

BÖLÜM 54

DERİ VE SUBKUTAN DOKU ANOMALİLERİ İLE GİDEN NÖROKÜTAN SENDROMLAR

Sevgi ÇIRAKLI¹
Mehmet CANPOLAT²
Sefer KUMANDAŞ³

GİRİŞ

Nörokütan hastalıklar genellikle genetik geçişlidir. Ektoderm kaynaklı olup hem deriyi hem de sinir sistemini etkiler. Sıklıkla yaşamın erken döneminde bulgu verir, ancak yaşamın daha ileri aşamalarında tanı alan hastalar da vardır. Bu grup hastalıklara ‘nörokütan sendromlar’ adı verilir. Bir diğer adı ile ‘fakomatozlar’ olarak adlandırılır ve Latincede doğum lekesi anlamına gelmektedir.

Nörokütanöz hastalıklar heterojen bir grup olup, nörojenik ve kütanöz rahatsızlıklar birarada olduğu için çoğu zaman sinonim olarak değerlendirilmiştir. Bu hastalıkların bir kısmının genetik geçışı bulunmakta iken baziları sporadik olarak ortaya çıkabilir. Bu durum gelişimsel geriliğe, epileptik nöbetlere, beyinde displazilere neden olabilmektedir. Nörokütanöz sendromlar olarak bilinen hastalıklar displastik yapılarıyla ve özellikle deri ve sinir sistemi gibi çeşitli organlarda tümör oluşturmaya eğilimleriyle dikkat çekmektedir.¹ Bu bölümde daha sıkılıkla karşımıza çıkan, deri ve subkutan bulgularıyla seyreden nörokütan hastalıkları ele alacağız.

Nörofibromatosis

Bu grubun en sık görülen hastalığıdır. Tek bir hastalık olmayıp çok geniş spektrumludur. Nörofibromatosis (NF) en sık görülen tipleri; nörofibromatosis tip 1(NF-1)displazilere neden olabilmektedir tip 2 (NF-2) ve schwannomatosis olarak sıralanabilir. Bu hastalık grubunda sentral sinir sisteminde tümür oluşumu riski yüksektir.² Nörofibromatosis tip 1 ve tip 2'nin genetik geçisi %50 oranında otozomal dominanttir, kalan %50'si de novo mutasyon olarak karşımıza çıkar. De novo mutasyon oranı diğer bir tip olan schwannomatoste çok daha yüksektir.³

NF-1

Tüm NF tiplerinin %85'ini kapsar. Ortalama 3000 kişide 1 sıklığında görülür. NF-1 Von Recklinghausen hastalığı olarak da bilinir.¹ Çeşitli malignite oluşumu ve diğer komplikasyonlardan ötürü normal sağlıklı insan yaşam süresinden yaklaşık 15 yıl daha az yaşam süresi beklenir.⁴ Hastalığın tanımlanmış tanı kriterleri mevcuttur. NF tanı kriterlerinden ikisini karşılaması hastalara NF tip-1 tanısını koydurur. Hastaların %97'si 8 yaşına geldiği zaman bu kriterlerden ikisini karşılayarak tanı almış

¹ Dr. Öğr. Üyesi, Ordu Üniversitesi Çocuk Nörolojisi BD., sevgigumusoglu@hotmail.com

² Prof. Dr., Erciyes Üniversitesi Tip Fakültesi, Çocuk Sağlığı ve Hastalıkları AD., Çocuk Nörolojisi BD., mcanpolat@erciyes.edu.tr

³ Prof. Dr., Erciyes Üniversitesi Tip Fakültesi, Çocuk Sağlığı ve Hastalıkları AD., Çocuk Nörolojisi BD., seferkumandas@yahoo.com

hastalıktır.⁷¹ İlk olarak Aksiyel hipotoni, eklem hipermobilitesi eşlik edebilir. PIK3CA mutasyonu ve varyantları genetik incelemede bazı vakalarda gösterilmiştir. Tedavi semptomatiktir.⁷²

Bannayan- Riley- Ruvalcaba Sendromu

Nadir görülen bir hastalık olup, overgrowth ve kütanöz bulguları içerebilen bir hastalık. Gerçek prevalansı bilinmemekle beraber, genetik olarak PTEN geninde 10q23.3 %60 hastada raporlanmıştır.⁷³ Klinik bulguları; makrosefali, genital melonotik maküller, hamartamatöz intestinal polipler, vasküler veya lipomatoz hamartomlar (anjokeratom, lenfanjokeratom, fasial, oral veya akral verrukoz papüller), fasial dismorfoloji, oftalmolojik anomaliler, kas-iskelet veya sinir sistemi anomalileri eşlik edebilir. Göz anomalilerinden strabismus, ambliyobi, pseudopapilödem gözlenebilir.

Tedavi oluşan komplikasyona yönelikir. Cilt bulguları için eksizyon, lazer kriyoterapi uygulanabilir.⁷³⁻⁷⁴

KAYNAKLAR

- Panagiatakaki E and Arzimanoglou A. Aicardi's Diseases of the Nervous System in Childhood 4th Edition. London: Riverside Publishing Solutions Ltd.; 2018. p. 205-240.
- Blakeley JO, Plotkin SR. Therapeutic advances for the tumors associated with neurofibromatosis type 1, type 2, and schwannomatosis. Neuro Oncol. 2016;18:624-638.
- Farschtschi S, Mautner VF, McLean ACL, Schulz A, Friedrich R, Rosahl SK. The Neurofibromatoses. Dtsch Arztebl Int. 2020;117:354-360.
- Hirbe AC, Gutmann DH. Neurofibromatosis type 1: a multidisciplinary approach to care. Lancet Neurol. 2014;13:834-843.
- DeBella K, Szudek J, Friedman JM. Use of the national institutes of health criteria for diagnosis of neurofibromatosis 1 in children. Pediatrics. 2000;105:608-614.
- National Institutes of Health Consensus Development Conference Statement: neurofibromatosis. Bethesda, Md., USA, July 13-15, 1987. Neurofibromatosis. 1988;1(3):172-8
- Agaimy A, Vassos N, Croner RS. Gastrointestinal manifestations of neurofibromatosis type 1 (Recklinghausen's disease): clinicopathological spectrum with pathogenetic considerations. Int J Clin Exp Pathol. 2012;5:852-862.
- Petrilli AM, Fernández-Valle C. Role of Merlin/NF2 inactivation in tumor biology. Oncogene. 2016;35:537-548.
- Lin AL, Gutmann DH. Advances in the treatment of neurofibromatosis-associated tumours. Nat Rev Clin Oncol. 2013;10:616-624.
- Dewan R, Pemov A, Kim HJ, et al. Evidence of polyclonality in neurofibromatosis type 2-associated multilobulated vestibular schwannomas. Neuro Oncol. 2015;17:566-573.
- Plotkin SR, Merker VL, Halpin C, et al. Bevacizumab for progressive vestibular schwannoma in neurofibromatosis type 2: a retrospective review of 31 patients. Otol Neurotol. 2012;33:1046-1052.
- Evans DG, Huson SM, Donnai D, et al. A clinical study of type 2 neurofibromatosis. Q J Med. 1992;84:603-618.
- Evans DG, Birch JM, Ramsden RT. Paediatric presentation of type 2 neurofibromatosis. Arch Dis Child. 1999;81:496-499.
- Hagel C, Lindenu M, Lamszus K, Kluwe L, Stavrou D, Mautner VF. Merlin isoform 2 in neurofibromatosis type 2-associated polyneuropathy. Nat Neurosci. 2013;16:426-433.
- Evans DG, Bowers NL, Tobi S, et al. Schwannomatosis: a genetic and epidemiological study. J Neurol Neurosurg Psychiatry. 2018;89:1215-1219.
- Evans DGR, Baser ME, O'Reilly B, Rowe J, Gleeson M, Saeed S, et al. Management of the patient and family with neurofibromatosis 2: a consensus conference statement. Br J Neurosurg. 2005 Feb;19(1):5-12
- Sadowski K, Kotulska K, Schwartz RA, Jóźwiak S. Systemic effects of treatment with mTOR inhibitors in tuberous sclerosis complex: a comprehensive review. J Eur Acad Dermatol Venereol. 2016;30:586-594.
- DiMario FJ Jr, Sahin M, Ebrahimi-Fakhari D. Tuberous SclerosisComplex. Pediatr Clin North Am. 2015;62:633-648.
- Rodrigues DA, Gomes CM, Costa IMC. Tuberous sclerosis complex. An Bras Dermatol. 2012;87:184-196.
- Wheless JW, Almoazen H. A novel topical rapamycin cream for the treatment of facial angiofibromas in tuberous sclerosis complex. J Child Neurol. 2013;28:933-936.
- Haemel AK, O'Brian AL, Teng JM. Topical rapamycin: a novel approach to facial angiofibromas in tuberous sclerosis. Arch Dermatol. 2010;146:715-718.
- Kingswood JC, Bruzzi P, Curatolo P, et al. TOSCA - first international registry to address knowledge gaps in the natural history and management of tuberous sclerosis complex. Orphanet J Rare Dis. 2014;9:182.
- Bhatt JR, Richard PO, Kim NS, et al. Natural History of Renal Angiomyolipoma (AML): Most Patients with Large AMLs > 4cm Can Be Offered Active Surveillance as an Initial Management Strategy. Eur Urol. 2016;70:85-90.

- Temel Pediatrik Nöroloji: Tani ve Tedavi
24. Curatolo P, Moavero R, de Vries PJ. Neurological and neuropsychiatric aspects of tuberous sclerosis complex. *Lancet Neurol.* 2015;14:733-745.
 25. Northrup H, Krueger DA; International Tuberous Sclerosis Complex Consensus Group. Tuberous sclerosis complex diagnostic criteria update: recommendations of the 2012 International Tuberous Sclerosis Complex Consensus Conference. *Pediatr Neurol.* 2013 Oct;49(4):243-54.
 26. Nathan N, Wang JA, Li S, et al. Improvement of tuberous sclerosis complex skin tumors during long-term treatment with oral sirolimus. *J Am Acad Dermatol.* 2015;73:802-73808.
 27. Comi A. Current Therapeutic Options in Sturge-Weber Syndrome. *Semin Pediatr Neurol.* 2015;22(4):295-301.
 28. Powell J. Update on hemangiomas and vascular malformations. *Curr Opin Pediatr.* 1999;11:457-463.
 29. Fischbein NJ, Barkovich AJ, Wu Y, et al. Sturge-Weber syndrome with no leptomeningeal enhancement on MRI. *Neuroradiology.* 1998;40:177-180.
 30. Porto L, Kieslich M, Yan B, et al. Accelerated myelination associated with venous congestion. *Eur Radiol.* 2006;16:922-926.
 31. Sujansky E, Conradi S. Sturge-Weber syndrome. Age of onset of seizures and glaucoma and the prognosis for affected children. *J Child Neurol.* 1995;10:49-58.
 32. Kramer U, Kahana E, Shorer Z, et al. Outcome of infants with unilateral Sturge-Weber syndrome and early onset seizures. *Dev Med Child Neurol.* 2000;42:756-759.
 33. Sullivan TJ, Clarke MP, Morin JD. The ocular manifestations of the Sturge-Weber syndrome. *J Pediatr Ophthalmol Strabismus.* 1992;19:349-356.
 34. Kimple AJ, Bosch DE, Giguere PM, et al. Regulators of G-protein signaling and their Galphai substrates. Promises and challenges in their use as drug discovery targets. *Pharmacol Rev.* 2011;63:728-749.
 35. Sa M, Barroso CP, Caldas MC, et al. Innervation pattern of malformative cortical vessels in Sturge-Weber disease. An histochemical, immunohistochemical, and ultrastructural study. *Neurosurgery.* 1997;41:872-876.
 36. Patrianakos TD, Nagao K, Walton DS. Surgical management of glaucoma with the sturge weber syndrome. *Int Ophthalmol Clin.* 2008;48:63-78.
 37. Kossoff EH, Ferenc L, Comi AM. An infantile-onset, severe, yet sporadic seizure pattern is common in Sturge-Weber syndrome. *Epilepsia.* 2009;50:2154-2157.
 38. Fukuyama Y, Tsuchiya S. A study on Sturge-Weber syndrome. Report of a case associated with infantile spasms and electroencephalographic evolution in five cases. *Eur Neurol.* 1979;18:194-204.
 39. Lopez J, Yeom KW, Comi A, et al. Case report of subdural hematoma in a patient with Sturge-Weber syndrome and literature review. Questions and implications for therapy. *J Child Neurol.* 2013;28:672-675.
 40. Greco F, Fiumara A, Sorge G, et al. Subgaleal hematoma in a child with Sturge-Weber syndrome. To prevent stroke-like episodes, is treatment with aspirin advisable? *Childs Nerv Syst.* 2008;24:1479-1481.
 41. Comi AM, Bellamkonda S, Ferenc LM, et al. Central hypothyroidism and Sturge-Weber syndrome. *Pediatr Neurol.* 2008;39:58-62.
 42. Siddique L, Sreenivasan A, Comi AM, et al. Importance of utilizing a sensitive free thyroxine assay in Sturge-Weber syndrome. *J Child Neurol.* 2013;28:269-274.
 43. Binderup MLM, Bisgaard ML, Harbord V, et al. Von Hippel-Lindau disease (vHL). National clinical guideline for diagnosis and surveillance in Denmark. 3rd edition. *Dan Med J.* 2013;60:B4763.
 44. Maher ER, Neumann HP, Richard S. von Hippel-Lindau disease: a clinical and scientific review. *Eur J Hum Genet.* 2011;19:617-623.
 45. Evans DG, Howard E, Giblin C, et al. Birth incidence and prevalence of tumor-prone syndromes: estimates from a UK family genetic register service. *Am J Med Genet A.* 2010;152:327-332.
 46. Maddock IR, Moran A, Maher ER, et al. A genetic register for von Hippel-Lindau disease. *J Med Genet.* 1996;33:120-127.
 47. Seizinger BR, Rouleau GA, Ozelius LJ, et al. Von Hippel-Lindau disease maps to the region of chromosome 3 associated with renal cell carcinoma. *Nature.* 1988;332:268-269.
 48. Latif F, Tory K, Gnarr J, et al. Identification of the von Hippel-Lindau disease tumor suppressor gene. *Science.* 1993;260:1317-1320.
 49. Lazzeri S, Figus M, Di Bartolo E, et al. Verteporfin photodynamic therapy for retinal hemangioblastoma associated with von Hippel-Lindau disease in a 9-year-old child. *Clin Experiment Ophthalmol.* 2011;39:179-181.
 50. Simone CB, Lonser RR, Ondos J, et al. Infratentorial craniospinal irradiation for von Hippel-Lindau: a retrospective study supporting a new treatment for patients with CNS hemangioblastomas. *Neuro Oncol.* 2011;13:1030-1036.
 51. Frantzen C, Links TP, Giles RH. Von Hippel-Lindau Disease. University of Washington; Seattle: 2012.
 52. Anheim M, Tranchant C, Koenig M. The autosomal recessive cerebellar ataxias. *N Engl J Med.* 2012;366:636-646.
 53. Nissenkorn A, Levy-Shraga Y, Banet-Levi Y, Lahad A, Saruk I, Modan-Moses D. Endocrine abnormalities in ataxia telangiectasia: findings from a national cohort. *Pediatr Res.* 2016;79:889-894.
 54. Sedgewick RP, Boder E. In: Vinken PJ, Bruyn GW, editors. *Handbook of Clinical Neurology*, vol. 14. Amsterdam: North Holland Publishing; 1972.
 55. Rothblum-Oviatt C, Wright J, Lefton-Greif MA, McGrath-Morrow SA, Crawford TO, Lederman HM. Ataxia telangiectasia: a review. *Orphanet J Rare Dis.* 2016;11:159.
 56. Crawford TO. Ataxia telangiectasia. *Semin Pediatr Neurol.* 1998;5:287-294.

57. Sahama I, Sinclair K, Pannek K, Lavin M, Rose S. Radiological imaging in ataxia telangiectasia: a review. *Cerebellum.* 2014;13:521-530.
58. Lin DD, Barker PB, Lederman HM, Crawford TO. Cerebral abnormalities in adults with ataxia-telangiectasia. *AJNR Am J Neuroradiol.* 2014;35:119-123.
59. Farr AK, Shalew B, Crawford TO, Lederman HM, Winkelstein JA, Repka MX. Ocular manifestations of ataxia-telangiectasia. *Am J Ophthalmol.* 2002;134:891-896.
60. Nowak-Wegrzyn A, Crawford TO, Winkelstein JA, Carson KA, Lederman HM. Immunodeficiency and infections in ataxiatelangiectasia. *J Pediatr.* 2004;144:505-511.
61. Noordzij JG, Wulffraat NM, Haraldsson A, et al. Ataxia-telangiectasia patients presenting with hyper-IgM syndrome. *Arch Dis Child.* 2009;94:448-449.
62. Crawford TO, Skolasky RL, Fernandez R, Rosquist KJ, Lederman HM. Survival probability in ataxia telangiectasia. *Arch Dis Child.* 2006;91:610-611.
63. Reiman A, Srinivasan V, Barone G, et al. Lymphoid tumours and breast cancer in ataxia telangiectasia; substantial protective effect of residual ATM kinase activity against childhood tumours. *Br J Cancer.* 2011;105:586-591.
64. Savitsky K, Bar-Shira A, Gilad S, et al. A single ataxia telangiectasia gene with a product similar to PI-3 kinase. *Science.* 1995;268:1749-1753.
65. Lewis RF, Lederman HM, Crawford TO. Ocular motor abnormalities in ataxia telangiectasia. *Ann Neurol.* 1999;46:287-295.
66. Bui TNPT, Corap A, Bygum A. Cutis marmorata telangiectatica congenita: a literature review. *Orphanet J Rare Dis.* 2019 Dec 4;14(1):283.
67. Shareef S, Alves JL, Horowitz D. Cutis Marmorata Telangiectatica Congenita. 2021 Mar 6. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan.
68. Van LOHUIZEN c. Über eine seltene angeborene Hautanomalie(Cutis marmorata telangiectica congenita). *Acta Dermatol Venereol* 1922;3:202-11
69. Sassalos TM, Fields BTS, Levine R, Gao H, Retinal neovaskularizasyon from a patient with cutis marmorata telangiectacica congenita. *Retin Cases Brief Rep.* 2018
70. Nyberg RH, Uotila J, Kirkkinen P, Rosendahl H. Macrocephaly-cutis marmorata telangiectatica congenita syndrome--prenatal signs in ultrasonography. *Prenat Diagn.* 2005 Feb;25(2):129-32. doi: 10.1002/pd.1081. PMID: 15712320
71. Fortin O, Ashour M, Lacroix C, Sabapathy CA, Myers KA. Megalencephaly-Capillary Malformation-Polymicrogyria with Cerebral Venous Thrombosis. *Can J Neurol Sci.* 2020 Nov;47(6):828-829. doi: 10.1017/cjn.2020.127. Epub 2020 Jun 23. PMID: 32631464.
72. Park SM, Kim BS, Kim MB, Ko HC. Commentary on "Megalencephaly-capillary malformation-polymicrogyria syndrome: the first case report in Korea". *Korean J Pediatr.* 2018 Jan;61(1):35-36. doi: 10.3345/kjp.2018.61.1.35. Epub 2018 Jan 22. PMID: 29441111; PMCID: PMC5807989.
73. Erkek E, Hizel S, Sanlıý C, Erkek AB, Tombakoglu M, Bozdogan O, Ulkatan S, Akarsu C. Clinical and histopathological findings in Bannayan-Riley-Ruvalcaba syndrome. *J Am Acad Dermatol.* 2005 Oct;53(4):639-43. doi: 10.1016/j.jaad.2005.06.022. PMID: 16198785.
74. Fargnoli MC, Orlow SJ, Semel-Concepcion J, Bolognia JL. Clinicopathologic findings in the Bannayan-Riley-Ruvalcaba syndrome. *Arch Dermatol.* 1996 Oct;132(10):1214-8. PMID: 8859033.