CSC

This didactic lecture was presented by Dr. Atul Mishra on 28-4-2001 in Hotel Ashoka over a dinner meeting sponsored by Cipla.

Introduction

Van Graefe - first desceibed adisease of the macula characterized by recurrent serous macular detachment and named it "Recurrent" central retinitis in 1866.

Almost 100 years later, in 1955 Bennet applied the name "Central Serous Retinopathy".

At the same time Maumenee, using fluresin anioscopy noted that the detachment of the macula resulted from a leak at the level of the RPE and in 1967 Gass called this "I.C.S.C".

Since, the diesease appears to involve both choriod and the retina, the name universally accepted is "Central Serous Chorioretinopathy" or CSC.

CSC is characterized by an accumulation of transparent fluid at the posterior pole of the fundus.

In 94% cases fluid accumulates under the neurosensory retina - Type I CSC.

In 3% cases the retinal pigmentary epitehlium alone is detached - Type II CSC.

In the remaining 3% cases both the NSR and RPE are elevated - Intermediate type.

Pathogenesis

Still not completely understood.

1. **Spitzans -** RPE dysfunction theory - impaired RPE cell begins to secrete a large amount of ions in a choreoretinal direction, hence NSR seperation occurs (reversal of polarity of the RPE pump).
2. **Gass -** Proposed the choroidal dysfunction theory. **Stress -** focal spasm of rich vasculature of choriocapillary at foveal area - hyperpermiability - increased fluid leakage - NSR seperation.

Clinical features

Young male, 20-25 years of age. Male:Female::10:1

In female occurance is found to be doubled between age 31-40 as compared to 21-30.

Common in males with Type-I personality - significantly higher values of hypochondria and hysteria scale and neurotics.

Refraction - plano to mild hypermetropic, *never myopic.*

Higher incidence in white race.

Rarely infection like syphillis, tuberculosis, etc.

Symptoms

Before the onset of symptoms, the patient may develop on or more small PED's in the macular or para-macular area. These detachments may be followed by NSR detachment of the surround retina. If NSR detachment does not involve the central macular the patient usually is asymptomatic and NSR seperation resolves spontaneously.

Patients notice - minor blurring of vision, followed by various degrees of -

1. Metamorphopsia
2. Micropsia
3. Chromatopsia
4. Central Scotoma
5. Loss of contrast sensitivity
6. Loss of colour saturation
7. Delayed retinal recovery time after exposure to bright light.

Vision usually remains between 6/6 and 6/12.

Metamorphopsia, micropsia, chromatopsia may be demonstrated on Amsler's Grid.

Examination

1. Ophthalmoscopy
2. Fundus contact lens

- Transparent blister, well deliniated at the posterior pole
- No foveal reflex

The Fundus contact lens gives more detailed sterioscopic view -

1. Yellow spot in the fovea due to increased visibility of Xanthophyll pigments.
2. Seperation between NSR from RPE in oblique illumination.

RPE shows small serous PED, may be seen, one or more in number.

PED appear as round, or oval areas of detached RPE.

Yellow / Grey in colour, usually not larger than 1/4 of a disc diameter.

Long standing and reucrrent PED's may present pigment migration or atrophy.

Sub-retinal precipitates

Sub-retinal fluid usually is transparent and we can see RPE clearly.

In some patients fluid may be cloudy / greyish due to fibrin.

Fibrinous fluid is found in -

1. Multiple PED's
2. Chronic recurrent disease
3. Pregnancy
4. Systemic use of steroids
5. Organ transplantation.

Sometimes large peripheral bullous retinal detachments with multiple PED's with widespread RPE defect may alos be seen in rare cases, hence we have to examine all cases by indirect ophthalmoscope also.

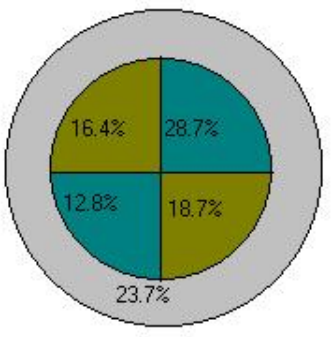
Fluoresin Angioghraphy

1. Arterial phase - Normal
2. Early venous phase - dot-like leakage
3. Late venous phase - Ink dot / smoke stack appearance.

- 95% of all cases shows one or more leakage point in RPE layer.
- Number of leakage usually -
  - One in 71.5% cases
  - Two in 17% cases, but we may get as many as seven leakage spots.
- Ink dot, 90%
- Smoke stack / Mushroom like - found in 10% of cases. This is due ot convection currents and high specific gravity of sub-retinal exudates.
- Spiral shaped leakeages are also rarely seen.
- In less than 10% cases leakage was found in foveal areas.
- Frequently the leakage point is located in a 1 mm wide ring like zone immediatley adjacent to the fovea, beyond this ring the incidence rapidly decreases.

Quadrant-wise location

1. Most common - Upper nasal - 28.7%
2. Lower nasal - 18.3%
3. Upper temporal - 16.4%
4. Lower temporal 12.8%
5. Outside this ring in 23.7%.



Natural History

If left untreated, CSC heals spontaneously in 12 weeks time with full recovery of vision.

Recurrance is frequent in 33 to 50% cases after the first episode within 1 year, but can be repeated upto 10 years.

5% cases develop severe visual loss due to -

1. CNVM
2. RPE atropy
3. Cystic macular degeneration.

Differential diagnosis

1. Choroidal melanoma - USG
2. Kranenberg Syndrome - Opticnerve pit with serous macular detachment - very rare, and on FA, no leakage seen.
3. ARMD -
   1. CSC is almost never associated with any form of hemorrhage.
   2. In CSC, pin point leakage in FA; whereas in ARMD lacy pattern is seen.
   3. ARMD usually occurs above 45 years of age.
4. Macular hole - Allen Votkzey sign positive.

Treatment

1. No proven medical treatment, but vitamines and reassurance and sedatives should be given for atleast 1 month.
2. Systemic steroids - must not be given - it may cause delayed healing of RPE.
3. LASER photocoagulation -
   1. Direct LASER PC
   2. Indirect LASER PC - LASER away from leakage - side photo-phomentation. Shyame treatment has no effect on the course of the disease.

Direct LASER PC

- At the site of the leakage
- Shorten the duration and prevent recurrance
- LASER destroys the faulty RPE cells which are replaced by healthy RPE cells.

LASER in CSC - When?

1. Allow 4 months for spontaneous resolution of first episode of CSC
2. Wait for 6 months or longer before LASER PC if RPE leakage is within 500 microns from fovea
3. Even in recurrance, wait for atleast one month for spontaneous recovery
4. When leakage is more than 500 microns or 1/4 disc diameter away from the fovea, we can do prompt LASER PC.
5. Burn should be of light to moderate intensity to get just blanching of RPE cells
6. It is advisable to choose larger spot size

Complications of LASER PC

1. Accidental foveal PC
2. Distortion of image
3. 2-5% cases develop CNVM after LASER PC

Give Amsler's grid to patient after LASER PC to check for CNVM after LASER PC.