

Central Serous Chorioretinopathy Follow-up

• Author: Kean Theng Oh, MD; Chief Editor: Hampton Roy, Sr, MD [more...](#)

Updated: Sep 10, 2015

Further Outpatient Care

Most patients with central serous chorioretinopathy receive **follow-up care for 2 months** to determine whether the fluid resolves spontaneously.

Inpatient & Outpatient Medications

Tatham and Macfarlane described a case series of patients who were treated with propranolol for CSCR.^[38] They suggested that beta-blockade had a hypothetical mechanism in treating CSCR. Further evidence is needed to substantiate this potential treatment.

Nielsen et al proposed the use of mifepristone in the treatment of chronic CSCR in a case report.^[39]

Intravitreal bevacizumab (Avastin) has been used to successfully treat the rare complication of choroidal neovascularization following CSCR.^[48, 49, 50]

Complications

A small minority of patients develops choroidal neovascularization at the site of leakage and laser treatments. A retrospective review of cases shows that one half of these patients may have had signs of occult choroidal neovascularization at the time of treatment. In the other patients, the risk of choroidal neovascularization may have been increased by the laser treatment.^[12, 56]

Acute bullous retinal detachment may occur in otherwise healthy patients with CSCR. This appearance may mimic Vogt-Koyanagi-Harada disease, rhegmatogenous retinal detachment, or uveal effusion. A case report also has implicated the use of corticosteroids in CSCR as a factor increasing the likelihood of subretinal fibrin formation. Reducing the corticosteroid dose frequently will lead to resolution of the serous retinal detachment.

RPE decompensation from recurrent attacks leads to RPE atrophy and subsequent retinal atrophy. RPE decompensation is a manifestation of CSCR but may also be considered as a long-term complication.^[66]

Prognosis

Serous retinal detachments typically resolve spontaneously in most patients, with most patients (80-90%) returning to 20/25 or better vision.^[67, 66, 68]

Patients with classic CSCR (characterized by focal leaks) have a 40-50% risk of recurrence in the same eye.^[67, 68, 17]

Even with return of good central visual acuity, many of these patients still notice dyschromatopsia, loss of contrast sensitivity, metamorphopsia, or nyctalopia.^[67]

These patients often have recurrent or chronic serous retinal detachments, resulting in progressive RPE atrophy and permanent visual loss to 20/200 or worse. The final clinical picture represents diffuse retinal pigment epitheliopathy.

Risk of choroidal neovascularization from previous CSCR is considered small (< 5%) but has an increasing frequency in older patients diagnosed with CSCR.^[11, 17]

Patient Education

If possible, patients should avoid stressful situations. Patient participation in stress-reducing activities (eg, exercise, meditation, yoga) is recommended.

Recent evidence associates systemic hypertension with CSCR, but it is unknown as to whether careful control of systemic hypertension will reduce the incidence of CSCR.

Contributor Information and Disclosures

Author

Kean Theng Oh, MD Consulting Staff, Associated Retinal Consultants, PC

Kean Theng Oh, MD is a member of the following medical societies: Association for Research in Vision and Ophthalmology, American Society of Retina Specialists, American Academy of Ophthalmology

Disclosure: Nothing to disclose.

Specialty Editor Board

Simon K Law, MD, PharmD Clinical Professor of Health Sciences, Department of Ophthalmology, Jules Stein Eye Institute, University of California, Los Angeles, David Geffen School of Medicine

Simon K Law, MD, PharmD is a member of the following medical societies: American Academy of Ophthalmology, Association for Research in Vision and Ophthalmology, American Glaucoma Society

Disclosure: Nothing to disclose.

Steve Charles, MD Director of Charles Retina Institute; Clinical Professor, Department of Ophthalmology, University of Tennessee College of Medicine

Steve Charles, MD is a member of the following medical societies: American Academy of Ophthalmology, American Society of Retina Specialists, Macula Society, Retina Society, Club Jules Gonin

Disclosure: Received royalty and consulting fees for: Alcon Laboratories.

Chief Editor

Hampton Roy, Sr, MD Associate Clinical Professor, Department of Ophthalmology, University of Arkansas for Medical Sciences

Hampton Roy, Sr, MD is a member of the following medical societies: [American Academy of Ophthalmology](#), [American College of Surgeons](#), [Pan-American Association of Ophthalmology](#)

Disclosure: Nothing to disclose.

Additional Contributors

Brian A Phillpotts, MD, MD

Brian A Phillpotts, MD, MD is a member of the following medical societies: [American Academy of Ophthalmology](#), [American Diabetes Association](#), [American Medical Association](#), [National Medical Association](#)

Disclosure: Nothing to disclose.

Acknowledgements

The authors and editors of Medscape Reference gratefully acknowledge the contributions of previous author, James C Folk, MD, to the development and writing of this article.

References

1. Okushiba U, Takeda M. [Study of choroidal vascular lesions in central serous chorioretinopathy using indocyanine green angiography]. *Nihon Ganka Gakkai Zasshi*. 1997 Jan. 101(1):74-82. [\[Medline\]](#).
2. Iijima H, Iida T, Murayama K, Imai M, Gohdo T. Plasminogen activator inhibitor 1 in central serous chorioretinopathy. *Am J Ophthalmol*. 1999 Apr. 127(4):477-8. [\[Medline\]](#).
3. Marmor MF, Tan F. Central serous chorioretinopathy: bilateral multifocal electroretinographic abnormalities. *Arch Ophthalmol*. 1999 Feb. 117(2):184-8. [\[Medline\]](#).
4. Leveque TK, Yu L, Musch DC, Chervin RD, Zacks DN. Central serous chorioretinopathy and risk for obstructive sleep apnea. *Sleep Breath*. 2007 Dec. 11(4):253-7. [\[Medline\]](#).
5. Tewari HK, Gadia R, Kumar D, Venkatesh P, Garg SP. Sympathetic-parasympathetic activity and reactivity in central serous chorioretinopathy: a case-control study. *Invest Ophthalmol Vis Sci*. 2006 Aug. 47(8):3474-8. [\[Medline\]](#).
6. Carvalho-Recchia CA, Yannuzzi LA, Negrão S, et al. Corticosteroids and central serous chorioretinopathy. *Ophthalmology*. 2002 Oct. 109(10):1834-7. [\[Medline\]](#).
7. Cotticelli L, Borrelli M, D'Alessio AC, et al. Central serous chorioretinopathy and *Helicobacter pylori*. *Eur J Ophthalmol*. 2006 Mar-Apr. 16(2):274-8. [\[Medline\]](#).
8. Casella AM, Berbel RF, Bressanim GL, Malaguido MR, Cardillo JA. *Helicobacter pylori* as a potential target for the treatment of central serous chorioretinopathy. *Clinics (Sao Paulo)*. 2012 Sep. 67(9):1047-52. [\[Medline\]](#).
9. Liew G, Quin G, Gillies M, Fraser-Bell S. Central serous chorioretinopathy: a review of epidemiology and pathophysiology. *Clin Experiment Ophthalmol*. 2012 Jul 12. [\[Medline\]](#).
10. Kitzmann AS, Pulido JS, Diehl NN, Hodge DO, Burke JP. The incidence of central serous chorioretinopathy in Olmsted County, Minnesota, 1980-2002. *Ophthalmology*. 2008 Jan. 115(1):169-73. [\[Medline\]](#).
11. Gomolin JE. Choroidal neovascularization and central serous chorioretinopathy. *Can J Ophthalmol*. 1989 Feb. 24(1):20-3. [\[Medline\]](#).
12. Matsunaga H, Nangoh K, Uyama M, Nanbu H, Fujiseki Y, Takahashi K. [Occurrence of choroidal neovascularization following photocoagulation treatment for central serous retinopathy]. *Nihon Ganka Gakkai Zasshi*. 1995 Apr. 99(4):460-8. [\[Medline\]](#).
13. Otsuka S, Ohba N, Nakao K. A long-term follow-up study of severe variant of central serous chorioretinopathy. *Retina*. 2002 Feb. 22(1):25-32. [\[Medline\]](#).
14. Tsai DC, Huang CC, Chen SJ, et al. Central serous chorioretinopathy and risk of ischaemic stroke: a population-based cohort study. *Br J Ophthalmol*. 2012 Dec. 96(12):1484-8. [\[Medline\]](#).
15. Spaide RF, Campeas L, Haas A, et al. Central serous chorioretinopathy in younger and older adults. *Ophthalmology*. 1996 Dec. 103(12):2070-9; discussion 2079-80. [\[Medline\]](#).
16. Polak BC, Baarsma GS, Snyers B. Diffuse retinal pigment epitheliopathy complicating systemic corticosteroid treatment. *Br J Ophthalmol*. 1995 Oct. 79(10):922-5. [\[Medline\]](#). [\[Full Text\]](#).
17. Gass JDM. *Stereoscopic Atlas of Macular Disease*. 4th ed. 1997. 52-70.
18. Gass JD. Central serous chorioretinopathy and white subretinal exudation during pregnancy. *Arch Ophthalmol*. 1991 May. 109(5):677-81. [\[Medline\]](#).
19. Piccolino FC, Borgia L. Central serous chorioretinopathy and indocyanine green angiography. *Retina*. 1994. 14(3):231-42. [\[Medline\]](#).
20. Yannuzzi LA. Type-A behavior and central serous chorioretinopathy. *Retina*. 1987 Summer. 7(2):111-31. [\[Medline\]](#).
21. Jampol LM, Weinreb R, Yannuzzi L. Involvement of corticosteroids and catecholamines in the pathogenesis of central serous chorioretinopathy: a rationale for new treatment strategies. *Ophthalmology*. 2002 Oct. 109(10):1765-6. [\[Medline\]](#).
22. Allibhai ZA, Gale JS, Sheidow TS. Central serous chorioretinopathy in a patient taking sildenafil citrate. *Ophthalmic Surg Lasers Imaging*. 2004 Mar-Apr. 35(2):165-7. [\[Medline\]](#).
23. Fraunfelder FW, Franufelder FT. Central serous chorioretinopathy associated with sildenafil. *Retina*. 2008. 28:606-9.
24. Daruich A, Matet A, Dirani A, Bousquet E, Zhao M, Farman N, et al. Central serous chorioretinopathy: Recent findings and new physiopathology hypothesis. *Prog Retin Eye Res*. 2015 Sep. 48:82-118. [\[Medline\]](#).
25. Breukink MB, Schellevis RL, Boon CJ, Fauser S, Hoyng CB, den Hollander AI, et al. Genomic Copy Number Variations of the Complement Component C4B Gene Are Associated With Chronic Central Serous Chorioretinopathy. *Invest Ophthalmol*

Vis Sci. 56:5608-13. [Medline].

26. Moschos MM, Gazouli M, Gatzoufas Z, Brouzas D, Nomikarios N, Sivaprasad S, et al. PREVALENCE OF THE COMPLEMENT FACTOR H AND GSTM1 GENES POLYMORPHISMS IN PATIENTS WITH CENTRAL SEROUS CHORIORETINOPATHY. *Retina*. 2015 Aug 19. [Medline].
27. Cunningham ET Jr, Alfred PR, Irvine AR. Central serous chorioretinopathy in patients with systemic lupus erythematosus. *Ophthalmology*. 1996 Dec. 103(12):2081-90. [Medline].
28. Bouzas EA, Scott MH, Mastorakos G, Chrousos GP, Kaiser-Kupfer MI. Central serous chorioretinopathy in endogenous hypercortisolism. *Arch Ophthalmol*. 1993 Sep. 111(9):1229-33. [Medline].
29. Mansuetta CC, Mason JO 3rd, Swanner J, et al. An association between central serous chorioretinopathy and gastroesophageal reflux disease. *Am J Ophthalmol*. 2004 Jun. 137(6):1096-100. [Medline].
30. Tittl MK, Spaide RF, Wong D, et al. Systemic findings associated with central serous chorioretinopathy. *Am J Ophthalmol*. 1999 Jul. 128(1):63-8. [Medline].
31. Haimovici R, Koh S, Gagnon DR, Lehrfeld T, Wellik S. Risk factors for central serous chorioretinopathy: a case-control study. *Ophthalmology*. 2004 Feb. 111(2):244-9. [Medline].
32. Spaide RF. Deposition of yellow submacular material in central serous chorioretinopathy resembling adult-onset foveomacular vitelliform dystrophy. *Retina*. 2004 Apr. 24(2):301-4. [Medline].
33. Ooto S, Hangai M, Sakamoto A, et al. High-resolution imaging of resolved central serous chorioretinopathy using adaptive optics scanning laser ophthalmoscopy. *Ophthalmology*. 2010 Sep. 117(9):1800-9, 1809.e1-2. [Medline].
34. Chappelov AV, Marmor MF. Multifocal electroretinogram abnormalities persist following resolution of central serous chorioretinopathy. *Arch Ophthalmol*. 2000 Sep. 118(9):1211-5. [Medline].
35. Lai TY, Chan WM, Li H, Lai RY, Liu DT, Lam DS. Safety enhanced photodynamic therapy with half dose verteporfin for chronic central serous chorioretinopathy: a short term pilot study. *Br J Ophthalmol*. 2006 Jul. 90(7):869-74. [Medline]. [Full Text].
36. Ozdemir H, Karacorlu SA, Senturk F, Karacorlu M, Uysal O. Assessment of macular function by microperimetry in unilateral resolved central serous chorioretinopathy. *Eye (Lond)*. 2008 Feb. 22(2):204-8. [Medline].
37. Ojima Y, Tsujikawa A, Hangai M, et al. Retinal sensitivity measured with microperimeter 1 after resolution of central serous chorioretinopathy. *Am J Ophthalmol*. 2008. 146:77-84.
38. Tatham A, Macfarlane A. The use of propranolol to treat central serous chorioretinopathy: an evaluation by serial OCT. *J Ocul Pharmacol Ther*. 2006 Apr. 22(2):145-9. [Medline].
39. Nielsen JS, Weinreb RN, Yannuzzi L, Jampol LM. Mifepristone treatment of chronic central serous chorioretinopathy. *Retina*. 2007 Jan. 27(1):119-22. [Medline].
40. Forooghian F, Meleth AD, Cukras C, Chew EY, Wong WT, Meyerle CB. Finasteride for chronic central serous chorioretinopathy. *Retina*. 2011 Apr. 31(4):766-71. [Medline]. [Full Text].
41. Steinle NC, Gupta N, Yuan A, Singh RP. Oral rifampin utilisation for the treatment of chronic multifocal central serous retinopathy. *Br J Ophthalmol*. 2012 Jan. 96(1):10-3. [Medline].
42. Shulman S, Goldenberg D, Schwartz R, Habot-Wilner Z, Barak A, Ehrlich N, et al. Oral Rifampin treatment for longstanding chronic central serous chorioretinopathy. *Graefes Arch Clin Exp Ophthalmol*. 2015 Mar 21. [Medline].
43. Nelson J, Saggau DD, Nielsen JS. Rifampin induced hepatotoxicity during treatment for chronic central serous chorioretinopathy. *Retin Cases Brief Rep*. 2014 Winter. 8(1):70-2. [Medline].
44. Kurup SK, Oliver A, Emanuelli A, Hau V, Callanan D. Low-dose methotrexate for the treatment of chronic central serous chorioretinopathy: a retrospective analysis. *Retina*. 2012 Nov-Dec. 32(10):2096-101. [Medline].
45. Chin EK, Almeida DR, Roybal CN, Niles PI, Gehrs KM, Sohn EH, et al. Oral mineralocorticoid antagonists for recalcitrant central serous chorioretinopathy. *Clin Ophthalmol*. 2015. 9:1449-56. [Medline].
46. Bousquet E, Beydoun T, Rothschild PR, Bergin C, Zhao M, Batista R, et al. SPIRONOLACTONE FOR NONRESOLVING CENTRAL SEROUS CHORIORETINOPATHY: A Randomized Controlled Crossover Study. *Retina*. 2015 May 26. [Medline].
47. Salz DA, Pitcher JD 3rd, Hsu J, Regillo CD, Fineman MS, Elliott KS, et al. Oral eplerenone for treatment of chronic central serous chorioretinopathy: a case series. *Ophthalmic Surg Lasers Imaging Retina*. 2015 Apr. 46(4):439-44. [Medline].
48. Huang WC, Chen WL, Tsai YY, Chiang CC, Lin JM. Intravitreal bevacizumab for treatment of chronic central serous chorioretinopathy. *Eye (Lond)*. 2009 Feb. 23(2):488-9. [Medline].
49. Torres-Soriano ME, Garcia-Aguirre G, Kon-Jara V, et al. A pilot study of intravitreal bevacizumab for the treatment of central serous chorioretinopathy (case reports). *Graefes Arch Clin Exp Ophthalmol*. 2008 Sep. 246(9):1235-9. [Medline].
50. Chan WM, Lai TY, Liu DT, Lam DS. Intravitreal bevacizumab (avastin) for choroidal neovascularization secondary to central serous chorioretinopathy, secondary to punctate inner choroidopathy, or of idiopathic origin. *Am J Ophthalmol*. 2007 Jun. 143(6):977-983. [Medline].
51. Bae SH et al. A randomized pilot study of low-fluence photodynamic therapy versus intravitreal ranibizumab for chronic central serous chorioretinopathy. *Am J Ophthalmol*. 2011. 152:784-92.
52. Semeraro F, Romano MR, Danzi P, Morescalchi F, Costagliola C. Intravitreal bevacizumab versus low-fluence photodynamic therapy for treatment of chronic central serous chorioretinopathy. *Jpn J Ophthalmol*. 2012 Nov. 56(6):608-12. [Medline].
53. Chan WM, Lai TY, Liu DT, Lam DS. Intravitreal bevacizumab (avastin) for choroidal neovascularization secondary to central serous chorioretinopathy, secondary to punctate inner choroidopathy, or of idiopathic origin. *Am J Ophthalmol*. 2007 Jun. 143(6):977-983. [Medline].
54. Watzke RC, Burton TC, Woolson RF. Direct and indirect laser photocoagulation of central serous choroidopathy. *Am J Ophthalmol*. 1979 Nov. 88(5):914-8. [Medline].
55. Robertson DM, Ilstrup D. Direct, indirect, and sham laser photocoagulation in the management of central serous chorioretinopathy. *Am J Ophthalmol*. 1983 Apr. 95(4):457-66. [Medline].
56. Burumcek E, Mudun A, Karacoru S, Arslan MO. Laser photocoagulation for persistent central serous retinopathy: results of

- long-term follow-up. *Ophthalmology*. 1997 Apr. 104(4):616-22. [\[Medline\]](#).
57. Taban M, Boyer DS, Thomas EL, Taban M. Chronic central serous chorioretinopathy: photodynamic therapy. *Am J Ophthalmol*. 2004 Jun. 137(6):1073-80. [\[Medline\]](#).
58. Yannuzzi LA, Slakter JS, Gross NE, et al. Indocyanine green angiography-guided photodynamic therapy for treatment of chronic central serous chorioretinopathy: a pilot study. *Retina*. 2003 Jun. 23(3):288-98. [\[Medline\]](#).
59. Reibaldi M, Boscia F, Avitabile T, et al. Functional retinal changes measured by microperimetry in standard-fluence vs low-fluence photodynamic therapy in chronic central serous chorioretinopathy. *Am J Ophthalmol*. 2011 Jun. 151(6):953-960.e2. [\[Medline\]](#).
60. Bae SH, Heo JW, Kim C, et al. A randomized pilot study of low-fluence photodynamic therapy versus intravitreal ranibizumab for chronic central serous chorioretinopathy. *Am J Ophthalmol*. 2011 Nov. 152(5):784-92.e2. [\[Medline\]](#).
61. Chan WM, Lam DS, Lai TY, Tam BS, Liu DT, Chan CK. Choroidal vascular remodelling in central serous chorioretinopathy after indocyanine green guided photodynamic therapy with verteporfin: a novel treatment at the primary disease level. *Br J Ophthalmol*. 2003 Dec. 87(12):1453-8. [\[Medline\]](#). [\[Full Text\]](#).
62. Costa RA, Scapucin L, Moraes NS, et al. Indocyanine green-mediated photothrombosis as a new technique of treatment for persistent central serous chorioretinopathy. *Curr Eye Res*. 2002 Nov. 25(5):287-97. [\[Medline\]](#).
63. Hussain N, Khanna R, Hussain A, Das T. Transpupillary thermotherapy for chronic central serous chorioretinopathy. *Graefes Arch Clin Exp Ophthalmol*. 2006 Aug. 244(8):1045-51. [\[Medline\]](#).
64. Shukla D, Kolluru C, Vignesh TP, Karthikprakash S, Kim R. Transpupillary thermotherapy for subfoveal leaks in central serous chorioretinopathy. *Eye (Lond)*. 2008 Jan. 22(1):100-6. [\[Medline\]](#).
65. Penha FM, Aggio FB, Bonomo PP. Severe retinal thermal injury after indocyanine green-mediated photothrombosis for central serous chorioretinopathy. *Am J Ophthalmol*. 2007 May. 143(5):887-9. [\[Medline\]](#).
66. Castro-Correia J, Coutinho MF, Rosas V, Maia J. Long-term follow-up of central serous retinopathy in 150 patients. *Doc Ophthalmol*. 1992. 81(4):379-86. [\[Medline\]](#).
67. Folk JC, Thompson HS, Han DP, Brown CK. Visual function abnormalities in central serous retinopathy. *Arch Ophthalmol*. 1984 Sep. 102(9):1299-302. [\[Medline\]](#).
68. Yap EY, Robertson DM. The long-term outcome of central serous chorioretinopathy. *Arch Ophthalmol*. 1996 Jun. 114(6):689-92. [\[Medline\]](#).
69. Gass JD, Little H. Bilateral bullous exudative retinal detachment complicating idiopathic central serous chorioretinopathy during systemic corticosteroid therapy. *Ophthalmology*. 1995 May. 102(5):737-47. [\[Medline\]](#).
70. Hooymans JM. Fibrotic scar formation in central serous chorioretinopathy developed during systemic treatment with corticosteroids. *Graefes Arch Clin Exp Ophthalmol*. 1998 Nov. 236(11):876-9. [\[Medline\]](#).
71. Cardillo Piccolino F, Eandi CM, Ventre L, Rigault de la Longrais RC, Grignolo FM. Photodynamic therapy for chronic central serous chorioretinopathy. *Retina*. 2003 Dec. 23(6):752-63. [\[Medline\]](#).
72. Ober MD, Yannuzzi LA, Do DV, et al. Photodynamic therapy for focal retinal pigment epithelial leaks secondary to central serous chorioretinopathy. *Ophthalmology*. 2005 Dec. 112(12):2088-94. [\[Medline\]](#).
73. Yannuzzi LA, Freund KB, Goldbaum M, et al. Polypoidal choroidal vasculopathy masquerading as central serous chorioretinopathy. *Ophthalmology*. 2000 Apr. 107(4):767-77. [\[Medline\]](#).

Medscape Reference © 2011 WebMD, LLC