

# Subretinal Neovasküler Membranlar

H.Haluk AKBATUR\*

Koroidal neovaskularizasyon pekçok ka-  
litsal ve edinsel durumun bir komplikasyonu  
olarak ortaya çıkabilen nonspesifik bir fen-  
omendir. Retina pigment epiteli-Bruch mem-  
branı-koriokapillaris kompleksini etkileyen  
herhangi bir hastalık ve hasara ikincil cevap  
olarak, anjiogenezisi uyaran ve baskılayan  
faktörler arasındaki dengenin bozulması so-  
nucu, subretinal neovasküler membranın or-  
taya çıktığı kabul edilmektedir.

Retina-vitreus dergisinin bu son sayılarında  
güncelleştirilen konu başlığı altında sub-  
retinal neovaskularizasyonların tedavisi ele  
alınacaktır. Green ve Wilson tarafından 1986  
yılında Oftalmoloji dergisinde 161 literatürle  
koroidal neovaskularizasyon'a ait klinik ve  
histopatolojik çalışmalar Henkind'in tablosu  
modifiye edilerek verilmiştir (1). Bu derle-  
mede ise o tarihten sonra, dikkatli bir araş-  
tırma yapmaksızın, koroid neovasküler mem-  
branların en sık nedeni olan yaşabağlı makula  
dejeneresansına ait çok sayıdaki yayımlar dış-  
lanarak, ulaşabildiğimiz yeni literatürler ile ta-  
blo genişletilmiştir.

Subretinal neovasküler membranlı hastalar  
genellikle ani, ağrısız santral görme azalması  
ve metamorfopsi şikayetleri ile başvururlar.  
Metamorfopsinin olması oldukça önemlidir ve  
makula hastalığının varlığını gösterir. Santral

skotom ise maküler, optik sinir veya kortikal  
patolojilere bağlı gelişebilir. Bu nedenle san-  
tral 20 derecelik alanın Amsler grid kartları ile  
değerlendirilerek metamorfopsinin ortaya kon-  
ması ve risk altında olan diğer gözün taki-  
binde son derece önemlidir.

Fundoskopik muayenede; subretinal veya  
intraretinal eksudaların, hemorajilerin, seröz  
veya hemorajik pigment epitel dekolmanın ol-  
ması ile tanıya gidilir, ancak yerleşim ve ay-  
ırıcı tanının yapılması için anjiografik in-  
celemelerin yapılması gereklidir. Fundoskopik  
muayene esnasında eşlik eden bazı anomaliler  
etyolojiyi tahminde yardımcı olur. Drusenin  
izlenmesi yaşabağlı maküler dejenerasans,  
zımba deliği benzeri yuvarlak atrofik lez-  
yonlarla birlikte perpapiller atrofisinin olması,  
POHS, düzensiz peripapiller lineer hatların ol-  
ması, anjioid streaks, koroidal rüptürün iz-  
lenmesi, travma, peripapiller atrofi ve vernik  
çatlaklarının (lacquer cracks) olması myopi,  
hiçbir anomali olmaması idyopatik subretinal  
membranlar lehine iken, diğer gözün in-  
celenmesinde karakteristik lezyonların gö-  
rülmesi herediter bir distrofiye ikincil koroidal  
membranları düşündürür.

Tedavileri etyolojiye bakılmaksızın benzer,  
fakat tartışmalı olan bu hastalık gruplarında  
seçilecek ilk tedavi yöntemi ve sonuçları et-  
yolojiye, yerleşimlerine bağımlı olarak fark-  
lılıklar gösterebilmektedir.

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## Koroidal Neovaskularizasyon yaptığı bildirilen durumlar

**I. Dejeneratif durumlar****Kaynaklar\***

A. Noduler ve diffüz drusen	
• Makuler alan	
• Peripapiller alan	
• Periferel alan	
• Dominant drusen	2
B. Yaşa Bağlı Maküler Dejenerasyon	
C. Myopi	2-6
• Fuchs' lekesi	
• Lacquer cracks	
• Patolojik myopide makulada	5, 2,7-12
D. Anjioid streaks	
E. Osteogenesis imperfecta	
F. Optik sinir başı drusları	
G. Tilted disk	13-16
H. Optik sinir başı kolobomu	17-19
I. Optik sinir başı pitleri	20
J. Morning Glory sendromu	21
K. Retinokoroidal kolobom	22, 23
L. Best hastalığı	2
M. Renitis pigmentosa (belirgin eksudasyonla birlikte)	
N. Gyrate atrofi,	24
O. Primer herediter hiperoksalüri	25
P. Psödoenflamatuvar fundus distrofi, Sorsby	26
R. Fundus flavimaculatus.	

**II. Enflamatuvar veya enfeksiyöz durumlar**

A. Oküler histoplasmosis	2,27-30
B. Toksoplazma retinokoroiditi	2,31,32
C. Sarkoidoz	
D. Rubella	
E. Vogt-Koyanagi-Harada	33
F. Birdshot retinokoroidopati	
G. Serpijinöz veya geografik koroidit	34,35
H. Akut posterior multifokal plakoid pigment epiteliyopati	
I. MEWDS	36,37
J. Multifokal koroidit	38-40
K. Punktat iç korioretinopati	41

L. Behçet hastalığı	
M. Kronik üveit	
N. Fokal granüloamatöz enflamasyon	42
O. Ön üveitle birlikte	43
Ö. Kronik papilödem	
P. Anterior iskemik optik nöropati	
R. Akut bakteriyel endokarditin koroidal septik metastazı	44

### **III. Tümörler**

A. Koroidal nevi	45
B. Malign melanom	
C. Koroidal hemanjiom	46
D. RPE'nin ekstrapapiller hamartomu	
E. Koroidal osteom	47, 48

### **IV. Travma**

A. Koroidal ruptür	2,49-51
B. Laser Fotokoagülasyon, iatrojenik	52-57
• Diabetik maküler ödem FK	58-61
• Sickle cell hastalığı	62,63
• Korioretinal venöz anostomoz	64
• Retinal astrositom	65
C. Subretinal sıvı drenaj komplikasyonu	
• Retinotomi ile endodrenaj	66
D. Retinal krioinjuri	
E. Radyoterapi travması	2

### **V. Diğerleri**

A. İdyopatik	2,30,67-69
• Maküler alanda, santral seröz retinopati benzeri tablı ile idyopatik	
• Makülada İdyopatik	70
• Peripapiller idyopatik	15,28,71-74
• Periferik idyopatik	71-75
B. İdyopatik, edinsel parafoveolar telenjiektazi	
C. Kronik retina dekolmanı	
D. Koroid ve/veya pars planadan ora serrataya NV	
E. Psödötümör serebri	76-78
F. Pseudoxanthoma elasticum, Grönblad-Stranberg sendromu	10

\*Kaynak belirtilmeyen durumlar için 1 numaralı kaynağa bakınız.

**KAYNAKLAR**

1. Green RW, Wilson DJ: Choroidal neovascularization. *Ophthalmology* 1986; 93:1169-76.
2. Cohen SY, Laroche A, Leguen Y, Soubrane G, Coscas FJ: Etiology of choroidal neovascularization in young patients. *Ophthalmology* 1996; 103: 1241-4.
3. Jalkh AE, Weiter WW, Trempe CL, et al: Choroidal neovascularization in degenerative myopia: Role of laser photocoagulation. *Ophthalmic Surg* 1987; 18: 721-5.
4. Brancato R, Pece A., Avanza P, Radrizzani E: Photocoagulation scar expansion after laser therapy for choroidal neovascularization in degenerative myopia. *Retina* 1990; 10: 239-43.
5. Grossniklaus HE, Green WR: Pathologic findings in pathologic myopia. *Retina* 1992; 12: 127-33.
6. Johnson DA, Yannuzzi LA, Shakin JL, Lightman DA: Laquer cracks following laser treatment of choroidal neovascularization in pathologic myopia. *Retina* 1998; 18:118-24.
7. Brancato R, Menchini U, Pece A, et al: Laser treatment of macular subretinal neovascularization in angioid streaks. *Ophthalmologica* 1987; 195: 84-7.
8. Gelişken Ö, Hendrikse F, Deutman AF: A long-term follow-up study of laser coagulation of neovascular membranes in angioid streaks. *Am W Ophthalmol* 1988; 105: 299-303.
9. Lim JI, Lam S: A retinal pigment epithelium tear in a patient with angioid streaks. *Arch Ophthalmol* 1990; 108: 1672-4.
10. Yap E, Gleaton MS- Buettner H: Visual loss associated with pseudoxanthoma elasticum. *Retina* 1992; 12:315-9.
11. Lim JI, Bressler NM, Marsh MJ, Bressler SB: Laser treatment of choroidal neovascularization in patients with angioid streaks. *Am J Ophthalmol* 1993; 116:414-23.
12. Cohen SY, Alvarado C, Soubrane G, Coscas G: Résultats de la photocoagulation des néovaisseaux sous-rétiniens compliquant les stries angioides. *Bull Soc Ophthalmol Fr* 1993; 93: 543-7.
13. Prost M, DelLaey JJ: Choroidal neovascularization in tilted disk syndrome. *Int Ophthalmol* 1988; 12:131-5.
14. Stur M: Congenital tilted disk syndrom associated with parafoveal subretinal neovascularization. *Am J Ophthalmol* 1988; 105:98-9.
15. Lopez PF, Green WR: Peripapillary subretinal neovascularization. A review. *Retina* 1992; 12: 147-71.
16. Khairallah M, Chatti T, Messaoud R, et al: Peripapillary subretinal neovascularization associated with tilted disk syndrome. *Retina* 1996; 16:449-51.
17. Dailey WK, Cantore WA, Gardner TW: Peripapillary choroidal neovascular membrane associated with an optic nerve coloboma. *Arch Ophthalmol* 1993; 111: 441-2.
18. Yedavally S, Frank RN: Peripapillary subretinal neovascularization associated with coloboma of the optic nerve. *Arch Ophthalmol* 1993; 111: 552-3.
19. Saatçi O, Berk T, Kaynak S, Ergin M: İzole optik disk kolobomu ve jukstapapiller subretinal neovasküler membran. *Ret-vit* 1994; 2:83-5.
20. Johnson MW, Olsen KR, Hernandez E: Tissue plasminogen activator treatment of experimental subretinal hemorrhage. *Retina* 1991; 11: 250-8.
21. Sobol WM, Bratton AR, Rivers MB, Weingeist TA: Morning glory disc syndrome associated with subretinal neovascular membrane formation. *Am W Ophthalmol* 1990; 110:93-4.
22. Steahly LP: Laser treatment of a subretinal neovascular membrane associated with retinochoroidal colobomas. *Retina* 1986; 6: 154-6.
23. Rouland JF, Constantinides G: Retinochoroidal coloboma and subretinal neovascularization. *Ann Ophthalmol* 1991; 23: 61-2.
24. Marano F, Deutman A, Penckers AJLG, Aandekerk AL: Gyrate atrophy and choroidal neovascularization. *Arch Ophthalmol* 1996; 114: 1295.
25. Small KW, Letson R, Scheinman J: Ocular findings in primary hyperoxaluria. *Arch Ophthalmol* 1990; 108: 89-93.
26. Polkinghorne PW, Capon MRC, Berninger T et al: Sorsby's fundus dystrophy; a clinical study. *Ophthalmology* 1989; 96: 1763-8.
27. Macular Photocoagulation Study Group: Krypton laser photocoagulation for neovascular lesions of ocular histoplasmosis: results from a randomized clinical trial. *Arch Ophthalmol* 1987; 105: 1499-507.
28. Turcotte P, Maguire MG, Fine SL: Visual results after laser treatment for peripapillary choroidal neovascular membranes. *Retina* 1991; 11: 295-300.
29. Rivers MB- Pulido JS, Folk JC: III-defined choroidal neovascularization within ocular histoplasmosis scars. *Retina* 1992; 12: 90-5.
30. Macular Photocoagulation Study Group: Laser photocoagulation for neovascular lesions nasal to the fovea associated with ocular histoplasmosis or idiopathic causes. *Arch Ophthalmol* 1995; 113: 56-61.

31. Skorska I, Soubrane G, Coscas G: Toxoplasmic chorioiditis and subretinal neovessels. *J Fr Ophthalmol* 1984; 7: 211-8.
32. Fine SL, Owens SL, Haller JA, et al: Choroidal neovascularization as a late complication of ocular toxoplasmosis. *Am W Ophthalmol* 1981; 91: 318-22.
33. Moorthy RS, Chong LP, Smith RE, Rao NA: Subretinal neovascular membranes in Vogt-Koyanagi-Harada syndrome. *Am J Ophthalmol* 1993; 116: 164-70.
34. Mansour JM, Jampol LM, Pacho KH, et al: Macular serpiginous choroiditis. *Retina* 1988; 8: 125-31.
35. Wu JS, Lewis H, Fine SL, et al: Clinicopathologic findings in a patient with serpiginous choroiditis and treated choroidal neovascularization. *Retina* 1989; 9: 292-301.
36. Wyhinny GJ, Jackson JL, Jampol LM: Subretinal neovascularization following multiple evanescent white dot syndrome. *Arch Ophthalmol* 1990; 108: 1384-8.
37. McCollum CJ, Kimble JA: Peripapillary subretinal neovascularization associated with multiple evanescent white-dot syndrome. *Arch Ophthalmol* 1992; 110: 13-5.
38. Cohen SY, Chaine G, Calvet B, Paquet R: Choroidite multifocale intern. *Bull Soc Ophtalmol Fr* 1988; 88: 1115-20.
39. Delayre T, Soubane G, Ramahefasolo C, Coscas G: La choroidite multifocale: aspects diagnostiques et résultats de la photocoagulation. A propos de 25 cas. *J F Ophthalmol* 1989; 12: 97-102.
40. Akbatur HH, Akata F, Or M: Multifokal koroidit ve panüveit. *Ret-vit* 1993; 1: 71-4.
41. Olsen TW, Capone Jr A, Strenberg Jr P, et al: Subfoveal choroidal neovascularization in punctate inner choroidopathy. Surgical management and pathologic findings. *Ophthalmology* 1996; 103: 2061-9.
42. Pavan PR, Margo CE: Submacular neovascular membrane and focal granulomatous inflammation. *Ophthalmology* 1996; 103: 586-9.
43. Nozik RA, Dorsch W: A new chorioretinopathy associated with anterior uveitis. *Am J Ophthalmol* 1973; 76: 758-62.
44. Munier F, Othenin-Girard P: Subretinal neovascularization secondary to choroidal septic metastasis from acute bacterial endocarditis. *Retina* 1992; 12: 108-12.
45. Mines JA, Freilich DB, Friedman AH, Lazar M: Choroidal (subretinal) neovascularization secondary to choroidal neovus and successful treatment with argon laser photocoagulation; case reports and review of literature. *Ophthalmologica* 1985; 190: 210-8.
46. Ruby AJ, Jampol LM, Goldberg MF, et al: Choroidal neovascularization associated with choroidal hemangiomas. *Arch Ophthalmol* 1992; 110: 658-61.
47. Morrison DL, Magargal LE, Ehrlivh DR, et al: Review of choroidal osteoma: Successful krypton red laser photocoagulation of an associated subretinal neovascular membrane involving the fovea. *Ophthalmic Surgery* 1987; 18: 298-303.
48. Hoffman ME, Sorr EM: Photocoagulation of subretinal neovascularization associated with choroidal osteoma. *Arch Ophthalmol* 1987; 105: 998-9.
49. Wood CM, Richardson J: Indirect choroidal ruptures: Aetiological factors, patterns of ocular damage, and final visual outcome. *Br J Ophthalmol* 1990; 74: 208-11.
50. Zografos L, Chamero J: Evolution au long cours des ruptures indirectes traumatiques de la choroïde. *J Fr Ophthalmol* 1990; 13: 269-75.
51. Gross JG, King LP, de Juan JR E, Powers T: Subfoveal neovascular membrane removal in a patient with traumatic choroidal rupture. *Ophthalmology* 1996; 103: 579-85.
52. Heriot WJ, Henkind P, Bellhorn RW, Burns MS: Choroidal neovascularization can digest Bruch's membrane: A prior break is not essential. *Ophthalmology* 1984; 91: 1603-8.
53. Miller H, Miller B, Ryan SJ: T Newly formed subretinal new vessels: fine structure and fluorescein leakage. *Invest Ophthalmol Vis Sci* 1986; 27: 204-13.
54. Miller H, Miller B, Ryan SJ: The role of retinal pigment epithelium in the involution of subretinal neovascularization. *Invest Ophthalmol Vis Sci* 1986; 27: 1644-52.
55. Ishibashi T, Miller H, Orr G et al: Morphologic observations on experimental subretinal neovascularization in the monkey. *Invest Ophthalmol Vis Sci* 1987; 28: 1116-30.
56. Green RW: Clinicopathologic studies of treated choroidal neovascular membranes. A review and report of two cases. *Retina* 1991; 11: 328-56.
57. Lopez PF, Green WR: Peripapillary subretinal neovascularization. A review. *Retina* 1992; 12: 147-71.
58. Lewen RM: Subretinal neovascularization complicating laser photocoagulation of diabetic maculopathy. *Ophthalmic Surg* 1988; 19: 734-7.
59. Varley MP, Frank E, Purnell EW: Subretinal neovascularization after focal argon laser for macular edema. *Ophthalmology* 1988; 95: 567-73.
60. Berger AR, Boniuk I: Bilateral subretinal neovascularization after focal argon laser photocoagulation

- for diabetic macular edema. *Am. J Ophthalmol* 1989; 108:88-90.
61. Lewis H, Sachachat AP, Haimann MH, et al: Choroidal neovascularization after focal argon laser photocoagulation for diabetic macular edema. *Ophthalmol* 1990; 97: 503-11.
62. Carney MD, Paylor RR, Cunha-Vaz JG et al: Iatrogenic choroidal neovascularization in sickle cell retinopathy. *Ophthalmology* 1986; 93: 1163-8.
63. Fox PD, Acheson RW, Serjeant GR: Outcome of iatrogenic choroidal neovascularization in sickle cell disease. *Br J Ophthalmol* 1990; 74:417-20.
64. McAllister IL, Constable IW: Laser-induced chorioretinal venous anastomosis for treatment of non-ischemic central retinal vein occlusion. *Arch Ophthalmol* 1995; 113:456-62.
65. Bloom SM, Mahl CF: Photocoagulation for serous detachment of the macula secondary to retinal astrocytoma. *Retina* 1991; 11:416-22.
66. McDonald RG, Lewis H, Aaberg TM, Abrams GW: Complications of endodrainage retinotomies created during vitreous surgery for complicated retinal detachment. *Ophthalmology* 1989; 96:358.
67. Bottoni FG, Deutman AF: Idiopathic subretinal neovascular membranes in the macula (hemorrhagic macular choroidopathy of young adults). Clinical report and effectiveness of laser treatment *Doc Ophthalmol* 1987; 64:311-43.
68. Kleiner RC, Brucker AJ, Johnston RL: The posterior uveal bleeding syndrome. *Retina* 1990; 10:9-17.
69. Macular Photocoagulation Study Group: Krypton laser photocoagulation for idiopathic neovascular lesions: results of a randomized clinical trial. *Arch Ophthalmol* 1990, 108: 832-7.
70. Thomas JW, Grossniklaus HE, Lambert HM, et al: Ultrastructural features of surgically excised idiopathic subfoveal neovascular membranes. *Retina* 1993; 13:93-8.
71. Perkovich BT, Zakov ZN, Berlin LA, Weidenthal D, Avins LA: An update on multiple recurrent serosanguineous retinal pigment epithelial detachments in black women. *Retina* 1990; 10:18-26.
72. Yannuzzi LA, Sorenson J, Spaide RF, Lipson B: Idiopathic polypoidal choroidal vasculopathy. *Retina* 1990; 10: 1-8.
73. Spaide RF, Yannuzzi LA, Slakter JS, Sorenson J, Orlach DA: Indocyanine green videoangiography of idiopathic polypoidal choroidal vasculopathy. *Retina* 1995; 15:100-10.
74. Chang TS, Aylward W, Davis JL, et al: Idiopathic retinal vasculitis aneurysms, and neuroretinitis. *Ophthalmology* 1995; 102: 1089-97.
75. Delaney WV Jr, Torrisi PF, Hampton GR, et al: Hemorrhagic peripheral pigment epithelial disease. *Arch Ophthalmol* 1988; 106:646-50.
76. Morse PH, Leveille AS, Antel JP, Burch JV: Bilateral juxtapapilledema associated with pseudotumor cerebri. *Am J Ophthalmol* 1981; 91: 312-7.
77. Jamison RR: Subretinal neovascularization and papilledema associated with pseudotumor cerebri. *J Clin Neuro-ophthalmol* 1985; 5: 45-53.
78. Yazar Z, Akova Y, Karagöz Y ve ark: Psödötümör serebri ile birlikte görülen jukstapapiller subretinal neovasküler membran. *Ret-Vit* 1994; 2: 86-9.