A study on clinical profile of central serous chorio-retinopathy

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ABSTRACT

Introduction: Central serous chorioretinopathy is an idiopathic disorder characterised by localised serous detachment of the sensory retina at the macula. Central serous chorioretinopathy typically affects young and middle-aged men.

Aims and Objectives: To determine the age and sex incidence, risk factors, and the incidence of Central Serous Chorioretinopathy.

Materials & Methods: A study of 50 patients between the age of 20-50 years was done in the Ophthalmology Outpatient Department of Prathima Institute of Medical Sciences for a period of two years.

Results: In this study of 50 cases of central serous retinopathy, a detailed recording of case history, fundus examination and Fundus Fluorescein Angiography (FFA) , treatment and follow up is done and the percentage of central serous chorioretinopathy is 0.24 %.

Conclusion: All the cases of Central serous chorioretinopathy are between the age group of 20-70yrs. The maximum incidence in this age group can be due to high stress levels, type A personality and high incidence of smoking and alcoholism, uncontrolled hypertension and diabetes are responsible for high incidence in them. Central serous chorioretinopathy has very high incidence in males compared to females.

Keywords: Central serous chorioretinopathy, retinal pigment epithelium, scotoma, fundus fluorescein angiography.

INTRODUCTION

Central serous chorioretinopathy(CSCR) is an idiopathic disorder characterised by localised serous detachment of the sensory retina at the macula secondary to leakage from chorio-capillaries through focal or diffuse hyperpermeable Retinal Pigment Epithelium (RPE) defects. Central serous chorioretinopathy typically affects young and middle-aged men between 3rd and 5th decades. Risk factors include psychological stress, type A personality, steroid administration, cushings syndrome, systemic lupus erythematosis and pregnancy. Patient usually presents with decreased visual acuity, metamorphopsia, micropsia, dyschromatopsia and decreased contrast sensitivity. The diagnosis is based on the ophthalmoscopic findings and results of fluorescein angiography. Various Studies suggest an annual incidence of 10 per 100000 cases in men, with CSCR occurring 6times more commonly in men than women.

MATERIALS AND METHODS

The study was made with special reference to the risk factors, incidence of bilaterality, multifocality, varied fundus and FFA presentations of central serous chorio-retinopathy. Patients were enrolled for study after obtaining an informed consent. They were briefly explained about the study and the tests they would have to undergo.

Detailed history regarding age, sex, economic status and occupation with particular reference to stress levels was taken. History of blurred vision, black spots, image distortion, objects appearing larger or smaller than there actual size was taken. The mode of onset of condition and factors like prolonged steroid intake or pregnancy or history of systemic diseases like cushings syndrome were ascertained from the patient. Past history of CSCR if any is ascertained, if present, records were studied.

Local Examination includes Visual acuity testing with Snellen's chart, complete cycloplegic refraction, slit lamp examination, fundus examination by direct ophthalmoscopy and 90 D lens at each visit done in all the cases suspected of central serous retinopathy.

In all cases of CSCR, fundus picture recording was done at each visit. Fluorescein fundus angiographic findings including laterality, number, location and type of leak were noted in all cases. General examination was done with special reference to features of cushings syndrome, systemic lupus erythematosis.

RESULTS

In this study of 50 cases of central serous retinopathy, a detailed recording of case history, fundus examination and FFA, treatment and follow up is done and the following observations are made from the patients.

TABLE 1 – AGE INCIDENCE

Age in Years	No. of Cases	Percentage
<20	0	0%
21-30	3	6%
31-50	37	74%
51-70	10	20%
>70	0	0

The age group between 30 -50yrs of age are more prone for central serous retinopathy and this accounted for 74% cases. This is because most of the working group falls in this category and are more prone for stress and develop type A personality. About 20% of the cases are between 50-70yrs age because of risk factors like hypertension and diabetes which are common in this age group. No cases were reported in persons below 20yrs of age and above 70 yrs of age [Table 1].

Males are more commonly affected than females, which is explained by the fact that they are exposed to greater stress and tend to have type A personalities and usually are smokers and alcoholics. But, a good number of females also suffer from central serous retinopathy because of emotional stress, pregnancy or long term steroid intake or due to uncontrolled hypertension.

Table 2: SHOWING VARIOUS RISK FACTORS

Risk Factors	No. of Cases	Percentage
No Risk	25	50%
Stress/Anxiety	8	16%
Uncontrolled Hypertension	5	10%
Diabetes	3	6%
Alcohol	3	6%
Tobacco	3	6%
Systemic steroids	2	4%

50% of the cases does not have any associated risk factors, thus most CSCR cases are idiopathic. 16% of the cases have stress or anxiety related CSCR, 10% cases have uncontrolled hypertension as a risk factor. 6% of the cases have diabetes as risk factor. 6% of cases are smokers, 6% are alcoholics. 4% cases have history of prolonged usage of systemic steroids and there is one pregnant female with pregnancy induced CSCR [Table 2].

42 cases out of 50 (84%) have CSCR in only one eye. 8 cases out of 50 (16%) have CSCR in both the eyes. Thus CSCR is mostly unilateral in presentation in our study.

TABLE 3 : PRESENTING COMPLAINTS

Presenting Complaints	No. of Cases	Percentage
Dimunition of Vision	50	100%
Scotoma	29	58%
Metamorphopsia	10	20%
Micropsia	2	4%
Eye or Headache	2	4%

All the 50 patients (100%) presented with complaint of diminution of vision which might be in quality or quantity. In addition to diminution of vision, 29 cases (58%) complained of scotoma /black spot, 10 cases (20%) complained of metamorphopsia, 2 cases (4%) complained of micropsia and 2 cases (4%) had vague complaints like eye ache and head ache [Table 3].

TABLE 4: VISUAL ACUITY AT PRESENTATION

Visual Acuity at Presentation	No. of Cases	Percentage
6/6	14	28%
6/9-6/12	24	48%
6/18 or less	12	24%

All the patients with CSCR are divided into 3 groups. Group 1 with normal visual acuity at presentation (6/6). 28 % of cases fall into this category. Group 2 with visual acuity from 6/9 to 6/12. 48% of cases fall into this category. Group 3 with visual acuity less than 6/18. 24 % cases fall into this group. They show most of the patients have low to moderate visual loss or normal vision at presentation. Only a few patients present with severe visual loss [Table 4].

TABLE 5 :REFRACTIVE STATUS OF THE EYE

Visual Acuity at Presentation	No. of Cases	Percentage
6/6	14	28%
6/9-6/12	24	48%
6/18 or less	12	24%

Out of 66 eyes of 50 patients with CSCR, 54 eyes (81.81%) were emmetropic, remaining 12 cases (18.18%) were hypermetropic. None of the eyes were myopic [Table 5].

In the present study 46 cases out of 50 cases (92 %) have CSCR in only one site, 4 cases out of50cases (8 %) have at more

than one site. It shows CSCR is mostly unifocal at presentation but rarely it can have multifocal presentation. Out of 50 cases with CSCR, 4 cases are associated with pigment epithelial detachment (8 %). Remaining 46 cases does not have any associated PED. This statistics show that CSCR can be associated with pigment epithelial detachment but incidence is less (8 %). Out of 66 eyes of 50 patients 42 eyes showed leakage sites (63.63 %) on fluorescein fundus angiography where as remaining 24 eyes (36.36 %) have not showed ay leakage on FFA.

Out of 42 cases with leakage sites on FFA 30 cases (71.42 %) have only one leakage site.6 cases have two leakage sites (14.28 %). 4 cases (9.52 %) have 3 leakage sites, 2 cases have 4 leakage sites and none of the patients have more than 4 leakage sites. So in most of the cases have only one leakage site on FFA, rarely they have more than one leakage site.

TABLE 6: LOCATION OF THE LEAKAGE SITE

Leakage site	No. of Cases	Percentage
Supero-nasal quadrant	14	33.33%
Supero-temporal quadrant	9	21.42%
Infero-nasal quadrant	8	19.04%
Infero-temporal quadrant	6	14.28%
Papillo-macular bundle	3	7.14%
Foveal –avascular zone	2	4.76%

Out of 42 eyes which have leakage sites on fluorescein fundus angiography,34 cases (80.95 %) showed ink blot pattern of leakage, 6 cases (14.28 %) showed smoke-stack pattern of leakage and 2 cases (4.76 %) showed diffuse pattern of leakage. This shows that ink-blot pattern is the most common form of leakage seen on FFA in CSCR followed by smoke stack pattern. Rarely diffuse pattern of leakage is seen. Out of 50 cases with CSCR, 41 cases (82 %) showed spontaneous resolution without any treatment. Remaining 9 cases were treated with either argon laser or PDT as there was no spontaneous resolution even after 3months.

DISCUSSION

Central serous retinopathy is an idiopathic disorder characterized by local serous detachment of the sensory retina at the macula secondary to leakage from choriocapillaris through focal or diffuse hyperpermeable RPE defects. CSCR typically affects one eye of a young- middle aged male. In this study an attempt has been made to study the clinical profile of CSCR including common age and sex of its presentation, risk factors which can lead to CSCR, to know the incidence of bilaterality and multifocality and to study varied fundoscopic and FFA presentations of CSCR.

In Anna Elias et al[1] study mean age of presentation was 42.16yrs with all the cases being between the age group of 20-69 yrs. Yanuzzi[2] in his study on CSCR reported a mean age of 42 years in his patient population. Anna S Kitzmann[3] reported 41 years as the mean age at diagnosis and a range 29-56 years for all the cases of CSCR. In Unni krishnnan Nair et al study all the patients were in the age group of 27-60yrs with a mean age of presentation of 40 yrs.[4]

Out of the 50 cases of CSCR in our study 43 (86%) are male, 7 cases (14%) are female with a male : female ratio of 6.14:1. This results are comparable to the Anna Elias et al study which had 86.17 % of CSCR patients who were male and 13.29% of patients who were female with a M:F ratio of 6.48.[1] Anna S Kitzman[3] in her study of 74 patients with CSR reported 63 (85%) as males and 11 (15%) as females. Ina study of 150 patients with CSCR Castro-Corria[5] found the incidence of the disease to be 83.3% in males and 16.7% in females. The lone population-based study of CSC in Olmstead County, Minnesota reported male:female ratios range from 2.7 to 7:1.[3]

Gelber and Schatz[6], using a structured interview for determining type-A behaviour, found that in their patient population with CSCR there was an average score of 29 compared to 28 found in patients who had myocardial infarctions. Yannuzzi[7] also found that type-A behaviour was significantly more frequent in a group of 110 patients with CSCR than in controls.

Tariq Qureshi et al study[8] where 100% of patients presented with diminution of vision followed by scotoma in 68%. Fewer patients complained of metamorphopsia (34%), micropsia (7%) while a negligible (4%) of patients had complaints of either eye ache or head ache. Yamada et al[9] who studied 106 eyes of 53 patients and the commonest complaint in their study was a central or paracentral scotoma (58.50%) followed by blurred vision (34%), metamorphopsia (18.90%), micropsia (13.20%).

Tariq Qureshi et al[8] study which had most of the eyes which were emetropic (89%). Fewer eyes were hypermetropic (10%). No eyes were myopic. Multak and Dulton who made a record of 23 patients of CSR. About 70% patients were hypermetropic, 26% myopic and 4% emmetropic.[10,11]

Tariq Qureshi et al and Unni krishnnan Nair et al both of which had 70% cases with associated PED. This marked difference in statistics in our studies might be due to the use of OCT in the other two studies which is more sensitive in detecting

even small PED's compared to FFA which was used in the current study. Fluorescein angiography (FA) allows study of the circulation of the retina and choroid in normal and diseased states. Photographs of the retina are taken after intravenous injectionof sodium fluorescein, an orange-red crystalline hydrocarbon with a molecular weight of 376 daltons that diffuses through most of the body fluids. It is available as 5 mL of 10% concentration in a sterile aqueous solution. Fluorescein is injected into a peripheral vein and enters the ocular circulation via the ophthalmic artery 8-12 seconds later, depending on the rate of injection and the patient's age and cardiovascular status. The retinal and choroidal vessels fill during the transit phase, which ranges from 10 to 15 seconds. Choroidal filling is characterized by a patchy choroidal flush, with the lobules often visible.

Anna Elias et al study[1] in which out of 720 fluorescein angiograms performed among CSCR patients 650eyes (90.97%) showed an RPE leak.

NUMBER OF LEAKS ON FFA- Anna Elias et al study[1] in which 72.08 % of cases had only one leak on FFA and 13.05 % had 2 leaks on FFA and 14.87 % cases had 3 or more than 3 leaks.

J Castro Correia et al study[5] also had 62.7 % cases of CSCR with only one RPE leak on FFA. However current results differed from N. Vukojevi et al study[12] which had 192 cases of CSCR out of which 164 cases (83.67%) had only one site of RPE leak on FFA. 26 cases(13.27 %) had 2 leaks on FFA, 3 cases (1.53 %) had 3 leaks on FFA and only one case had (0.5%) had 4 leaks and 2 cases had more than 4 leakage sites (1.02 %).

LOCATION OF LEAKAGE SITE –

Spitznas and Huke in their study of FFA pattern in 430 patients of CSR found the leakage points were mostly located in superonasal quadrant (33.2%) followed by inferonasal quadrant (21.2%), supero-temporal quadrant (19%) and infero temporal quadrant (14.8%). This is similar to our findings. Tariq Qureshi et al in his study also had highest number of leaks in superonasal quadrant (34.74 %) followed by inferonasal quadrant (22.88%), inferotemporal (20.33%) superotemporal quadrants (15.25%). Parafoveal leaks are least seen in only 6.77 % of the cases. In the N Vokojevic et al study, the most frequent site of leakage was supero-nasal 78 quadrant (32.5%), followed by inferonasal quadrant (19.7 %) and superotemporal quadrant (20.83%), inferotemporal quadrant (15.83 %) and foveal avascular zone (4.17 %) were the least common sites of RPE leak in this study as well.

CONCLUSION

The incidence of central serous chorioretinopathy being 0.24 %. All the cases of CSCR are between the age group of 20-70yrs with 70% between the age group of 30-50 yrs. The maximum incidence in this age group can be due to high stress levels, type A personality and high incidence of smoking and alcoholism. 20% cases are between 50 -70yrs age, uncontrolled hypertension and diabetes are responsible.

CSCR has very high incidence in males compared to females. The high incidence in males can be due to high stress levels, high incidence of smoking, alcoholism, hypertension and diabetes in them.

Most of the cases of CSCR show spontaneous resolution. In chronic or recurrent cases argon laser photocoagulation or PDT can be given depending on the leakage site.

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