

## Retinal Detachment (RD)

It is separation of the sensory retina from the RPE by subretinal fluid (SRF) accumulated in SRS.

### Types of retinal detachment:

#### 1- Rhegmatogenous RD: (*Rhegma = break*)

Is occurs secondary to a full thickness defect (either a hole or tear) in the SR, which permits SRF derived from abnormally liquefied vitreous gel to gain access to the SRS leading to separation of them.

*The main factor* for rhegmatogenous RD is abnormal liquefaction of vitreous humor gel which causes separation of fluid from solid compartment of the vitreous. The solid compartment is shrinking in front of retina causing traction on the retina which occasionally ends with retinal tear. This traction is perceived by the patient as flashes of light (photopsia). The fluid compartment then passes through these tears into SRS separating RPE from SR.

#### Causes:

- a- Idiopathic.
- b- High myopia associated with predisposing peripheral retinal degeneration.
- c- Trauma.
- d- Intraocular surgery, e.g. cataract surgery.
- e- Hereditary diseases of vitreous and retina, e.g. Stickler's syndrome.
- f- In association with tractional RD.

#### Symptoms:

**a- Photopsia (flashes of light):** caused by traction on the retina due to acute **P**osterior **V**itreous **D**etachment "**PVD**: separation of posterior vitreous face from internal limiting membrane of retina".

**b- Floaters:** are moving vitreous opacities perceived when they cast a shadow upon the retina. These opacities are either opacities within the abnormally degenerated vitreous or RBC duo to involvement of blood vessels by retina tear or glial cells (astrocytes) which are normally present between the vitreous posterior surface and the optic disc. This glial tissue around the optic disc when separated from it with the posterior vitreous face in a form of ring called Weiss ring which is pathognomonic for PVD.

\* (a) & (b) reported in 60% of patients with spontaneous rhegmatogenous RD, then after a variable period the patient notice:

**c- Peripheral visual field defect** which progress to:

**d- Decreased central visual acuity (drop vision):** when macula is involved.

\* so any patient presented with photopsia or floaters needs to examine the retina meticulously by three-mirror contact lens with slit lamp or indirect ophthalmoscope, and any retinal tear or hole must manage it without any delay as prophylactic measure to avoid RD.

### **Treatment of rhegmatogenous RD:**

For those 60% of spontaneous RD who are presented with photopsia and floaters, if their retinae are flat (no RD) and just there is retinal break (hole or tear). The treatment is **prophylactic laser photocoagulation** around those breaks to create adhesions between sensory retina and RPE to prevent movement of fluid from vitreous to SRS.

However, if RD is ensured and there is accumulation of fluid in SRS, there is **NO role for laser** (as the RPE and SR are far away from each other) and treatment is **surgery (traditional retinal reattachment surgery)**.

## **2- Non-rhegmatogenous RD:**

### **a- Tractional RD:**

In which, the sensory retina is pulled away from the RPE by contracting vitreoretinal membranes. The source of SRF is unknown.

#### **Causes:**

- i-** Advanced diabetic eye disease.
- ii-** Retinopathy of prematurity "ROP" (retrolental fibroplasia or fibroplasia): due to high O<sub>2</sub> concentration given to premature infants with low birth weight.
- iii-** Sickle cell retinopathy.
- iv-** Penetrating trauma.

### **Symptoms of tractional RD:**

Photopsia and floaters are usually absent because vitreoretinal traction develops insidiously and it is not associated with acute PVD.

**i- Visual field defect:** it is the main complaint, which progress slowly and may become stationary for months or years.

**ii- Decreased central visual acuity:** if tractional detachment progress to involve the macula.

**Treatment:** surgery, **Vitrectomy** (which include excision of abnormal vitreous [fibro vascular membranes] to relieve traction, then it is replaced by synthetic oily fluid e.g. Silicon oil.

**b- Exudative (serous) RD:**

In which, SRF is derived from the choroid gains access to the SRS through damaged RPE. There is a defect in RPE which is due to either:

**Ocular causes:**

- i- Uveitis (posterior uveitis).
- ii- Posterior scleritis.
- iii- Retinoblastoma.
- iv- Choroidal tumours.

**Or Systemic causes:**

- i- Malignant hypertension.
- ii- Eclampsia.
- iii- Uremic patient.

**Symptoms:**

- Photopsiae is absent (no vitreoretinal traction).
- Floaters may be present if it is associated with uveitis (vitritis).
- Visual field defect develops suddenly & progress rapidly.
- Bilateral eye involvement is possible.

Treatment: towards the cause. Most commonly medical treatment to control the above listed ocular and systemic.

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ  
 فَرَجَ مُوسَىٰ إِلَىٰ قَوْمِهِ غَضْبَانَ أَسِفًا قَالَ يَا قَوْمِ أَلَمْ يَعِدْكُمْ رَبُّكُمْ وَعَدًّا حَسَنًا أَفَطَالَ  
 عَلَيْكُمُ الْعَهْدُ أَمْ أَرَدْتُمْ أَنْ يَحِلَّ عَلَيْكُمْ غَضَبٌ مِنْ رَبِّكُمْ فَأَخْلَفْتُمْ مَوْعِدِي (٨٦) قَالُوا  
 مَا أَخْلَفْنَا مَوْعِدَكَ بِمَلَكِنَا وَلَكِنَّا حُمَلْنَا أَوْزَارًا مِنْ زِينَةِ الْقَوْمِ فَقَذَفْنَاهَا فَكَذَلِكَ أَلْقَى  
 السَّامِرِيُّ (٨٧) فَأَخْرَجَ لَهُمْ عَجَلًا جَسَدًا لَهُ خُورٌ فَقَالُوا هَذَا إِلَهُكُمْ وَإِلَهُ مُوسَىٰ  
 فَنَسِيَ (٨٨) أَفَلَا يَرَوْنَ أَلَّا يَرْجِعَ إِلَيْهِمْ قَوْلًا وَلَا يَمْلِكُ لَهُمْ ضَرًّا وَلَا نَفْعًا (٨٩) وَلَقَدْ  
 قَالَ لَهُمْ هَارُونُ مِنْ قَبْلُ يَا قَوْمِ إِنَّمَا فُتِنْتُمْ بِهِ وَإِنَّ رَبَّكُمُ الرَّحْمَنُ فَاتَّبِعُونِي وَأَطِيعُوا  
 أَمْرِي (٩٠) قَالُوا لَنْ نَبْرَحَ عَلَيْهِ عَاكِفِينَ حَتَّىٰ يَرْجِعَ إِلَيْنَا مُوسَىٰ (٩١) قَالَ يَا  
 هَارُونَ مَا مَنَعَكَ إِذْ رَأَيْتَهُمْ ضَلُّوا (٩٢) أَلَا تَتَّبِعُنَّ أَفْعَصَيْتَ أَمْرِي (٩٣) قَالَ يَا ابْنَ  
 أُمَّ لَا تَأْخُذْ بِلِحْيَتِي وَلَا بِرَأْسِي إِنِّي خَشِيتُ أَنْ تَقُولَ فَرَّقْتَ بَيْنَ بَنِي إِسْرَائِيلَ وَلَمْ  
 تَرْقُبْ قَوْلِي (٩٤) قَالَ فَمَا خَطْبُكَ يَا سَامِرِيُّ (٩٥) قَالَ بَصُرْتُ بِمَا لَمْ يَبْصُرُوا بِهِ  
 فَقَبَضْتُ قَبْضَةً مِنْ أَثَرِ الرَّسُولِ فَنَبَذْتُهَا وَكَذَلِكَ سَوَّلَتْ لِي نَفْسِي (٩٦) قَالَ فَادْهَبْ  
 فَإِنَّ لَكَ فِي الْحَيَاةِ أَنْ تَقُولَ لَا مِسَاسَ وَإِنَّ لَكَ مَوْعِدًا لَنْ تُخْلَفَهُ وَانْظُرْ إِلَىٰ إِلَهِكَ  
 الَّذِي ظَلْتَ عَلَيْهِ عَاكِفًا لَنُْحَرِّقَنَّهُ ثُمَّ لَنَنْسِفَنَّهُ فِي الْيَمِّ نَسْفًا (٩٧) صدق الله العظيم