BÖLÜM 24

KRANİYAL ANOMALİLER

Ayla Özaydoğdu Çimen[1]

[1] Uzm. Dr., T.C. Sağlık Bakanlığı Malatya Eğitim ve Araştırma Hastanesi Radyoloji Kliniği, ayla28092004@hotmail.com

8- Palyaço gözü: İpsilateral koronal sütür (75)
9- Progresif postnatal pansinoz: Tüm kraniyal sütürlerin geç (postnatal) füzyonunu içeren nadir kraniyosinostoz formudur (76).

Tedavi ve Yaklaşım

Tedavi genellikle cerrahidir ve kraniyoplasti yapılır. Genellikle cerrahi ekip içerisinde beyin cerrahı, plastik cerrah ve oromaksillofasiyal cerrah vardır (77).

KAYNAKÇA

1. Adadi H, Chaara H, Attar I, et al. Amniotic band syndrome: prenatal diagnosis and management challenges (about 2 cases of lethal malformations). *Pan Afr Med J*. 2019;13(32):116. doi: 10.11604/pamj.2019.32.116.18048.
2. Madan S, Chaudhuri Z. Amniotic Band Syndrome: A Review of 2 Cases. *Ophthalmic Plast Reconstr Surg*. 2018;34(4):110-113. doi: 10.1097/IOP.0000000000001107.
3. Arroyo HA. [Microcephaly]. Medicina (B Aires). 2018;78 Suppl 2:94-100.
4. Okuno T. [Hydranencephaly]. Ryoikibetsu Shokogun Shirizu. 2000;(28 Pt 3):628-631.
5. Barron S. Anencephaly: An Ongoing Investigation in Washington State. *Am J Nurs*. 2016;116(3):60-66. doi: 10.1097/01.NAJ.0000481286.16720.6e.
6. Fleurke-Rozema JH, van Leijden L, van de Kamp K, et al. Timing of detection of anencephaly in *The Netherlands*. *Prenat Diagn*. 2015 May;35(5):483-485. doi: 10.1002/pd.4563.
7. Martins Santana EF, Araujo Júnior E, Tonni G, et al. Acrania-exencephaly-anencephaly sequence phenotypic characterization using two-and three-dimensional ultrasound between 11 and 13 weeks and 6 days of gestation. *J Ultrason*. 2018;18(74):240-246. doi: 10.15557/JoU.2018.0035.
8. Obeidi N, Russell N, Higgins JR, et al. The natural history of anencephaly. *Prenat Diagn*. 2010;30(4):357-360. doi: 10.1002/pd.2490.
9. Oria M, Duru S, Figueira RL, et al. Cell necrosis, intrinsic apoptosis and senescence contribute to the progression of exencephaly to anencephaly in a mice model of congenital chranioschisis. *Cell Death Dis*. 2019;10(10):721. doi: 10.1038/s41419-019-1913-6.
10. Maillard L, Ramantani G. Epilepsy surgery for polymicrogyria: a challenge to be undertaken. *Epileptic Disord*. 2018;20(5):319-338. doi: 10.1684/epd.2018.1004.
11. Khan S, Vasung L, Marami B, et al. Fetal brain growth portrayed by a spatiotemporal diffusion tensor MRI atlas computed from in utero images. *Neuroimage*. 2019;185:593-608. doi: 10.1016/j.neuroimage.2018.08.030.
12. Vinayagamani S, Thomas B, Gohil J, et al. Bipartite craniopharyngeal canal with a lipoma and cephalocele: a previously unreported entity. *Acta Neurochir (Wien)*. 2019;161(2):355-359. doi: 10.1007/s00701-018-03795-z.
13. Schmidt C, Bryant E, Iwanaga J, et al. Meningocele manqué: a comprehensive review of this enigmatic finding in occult spinal dysraphism. *Childs Nerv Syst*. 2017;33(7):1065-1071. doi: 10.1007/s00381-017-3472-4.
14. Ruas R, Ribeiro N. Meningoencephalocele causing recurrent meningitis. *Clin Case Rep*. 2018;6(5):944-945. doi: 10.1002/ccr3.1420.
15. Shah AK, Desai AA, Sharma SN, et al. Frontoethmoidal meningoencephalocystocele. *Ann Plast Surg*. 1989;22(6):523-527; discussion 528.
16. Favoreel N, Devooghdt M, Devlies F, et al. Atretic Cephalocele. *JBR-BTR*. 2015;98(3):119-120. doi: 10.5334/jbr-btr.793.
17. Di Donato N, Timms AE, Aldinger KA, et al. Analysis of 17 genes detects mutations in 81% of 811 patients with lissencephaly. *Genet Med*. 2018;20(11):1354-1364. doi: 10.1038/gim.2018.8.
18. Sakharov AV, Roginskiy VV, Kapitanov DN, et al. Modern diagnosis and treatment in children with congenital basal encephalocele. *Zh Vopr Neirokhir Im N N Burdenko*. 2017;81(3):30-38. doi: 10.17116/neiro201781330-38.
19. Stutterd CA, Leventer RJ. Polymicrogyria: a common and heterogeneous malformation of cortical development. *Am J Med Genet C Semin Med Genet*. 2014;166(2):227-239. doi: 10.1002/ajmg.c.31399.
20. Devisme L, Bouchet C, Gonzalès M, et al. Cobblestone lissencephaly: neuropathological subtypes and cor-

relations with genes of dystroglycanopathies. *Brain*. 2012;135(2):469-482. doi: 10.1093/brain/awr357.
21. Suthar R, Angurana SK, Singh U, et al. Walker-Warburg syndrome. *Neurol India.* 2018;66(6):1849-1850. doi: 10.4103/0028-3886.246262.
22. Ishigaki K, Ihara C, Nakamura H, et al. National registry of patients with Fukuyama congenital muscular dystrophy in Japan. *Neuromuscul Disord*. 2018;28(10):885-893. doi: 10.1016/j.nmd.2018.08.001.
23. Al Dhaibani MA, El-Hattab AW, Ismayl O, et al. B3GALNT2-Related Dystroglycanopathy: Expansion of the Phenotype with Novel Mutation Associated with Muscle-Eye-Brain Disease, Walker-Warburg Syndrome, Epileptic Encephalopathy-West Syndrome, and Sensorineural Hearing Loss. *Neuropediatrics.* 2018;49(4):289-295. doi: 10.1055/s-0038-1651519.
24. Leventer R. Lissencephaly type I. Handb *Clin Neurol*. 2008;87:205-218. doi: 10.1016/S0072-9752(07)87013-8.
25. Pavone P, Striano P, Falsaperla R, et al. Infantile spasms syndrome, West syndrome and related phenotypes: what we know in 2013. *Brain Dev*. 2014;36(9):739-751. doi: 10.1016/j.braindev.2013.10.008.
26. Asadi-Pooya AA. Lennox-Gastaut syndrome: a comprehensive review. *Neurol Sci*. 2018;39(3):403-414. doi: 10.1007/s10072-017-3188-y.
27. Topaloğlu H, Talim B. Lissencephaly type II. *Handb Clin Neurol*. 2008;87:219-234. doi: 10.1016/S0072-9752(07)87014-X.
28. Cornet MC, Sands TT, Cilio MR. Neonatal epilepsies: Clinical management. *Semin Fetal Neonatal Med*. 2018;23(3):204-212. doi: 10.1016/j.siny.2018.01.004.
29. Di Donato N, Chiari S, Mirzaa GM, et al. Lissencephaly: Expanded imaging and clinical classification. *Am J Med Genet A*. 2017;173(6):1473-1488. doi: 10.1002/ajmg.a.38245.
30. Wang CZ, Wei Q, Guo LL, et al. Normal height and novel mutations in growth hormone deficiency adults with pituitary stalk interruption syndrome. *Neuro Endocrinol Lett.* 2019;40(7-8):299-304.
31. Chang J, Zhao L, Chen C, et al. Pachygyria, seizures, hypotonia, and growth retardation in a patient with an atypical 1.33Mb inherited microduplication at 22q11.23. *Gene*. 2015;569(1):46-50. doi: 10.1016/j.gene.2015.04.090.
32. Klostranec JM, Chen L, Mathur S, et al. A theory for polymicrogyria and brain arteriovenous malformations in HHT. *Neurology*. 2019;92(1):34-42. doi: 10.1212/WNL.0000000000006686.
33. Crino PB. Focal Cortical Dysplasia. *Semin Neurol*. 2015;35(3):201-208. doi: 10.1055/s-0035-1552617. Epub 2015 Jun 10.
34. Oegema R, Barkovich AJ, Mancini GMS, et al. Subcortical heterotopic gray matter brain malformations: Classification study of 107 individuals. *Neurology*. 2019;93(14):1360-1373. doi: 10.1212/WNL.0000000000008200.
35. Verbeek E, Meuwissen ME, Verheijen FW, et al. COL4A2 mutation associated with familial porencephaly and small-vessel disease. *Eur J Hum Genet*. 2012;20(8):844-851. doi: 10.1038/ejhg.2012.20.
36. Gonzalez JC, Singhapakdi K, Martino AM, et al. Unilateral Open-lip Schizencephaly with Tonsillar Herniation in a Preterm Infant. *J Pediatr Neurosci.* 2019;14(4):225-227. doi: 10.4103/jpn.JPN_75_19.
37. Bartolini L, Kao A, Zachery A, et al. Teaching NeuroImages: Homotopic motor distribution on fMRI in closed-lip schizencephaly. *Neurology.* 2017;88(2):24-25. doi: 10.1212/WNL.0000000000003493.
38. Braga VL, da Costa MDS, Riera R, et al. Schizencephaly: A Review of 734 Patients. *Pediatr Neurol*. 2018;87:23-29. doi: 10.1016/j.pediatrneurol.2018.08.001.
39. Halabuda A, Klasa L, Kwiatkowski S, et al. Schizencephaly-diagnostics and clinical dilemmas. *Childs Nerv Syst.* 2015;31(4):551-556. doi: 10.1007/s00381-015-2638-1.
40. Kielar M, Tuy FP, Bizzotto S, Lebrand C, et al. Mutations in Eml1 lead to ectopic progenitors and neuronal heterotopia in mouse and human. *Nat Neurosci*. 2014;17(7):923-933. doi: 10.1038/nn.3729.
41. Klaus J, Kanton S, Kyrousi C, et al. Altered neuronal migratory trajectories in human cerebral organoids derived from individuals with neuronal heterotopia. *Nat Med*. 2019;25(4):561-568. doi: 10.1038/s41591-019-0371-0.
42. Weaver NL, Bradshaw WT, Blake SM. Differential Diagnoses and Their Implications of Dandy-Walker Malformation or Isolated Cisterna Magna, a Case Study: Baby V. *Neonatal Netw*. 2018;37(6):358-364. doi: 10.1891/0730-0832.37.6.358.
43. Rousseaux M, Dhellemmes P, Clarisse J, et al. Sub, retro- and supracerebellar arachnoid cysts and pseudocyts in adults. Six observations. *Neurochirurgie*. 1982;28(4):245-253.
44. Whitehead MT, Vezina G. The fetal falx cerebelli. *Pediatr Radiol*. 2020 Mar 17. doi: 10.1007/s00247-020-04641-0.
45. Kane MS, Davids M, Bond MR, et al. Abnormal glycosylation in Joubert syndrome type 10. *Cilia.* 2017;23;6:2. doi: 10.1186/s13630-017-0048-6.
46. Amin OS. Ataxia, hypoplastic vermis and keyhole connection sign: is it the variant form of Dandy-Walker complex? BMJ Case Rep. 2012 Dec 12;2012. pii: bcr2012007152. doi: 10.1136/bcr-2012-007152.

47. Wang Y, Guo S, Xu L, et al. Tremor Caused by Dandy-Walker Syndrome Concomitant with Syringomyelia: Case Report and Review of the Literature Review. *World Neurosurg*. 2020;136:301-304. doi: 10.1016/j.wneu.2020.01.045.
48. Feghali J, Xie Y, Chen Y, Li S, et al. External validation of current prediction systems of improvement after decompression surgery in Chiari malformation type I patients: can we do better? J Neurosurg. 2020 May 1:1-6. doi: 10.3171/2020.2.JNS20181.
49. Mukherjee S, Kalra N, Warren D, et al. Chiari I malformation and altered cerebrospinal fluid dynamics-the highs and the lows. *Childs Nerv Syst*. 2019;35(10):1711-1717. doi: 10.1007/s00381-019-04233-w.
50. Kim I, Hopson B, Aban Iet al. Decompression for Chiari malformation type II in individuals with myelomeningocele in the National Spina Bifida Patient Registry. *J Neurosurg Pediatr.* 2018;22(6):652-658. doi: 10.3171/2018.5.PEDS18160.
51. Ivashchuk G, Loukas M, Blount JP, et al. Chiari III malformation: a comprehensive review of this enigmatic anomaly. Childs Nerv Syst. 2015;31(11):2035-2040. doi: 10.1007/s00381-015-2853-9.
52. Tubbs RS, Demerdash A, Vahedi P, ET AL. Chiari IV malformation: correcting an over one century long historical error. *Childs Nerv Syst*. 2016;32(7):1175-1179. doi: 10.1007/s00381-015-27658.
53. Dangouloff-Ros V, Roux CJ, Boulouis G, ET AL. Incidental Brain MRI Findings in Children: A Systematic Review and Meta-Analysis. AJNR Am J Neuroradiol. 2019;40(11):1818-1823. doi: 10.3174/ajnr.A6281.
54. Fric R, Ringstad G, Eide PK. Chiari malformation type 1 – diagnosis and treatment. Tidsskr Nor Laegeforen. 2019;139(10). doi: 10.4045/tidsskr.18.0455.
55. Ionescu CA, Calin D, Navolan D, et al. nAlobar holoprosencephaly associated with a rare chromosomal abnormality: Case report and literature review. Medicine (Baltimore). 2018;97(29):11521. doi: 10.1097/MD.0000000000011521.
56. Chuang TY, Chang SY, Chen CP, et al. Digynic triploidy in a fetus presenting with semilobar holoprosencephaly. *Taiwan J Obstet Gynecol.* 2018;57(6):881-884. doi:10.1016/j.tjog.2018.11.001.
57. Dubourg C, Bendavid C, Pasquier L, et al. Holoprosencephaly. Orphanet J Rare Dis. 2007 Feb 2;2:8.
58. Abe Y, Araki R, Sobajima H, et al. Nationwide epidemiological survey of holoprosencephaly in Japan. *Pediatr Int*. 2019 Dec 30. doi: 10.1111/ped.14135.
59. Martínez-Sánchez L, Arce A, Caritg-Bosch J, et al. Septo-optic dysplasia. *Rev Neurol*. 2002;35(5):439-442.
60. Maduram A, Farid N, Rakow-Penner R, et al. Fetal Ultrasound and Magnetic Resonance Imaging Findings in Suspected Septo-Optic Dysplasia: A Diagnostic Dilemma. J Ultrasound Med. 2020 Mar 2. doi: 10.1002/jum.15252.
61. Palui R, Sahoo JP, Kamalanathan S, et al. Nailing septo-optic dysplasia. *BMJ Case Rep*. 2018 Feb 7;2018. pii: bcr-2017-223956. doi: 10.1136/bcr-2017-223956.
62. Lieb JM, Ahlhelm FJ. [Agenesis of the corpus callosum]. *Radiologe*. 2018;58(7):636-645. doi: 10.1007/s00117-018-0388-2.
63. Palmer EE, Mowat D. Agenesis of the corpus callosum: a clinical approach to diagnosis. *Am J Med Genet C Semin Med Genet.* 2014;166C(2):184-197. doi: 10.1002/ajmg.c.31405.
64. Díaz-Guerrero L, Giugni-Chalbaud G, Sosa-Olavarría A. Assessment of pericallosal arteries by color Doppler ultrasonography at 11-14 weeks: an early marker of fetal corpus callosum development in normal fetuses and agenesis in cases with chromosomal anomalies. *Fetal Diagn Ther.* 2013;34(2):85-89. doi: 10.1159/000351657.
65. Andronikou S, Pillay T, Gabuza L, et al. Corpus callosum thickness in children: an MRpattern-recognition approach on the midsagittal image. *Pediatr Radiol.* 2015;45(2):258-272. doi: 10.1007/s00247-014-2998-9.
66. Fandiño A, Herrera AJ, Feo OE, et al. Congenital meningocele associated with corpus callosum agenesis and midline superior labial cleft due to Tessier 0-14 facial fissure: A case report. *Int J Pediatr Otorhinolaryngol.* 2020;129:109764. doi: 10.1016/j.ijporl.2019.109764.
67. Harada A, Miyashita S, Nagai R, et al. Prenatal sonographic findings and prognosis of craniosynostosis diagnosed during the fetal and neonatal periods. *Congenit Anom (Kyoto).* 2019;59(4):132-141. doi: 10.1111/cga.12308.
68. Wang JC, Nagy L, Demke JC. Syndromic Craniosynostosis. *Facial Plast Surg Clin North Am*. 2016;24(4):531-543. doi: 10.1016/j.fsc.2016.06.008.
69. Ahluwalia R, Foster J, Sherburn MM, et al. Deformational brachycephaly: the clinical utility of the cranial index. *J Neurosurg Pediatr*. 2020:1-5. doi: 10.3171/2020.2.PEDS19767.
70. McCarty DB, Peat JR, Malcolm WF, Smith PB, et al. Dolichocephaly in Preterm Infants: Prevalence, Risk Factors, and Early Motor Outcomes. *Am J Perinatol*. 2017;34(4):372-378. doi: 10.1055/s-0036-1592128.
71. Martiniuk AL, Vujovich-Dunn C, Park M, et al. Plagiocephaly and Developmental Delay: A Systematic Review. J Dev Behav Pediatr. 2017;38(1):67-78. doi: 10.1097/DBP.0000000000000376.
72. Mircevsk V, Zogovska E, Chaparoski A, et al. Trigonocephaly - Our Experience and Treatment in the Republic of Macedonia. Pril (Makedon Akad Nauk Umet Odd Med Nauki). 2017;38(1):35-40. doi: 10.1515/

prilozi-2017-0004.
73. Hans P, Collin V, Bonhomme V, et al. Evaluation of acute normovolemic hemodilution for surgical repair of craniosynostosis. *J Neurosurg Anesthesiol*. 2000;12(1):33-36.
74. Rajan S, Paul J, Andrews S. Induction and intubation in a Kleeblattschadel syndromic child with posterior cranial distractors. *J Anaesthesiol Clin Pharmacol*. 2014;30(3):440-442. doi: 10.4103/0970-9185.137299.
75. Kitabata R, Sakamoto Y, Miwa T, et al. Delayed-Onset Familial Sagittal Suture Synostosis. *J Craniofac Surg*. 2020 Apr 10. doi: 10.1097/SCS.0000000000006441.
76. Rogers GF, Greene AK, Proctor MR, et al. Progressive Postnatal Pansynostosis. *Cleft Palate Craniofac J*. 2015;52(6):751-757. doi: 10.1597/14-092.
77. Rattani A, Riordan CP, Meara JG, et al. Comparative analysis of cranial vault remodeling versus endoscopic suturectomy in the treatment of unilateral lambdoid craniosynostosis. *J Neurosurg Pediatr*. 2020;17:1-8. doi: 10.3171/2020.2.PEDS19522.