Bölüm
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BOS RİNORE TANI VE TEDAVİSİ

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EPİDEMİYOLOJİ

Beyin omurilik sıvısının (BOS) subaraknoid alan ve sinonazal kavite arasındaki bozulan bariyerlerden geçerek nazal kaviteye gelmesi BOS rinore olarak adlandırılır. BOS rinore nadir görülmekle birlikte hastalarda ciddi mortalite ve morbiditeye neden olabilecek durumlara neden olabilir. BOS rinore anterior ve orta kranial fossa ve nazal kavite arasındaki bariyerlerin bozulmasına bağlı olarak görülür (1). Bu bariyerin bozulmasında kazalara bağlı travmalar,kafa tabanı cerrahisi,endoskopik sinüs cerrahisi, nöroşirürjik prosedürler veya idiopatik nedenler rol oynayabilir (2). Bununla birlikte kafa tabanı kemiklerinin osteomyeliti, hipofiz tümörleri konjenital beyin anomalileri (meningosel,meningoensefalosel) de BOS rinore nedenlerindendir (3,4,5). Serebrospinal sıvının intrakranial bölgeden nazal kavite içine sızması,asendan enfeksiyon riski ve buna bağlı fulminan menenjit gelişimine neden olabileceği için oldukça önem arzetmektedir (6). BOS rinore olan hastalarda menenjit gelişme riski her yıl %10 artmaktadır (7).

ETYOLOJİ

BOS rinorenin etyolojisini belirlemek tedavi yaklaşımını belirlemekte önemli rol oynar. BOS rinore travmatik, nontravmatik ve spontan olarak sınıflandırılır (8). Travmatik grup cerrahi (iatrojenik) ve cerrahi olmayan (penetran veya künt travmalar) olarak sınıflandırılır. Nontravmatik olan grup yüksek basınçlı ve normal basınçlı olarak sınıflandırılır (9). Yüksek basınçlı grupta tümörler, benign intrakranial hipertansiyon ve hidrosefali bulunur. Normal basınçlı grupta ise tümöre bağlı kemik erozyonu, tümör radyoterapisine bağlı erozyon, araknoid granülasyonu, enfeksiyonlar,

boş sella sendromu, konjenital kafa tabanı defektleri, konjenital anomaliler(meningosel,meningoensefolsel) bulunmaktadır (9,10,11).

BOS RİNORE ETYOLOJİSİ

Travmatik
Kazalar
Cerrahi travma(iatrojenik)
Non travmatik
Yüksek basınçlı
Tümörler
Benign intrakranial hipertansiyon
Hidrosefali
Normal Basınçlı
Konjenital anomaliler
Fokal Atrofi
Osteomyelit
Enfeksiyonlar
Araknoid granülasyon
Spontan

BOS rinore en sık travma sonrası görülmektedir (%90) ve hastaların %95 'inde travmadan sonraki ilk 3 ay içinde ortaya çıkmaktadır (1,3).

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Postoperatif tamponlama için emilebilir veya emilmeyen tamponlar kullanılabilir. Bu iki tampon çeşidinin birbirine kanıtlanmış herhangi bir üstünlüğü bulunmamaktadır.

Postoperatif dönemde hastalara yatak istirahati, kafa içi basıncı arttıracak manevralardan (valsalva, öksürme vb) kaçınmaları, pozisyon değiştirirken sürekli nefes alıp vermeleri ve 6 hafta boyunca ağır iş yapmamaları önerilir.

SONUÇ

BOS fistülü nadir görülmekle birlikte, mortalite ve morbiditiye neden olacak durumlara yol açabilmektedir. Bu hastalarda bakteriyel menenjit riski her yıl %10 artmaktadır. Bu sebeple doğru tanı koymak ve tedavi etmek oldukça büyük önem arzetmektedir. Son yollarda gelişen teknoloji ile endoskopik endonazal yakşalımla BOS fistülü ameliyatları minimal morbidite ve mortalite ile yapılabilmektedir.

AnahtarKelimeler: BOS rinore, BOS fistülü, BOS fistülü onarımı

İndeks: Beta-2 transferrin, BOS rinore, BOS-fistülü, Kribriform plate, Endoskopik sinüs cerrahisi, Beta trace protein, radyonüklid sisternografi, İntratekal florosein, Lumber drenaj, Anterior kranial fossa, HRCT, Kafa tabanı cerrahisi, Kafa tabanı defekti, İntrakranial basınç, Halka belirtisi, Glukoz testi, CT sisternografi, Greft materyalleri

KAYNAKÇA

1. 2018,https://emedicine.medscape.com/article/861126-overview
2. Oakley G, Alt J, Schlosser R.Diagnosis of cerebrospinal fluid rhinorrhea: an evidence-based review with recommendations.Int Forum Allergy Rhinol. 2016 Jan;6(1):8-16. doi: 10.1002/alr.21637.
3. Abuabara A. Cerebrospinal fluid rhinorrhoea: diagnosis and management. Med Oral Patol Oral Cir Bucal 2007;12:E397-400.
4. Muzumdar D, Nadkarni T, Goel A. Spontaneous cerebrospinal fluid rhinorrhea as a presenting symptom of aqueductal stenosis--case report. Neurol Med Chir 2003;43:626-9. DOI: 10.2176/nmc.43.626
5. Schlosser R, Bolger W. Nasal cerebrospinal fluid leaks: critical review and surgical considerations.Laryngoscope. 2004 Feb;114(2):255-65. DOI: 10.1097/00005537-200402000-00015
6. Calcaterra T, Moseley J, Rand R.Cerebrospinal rhinorrhea: extracranial surgical repair. West J Med 1977;127:279-83.
7. Jones N, Becker D. Advances in the management of CSF leaks. BMJ 2001;322:122-3.
8. Har-El G. What is "spontaneous" cerebrospinal fluid rhinorrhea? Classification of cerebrospinal fluid leaks. Ann Otol Rhinol Laryngol 1999;108:323–6
9. Kerr J, Chu F, Bayles S.Cerebrospinal Fluid Rhinorrhea: Diagnosis and Management. Otolaryngologic Clinics of North America, 38(4), 597–611. doi:10.1016/j.otc.2005.03.011
10. Ozveren M, Kaplan M, Topsakal C,et al.Spontaneous cerebrospinal fluid rhinorrhea associated with chronic renal failure--case report. Neurol Med Chir 2001;41:313-7. DOI: 10.2176/nmc.41.313
11. Landeiro J, Flores M, Lazaro B,et al. Surgical management of cerebrospinal fluid rhinorrhea under endoscopic control.Arq Neuropsiquiatr2004;62:82731.DOI:10.1590/s0004282x2004000500016
12. Schlosser R, Bolger W. Management of multiple spontaneous nasal meningoencephaloceles. Laryngoscope 2002;112: 980-985. DOI: 10.1097/00005537-200206000-00008
13. Dula D, Fales W. The "ring sign": is it a reliable indicator for cerebral spinal fluid? Ann Emerg Med. 1993;22:718–720
14. Reisinger P, Hochstrasser K. The diagnosis of CSF fistulae on the basis of detection of beta 2-transferrin by polyacrylamide gel electrophoresis and immunoblotting.Clin Chem Clin Biochem 1989;27:169-72.
15. Reisinger P, Lempart K, Hochstrasser K. New methods of diagnosing cerebrospinal fluid fistulas using beta 2-transferrin or prealbumin--principles and methodology.Laryngol Rhinol Otol 1987;66:255-9
16. Skedros D, Cass S, Hirsch B, et al. Sources of error in use of beta-2 transferrin analysis for diagnosing perilymphatic and cerebral spinal fluid leaks. Otolaryngol Head Neck Surg 1993;109:861–4.
17. Warnecke A, Averbeck T, Wurster U, et al.Diagnostic relevance of beta2-transferrin for the detection of cerebrospinal fluid fistulas. Arch Otolaryngol Head Neck Surg. 2004;130:1178–1184. DOI: 10.1001/archotol.130.10.1178
18. Nandapalan V, Watson I, Swift A. Beta-2- transferrin and cerebrospinal fluid rhinorrhoea.Clin Otolaryngol Allied Sci. 1996;21:259–264
19. McCudden C, Senior B, Hainsworth S,et al.Evaluation of high resolution gel beta(2)-transferrin for detection of cerebrospinal fluid leak. Clin Chem Lab Med. 2013;51:311–315. DOI: 10.1515/cclm-2012-0408
20. Meco C, Oberascher G, Arrer E,et al.Beta-trace protein test: new guidelines for the reliable diagnosis of cerebrospinal fluid fistula. Otolaryngol Head Neck Surg. 2003;129:508–517. DOI: 10.1016/S0194-59980301448-7
21. Arrer E, Meco C, Oberascher G, et al.Beta-Trace protein as a marker for cerebrospinal fluid rhinorrhea. Clin Chem. 2002;48(6 Pt 1):939–941.
22. Stone J, Castillo M, Neelon B, et al.Evaluation of CSF leaks: high resolution CT compared with contrastenhanced CT and radionuclide cisternography. Am J Neuroradiot 1999;20:706-712.
23. Eljammel MS, Pidgeon CN, Toland J, et al. MRI cisternography and localization of CSF fistulae. Br J Neurosurg 1994; 8:433-437.
24. Zapalac JS, Marple BF, Schwade ND. Skull base cerebrospinal fluid fistulas: a comprehensive diagnostic algorithm. Otolaryngol Head Neck Surg. 2002;126:669–676. DOI:

10.1067/mhn.2002.125755
25. Flynn B, Butler S, Quinn R,et al. Radionuclide cisternography in the diagnosis and management of cerebrospinal fluid leaks: the test of choice. Med J Aust. 1987;146:82–84.
26. Hegazy H, Carrau R, Snyderman C, et al.Transnasal endoscopic repair of cerebrospinal fluid rhinorrhea: a meta-analysis.Laryngoscope. 2000;110:1166–1172. DOI: 10.1097/00005537-200007000-00019
27. Hiremath S, Gautam A, Sasindran V., et al.Cerebrospinal fluid rhinorrhea and otorrhea: A multimodality imaging approach. Diagn Interv Imaging. 2019 Jan;100(1):3-15. doi: 10.1016/j.diii.2018.05.003
28. Alonso R, de la Pena˜ M, Caicoya A,et al..Spontaneous skull base meningoencephaloceles and cerebrospinal fluid fistulas. Radiographics.2013Mar-Apr;33(2):553-70. doi:10.1148/rg.332125028.
29. Prosser J, Vender J, Solares C. Traumatic cerebrospinal fluid leaks. Otolaryngol Clin North Am 2011;44:857—73. doi: 10.1016/j.otc.2011.06.007.
30. Shetty P, Shroff M, Sahani D,et al. Evaluation of high-resolution CT and MR cisternography in the diagnosis of cerebrospinal fluid fistula. AJNR Am J Neuroradiol. 1998;19:633–639
31. Sillers M, Morgan E, El Gammal T. Magnetic resonance cisternography and thin coronal computerized tomography in the evaluation of cerebrospinal fluid rhinorrhea. Am J Rhinol 1997 Sep-Oct;11(5):387-92.
32. Lloyd K, DelGaudio J, Hudgins P. Imaging of skull base cerebrospinal fluid leaks in adults. Radiology 2008;248:725—36. doi: 10.1148/radiol.2483070362.
33. Drayer B, Wilkins R, Boehnke M et al.Cerebrospinal fluid rhinorrhea demonstrated by metrizamide CT cisternography.AJR Am J Roentgenol 1977;129:149—51.
34. Shetty P, Shroff M, Sahani D et al.Evaluation of high-resolution CT and MR cisternography in the diagnosis of cerebrospinal fluid fistula. AJNR Am J Neuroradiol 1988;19:633—9.
35. Chow J, Goodman D, Mafee M. Evaluation of CSF rhinorrhea by computerized tomography with metrizamide. Otolaryngol Head Neck Surg 1989 Feb;100(2):99-105.
36. Goel G, Ravishankar S, Jayakumar P,et al. Intrathecal gadolinium-enhanced magnetic resonance cisternography in cerebrospinal fluid rhinorrhea: road ahead? J Neurotrauma 2007;24:1570—5. DOI: 10.1089/neu.2007.0326
37. Keerl R, Weber RK, Draf W,et al.Use of sodium fluorescein solution for detection of cerebrospinal fluid fistulas: an analysis of 420 administrations and reported complications in Europe and the United States. Laryngoscope. 2004;114:266–272. DOI: 10.1097/00005537-200402000-00016
38. Chan D,Poon W,Chiu P, et al.How useful is glucose detection in diagnosing cerebrospinal fluid leak? The rational use of CT and Beta-2 transferrin assay in detection of cerebrospinal fluid fistula. Asian J Surg 2004;27:39-42. DOI: 10.1016/S1015-9584(09)60242-6
39. Yilmazlar S, Arslan E, Aksoy K,et al. Cerebrospinal fluid leakage complicating skull base fractures: analysis of 81 cases. Neurosurg Rev 2006;29:64-71. DOI: 10.1007/s10143-005-0396-3
40. Brodie H, Thompson T. Management of complications from 820 temporal bone fractures. Am J Otol 1997;18:188-97.
41. Bernal-Sprekelsen M, Alobid I, Mullol J. Closure of cerebrospinal fluid leaks prevents ascending bacterial meningitis. Rhinology 2005;43:277-81.
42. Bernal-Sprekelsen M, Bleda-Vazquez C, Carrau R. Ascending meningitis secondary to traumatic cerebrospinal fluid leaks. Am J Rhinol 2000;14: 257–259.
43. Oh J, Kim S, Whang K. Traumatic cerebrospinal fluid leak: diagnosis and management. Korean J Neurotrauma 2017;13:63–67. doi: 10.13004/kjnt.2017.13.2.63.
44. Rathor M.Do prophylactic antibiotics prevent meningitis after basilar skull fracture? Pediatr Infect Dis J 1991;10:87–8.
45. Stankiewicz J.Cerebrospinal fluid fistula and endoscopic sinus surgery. Laryngoscope 1991;101:250–6.
46. Friedman J, Ebersold M, Quast L. Post traumatic cerebrospinal fluid leakage. World J Surg 2001;25:1062–6.
47. Briant T, Bird R. Extracranial repair of cerebrospinal fluid fistulae. J Otolaryngol 1982;11:191.
48. Cooper PR. Skull fracture and traumatic cerebrospinal fluid fistulas. 1993. Cooper PR, ed. Head Injury. 3rd ed. Baltimore, MD: Williams & Wilkins; 1993:115–136.
49. Bibas A, Skia B, Hickey S.Transnasal endoscopic repair of cerebrospinal fluid rhinorrhea. Br J Neurosurg 2000;14:49Y52 https://doi.org/10.1080/02688690042924
50. Cappabianca P, de Divitiis E. Endoscopy and transsphenoidal surgery. Neurosurgery 2004 May;54(5):1043-48 DOI: 10.1227/01.neu.0000119325.14116.9c
51. Costa H, Cerejo A, Baptista A, et al. The galea frontalis myofascial flap in anterior fossa CSF leaks. Br J Plast Surg 1993;46:503Y507
52. Giovannetti F, Ruggeri A, Buonaccorsi S.et al. Endoscopic endonasal approaches for cerebrospinal fluid leaks repair. The Journal of Craniofacial Surgery [01 Mar 2013, 24(2):548-553]. DOI: 10.1097/SCS.0b013e318268cf15
53. Luund VJ. Endoscopic management of cerebrospinal fluid leaks. Am J Rhinol 2002;16:17–23.
54. Anand V, Murali R, Glasgold M. Surgical decisions in the management of cerebrospinal fluid rhinorrhoea. Rhinology 1995;33:212-8.
55. Jones M, Reino T, Gnoy A.et al.Identification of intranasal cerebrospinal fluid leaks by topical application with fluorescein dye. Am J Rhinol 2000;14:93-6
56. Tosun F, Gonul E, Yetiser S,et al.Analysis of different surgical approaches for the treatment of cerebrospinal fluid rhinorrhea. Minim Invasive Neurosurg 2005;48:355-60. DOI: 10.1055/s-2005-915636
57. Bolger W, Osenbach R. Endoscopic transpterygoid approach to the lateral sphenoid recess. Ear Nose Throat J 1999;78: 36-46
58. Ommaya A, Di Chiro G, Baldwin M,et al.Nontraumatic cerebrospinal fluid rhinorrhea. J Neurol Neurosurg Psychiatry 1968;31:214-225
59. Lorenz R, Dean L, Hurley D, et al. Endoscopic reconstruction of anterior and middle cranial fossa defects using acellular dermal allograft. Laryngoscope 2003;113:496–501. DOI: 10.1097/00005537-200303000-00019
60. Verheggen R, Schulte W, Hahm G, et al. A new technique for dural closure–experience with a Vicryl mesh. Acta Neurochir (Wien) 1997;139:1074–9.
61. Nishihira S, McCaffrey T. The use of fibrin glue for the repair of experimental CSF rhinorrhea. Laryngoscope 1988;98:625-627.