

KOLOREKTAL ANASTOMOZ KAÇAKLARINDA ENDOVAK UYGULAMASI

24. BÖLÜM

Orhan ORHAN¹

ÖZET

Cerrahinin önceliği anastomoz kaçaklarını oluşmadan önlemek üzerine kurulu olsa da, alınan tedbirlerin yeterli olmadığı durumlarda oluşan kaçakların kontrolünde en uygun yöntem seçilmelidir.

Negatif basınçlı yara tedavisi (NBYT) yönteminin mekanik etkilerinin yanı sıra doku, hücresel ve moleküler düzeylerdeki etki mekanizmalarıyla yara iyileşmesini kolaylaştırdığı gösterilmiştir.

Kolorektal cerrahide oluşan anastomoz kaçaklarının girişim gerektiren durumlarında fistülü kontrol altına almak ve oluşan septik materyali drene etmek aynı zamanda bağırsak bütünlüğünün korumak amacıyla tariflenen endolüminal vakum tedavisi yeni endoskopik drenaj yöntemlerindendir.

Anastomoz kaçakları, kolorektal cerrahinin sık görülen, postoperatif mortaliteyi, kanser nüksünü, kalıcı stoma riskini, hastane kalış süresini arttıran komplikasyonlarından biridir. Cerrahi tekniklerdeki ilerlemelere rağmen, deneyimli ellerde bile anastomoz kaçağı insidansı yüksek olabilmektedir⁽¹⁻³⁾.

Kolorektal cerrahide oluşan anastomoz kaçaklarında hastanın sistemik ve lokal cevabına, anastomoz kaçağının seviyesine ve kontrollü olup olmamasına göre takip edilecek yol ve tedavi yöntemi belirlenmelidir. Girişim gerektiren du-

¹ Uzm. Dr. Orhan ORHAN, Sağlık Bilimleri Üniversitesi Bağcılar Eğitim Araştırma Hastanesi Genel Cerrahi Bölümü dr.orhanorhan@gmail.com

Kapanışa kadar her 3-5 günde bir süngerin tekrar tekrar değiştirilmesi ihtiyacı hastayı rahatsız eder ve bu yöntemin dezavantajıdır.

Sonuç olarak EVT, kolorektal anastomoz kaçaklarında umut verici, minimal invaziv bir tedavidir. Ortalama yüzde 85'lik bir başarı oranıyla, ek cerrahi ihtiyacı önemli ölçüde azalabilir ⁽⁴⁰⁾.

KAYNAKLAR

1. Chopra SS, Mrak K, Hünerbein M. The effect of endoscopic treatment on healing of anastomotic leaks after anterior resection of rectal cancer. *Surgery*. 2009;145(2):182-188.
2. Cong ZJ, Hu LH, Bian ZQ, et al. Systematic review of anastomotic leakage rate according to an international grading system following anterior resection for rectal cancer. *PLoS One*. 2013;8(9): e75519.
3. Blumetti J, Abcarian H. Management of low colorectal anastomotic leak: preserving the anastomosis. *World J Gastrointest Surg*. 2015;7(12):378-383
4. Chenyu Huang M.D., Ph.D., Tripp Leavitt B.A., B. S., Lauren R. Bayer P.A.-C., Dennis P. Orgill M.D.; Ph.D Impact of negative pressure wound therapy on wound healing; *Current Problems in Surgery*;, <http://dx.doi.org/10.1067/j.cpsurg.2014.04.001>
5. Sinha K, Chauhan VD, Maheshwari R, Chauhan N, Rajan M, Agrawal A. Vacuum assisted closure therapy versus standard wound therapy for open musculoskeletal injuries. *Adv Orthop*. 2013. <http://dx.doi.org/10.1155/2013/245940>
6. Argenta LC, Morykwas MJ. Vacuum-assisted closure: a new method for wound control and treatment: clinical experience. *Annals of plastic surgery*. Jun 1997;38(6):563-576; discussion 577
7. Morykwas MJ, Argenta LC, Shelton-Brown EI, McGuirt W. Vacuum-assisted closure: a new method for wound control and treatment: animal studies and basic foundation. *Annals of plastic surgery*. Jun 1997;38(6):553-56
8. Kairinos N, Solomons M, Hudson DA. Negative Pressure Wound Therapy I: The paradox of negativ-pressure wound therapy. *Plastic and reconstructive surgery*. 2008;123:589-598.
9. Orgill DP, Bayer L, Neuwalder J, Felter R. Microdeformational Wound Therapy - A New Era in Wound Healing. *Business Briefing: Global Surgery - Future Directions*. 2005:1-3
10. Saxena V, Orgill D, Kohane I. A set of genes previously implicated in the hypoxia response might be an important modulator in the rat ear tissue response to mechanical stretch. *BMC Genomics*. 2007;8:430.
11. Orgill DP, Manders EK, Sumpio BE, et al. The mechanisms of action of vacuum assisted closure: more to learn. *Surgery*. Jul 2009;146(1):40-51.
12. Borgquist O, Ingemansson R, Malmjö M. The influence of low and high pressure levels during negative-pressure wound therapy on wound contraction and fluid evacuation. *Plastic and reconstructive surgery*. Feb;127(2):551-559.
13. Anesäter E, Borgquist O, Hedström E, Waga J, Ingemansson R, Malmjö M. The influence of different sizes and types of wound fillers on wound contraction and tissue pressure during negative pressure wound therapy. *International wound journal*. Aug 2011;8(4):336-342.

14. Kairinos N, Hudson DA, Solomons M. The influence of different sizes and types of wound fillers on wound contraction and tissue pressure during negative pressure wound therapy. *International wound journal*. Dec 2011;8(6):656-657
15. Ingber DE, Levin M. What lies at the interface of regenerative medicine and developmental biology? *Development*. Jul 2007;134(14):2541-2547.
16. McLeod KJ, Lee RC, Ehrlich HP. Frequency dependence of electric field modulation of fibroblast protein synthesis. *Science*. Jun 12 1987;236(4807):1465-1469.
17. Saxena V, Hwang CW, Huang S, Eichbaum Q, Ingber D, Orgill DP. Vacuum-assisted closure: microdeformations of wounds and cell proliferation. *Plastic and reconstructive surgery*. Oct 2004;114(5):1086-1096; discussion 1097-1088.
18. Adamkova M, Tymonova J, Zamecnikova I, Kadlick M, Klosova H. First experience with the use of vacuum assisted closure in the treatment of skin defects at the burn center. *Acta chirurgiae plasticae*. 2005;47(1):24-27.
19. Lancerotto L, Bayer LR, Orgill DP. Mechanisms of action of microdeformational wound therapy. *Seminars in cell & developmental biology*. Dec 2012;23(9):987-992
20. Labanaris AP, Polykandriotis E, Horch RE. The effect of vacuum-assisted closure on lymph vessels in chronic wounds. *Journal of plastic, reconstructive & aesthetic surgery : JPRAS*. Aug 2009;62(8):1068-1075
21. Winter GD, Scales JT. Effect of air drying and dressings on the surface of a wound. *Nature*. Jan 5 1963;197:91-92.
22. Winter GD. Formation of the scab and the rate of epithelization of superficial wounds in the skin of the young domestic pig. *Nature*. Jan 20 1962;193:293-294.
23. Hinman CD, Maibach H. Effect of Air Exposure and Occlusion on Experimental Human Skin Wounds. *Nature*. Oct 26 1963;200:377-378.
24. Nuutila K, Siltanen A, Peura M, et al. Gene expression profiling of negative-pressure-treated skin graft donor site wounds. *Burns : journal of the International Society for Burn Injuries*. Jun 2013;39(4):687-693.
25. Ingber DE. The mechanochemical basis of cell and tissue regulation. *Mechanics & chemistry of biosystems : MCB*. Mar 2004;1(1):53-68.
26. Alford PW, Nesmith AP, Seywerd JN, Grosberg A, Parker KK. Vascular smooth muscle contractility depends on cell shape. *Integrative biology : quantitative biosciences from nano to macro*. Nov 2011;3(11):1063-1070.
27. Chen CS, Mrksich M, Huang S, Whitesides GM, Ingber DE. Geometric control of cell life and death. *Science*. May 30 1997;276(5317):1425-1428.
28. Ingber DE. Mechanical control of tissue growth: function follows form. *Proceedings of the National Academy of Sciences of the United States of America*. Aug 16 2005;102(33):11571-11572.
29. Baldwin C, Potter M, Clayton E, Irvine L, Dye J. Topical negative pressure stimulates endothelial migration and proliferation: a suggested mechanism for improved integration of Integra. *Annals of plastic surgery*. Jan 2009;62(1):92-96.
30. Potter MJ, Banwell P, Baldwin C, et al. In vitro optimisation of topical negative pressure regimens for angiogenesis into synthetic dermal replacements. *Burns : journal of the International Society for Burn Injuries*. Mar 2008;34(2):164-174.
31. McNulty AK, Schmidt M, Feeley T, Kieswetter K. Effects of negative pressure wound therapy on fibroblast viability, chemotactic signaling, and proliferation in a provisional wound (fibrin) matrix. *Wound Repair Regen*. Nov-Dec 2007;15(6):838-846.
32. Lu F, Ogawa R, Nguyen DT, et al. Microdeformation of three-dimensional cultured fibroblasts induces gene expression and morphological changes. *Annals of plastic*

- surgery. Mar 2011;66(3):296-300.
33. Kairinos N, Solomons M, Hudson DA. The paradox of negative pressure wound therapy--in vitro studies. *Journal of plastic, reconstructive & aesthetic surgery : JPRAS*. Jan 2010;63(1):174-179
 34. Erba P, Ogawa R, Ackermann M, et al. Angiogenesis in wounds treated by microdeformational wound therapy. *Annals of surgery*. Feb;253(2):402-409.
 35. Wackenfors A, Sjogren J, Gustafsson R, Algotsson L, Ingemansson R, Malmstro M. Effects of vacuum-assisted closure therapy on inguinal wound edge microvascular blood flow. *Wound Repair Regen*. Nov-Dec 2004;12(6):600-606.
 36. Younan GJ, Heit YI, Dastouri P, et al. Mast cells are required in the proliferation and remodeling phases of microdeformational wound therapy. *Plastic and reconstructive surgery*. Dec;128(6):649e-658e.
 37. Ingber DE. Tensegrity-based mechanosensing from macro to micro. *Progress in biophysics and molecular biology*. Jun-Jul 2008;97(2-3):163-179.
 38. Ingber DE. Mechanobiology and diseases of mechanotransduction. *Annals of medicine*. 2003;35(8):564-577.
 39. Huang C, Ogawa R. Fibroproliferative disorders and their mechanobiology. *Connective tissue research*. 2012;53(3):187-196.
 40. M. Shalaby, S. Emile, H. Elfeki, A. Sakr1, S. D. Wexner, P. Sileri ; Systematic review of endoluminal vacuum-assisted therapy as salvage treatment for rectal anastomotic leakage November 2018 BSJ Open DOI: 10.1002/bjs5.50124
 41. Alessandro Mussettoa, Rosario Arenaa, Andrea Buzzia, Lorenzo Fucciob, Silvia Daria, Mario Luciano Brancaccioa, Omero Triossia ; Long-term efficacy of vacuum-assisted therapy (Endo-SPONGE®) in large anastomotic leakages following anterior rectal resection ; *Annals of Gastroenterology* (2017) 30, 649-653 ; DOI: <https://doi.org/10.20524/aog.2017.0194>
 42. Riss S, Stift A, Meier M, et al. Endo-sponge assisted treatment of anastomotic leakage following colorectal surgery. *Colorectal Disease* 2010;12: e104–8.
 43. Weidenhagen R, Gruetzner KU, Wiecken T, Spelsberg F, Jauch KW. Endoscopic vacuum-assisted closure of anastomotic leakage following anterior resection of the rectum: a new method. *Surg Endosc* 2008; 22: 1818–1825.
 44. van Koperen PJ, van Berge Henegouwen MI, Rosman C, Bakker CM, Heres P, Slors JF et al. The Dutch multicenter experience of the endo-sponge treatment for anastomotic leakage after colorectal surgery. *Surg Endosc* 2009; 23: 1379–1383
 45. McDermott FD, Heeney A, Kelly ME, Steele RJ, Carlson GL, Winter DC. Systematic review of preoperative, intraoperative and postoperative risk factors for colorectal anastomotic leaks. *Br J Surg* 2015; 102: 462–479.
 46. Mees ST, Palmes D, Mennigen R, Senninger N, Haier J, Bruewer M. Endo-vacuum assisted closure treatment for rectal anastomotic insufficiency. *Dis Colon Rectum* 2008; 51: 404–410
 47. ChopraSS,MrakK,HünerbeinM.Theeffectofendoscopic treatment on healing of anastomotic leaks after anterior resection of rectal cancer. *Surgery* 2009; 145: 182–188.
 48. Riss S, Stift A, Kienbacher C, Dauser B, Haunold I, Kriwanek S et al. Recurrent abscess after primary successful endo-sponge treatment of anastomotic leakage following rectal surgery. *World J Gastroenterol* 2010; 16: 4570–4574.
 49. Ji WB, Kwak JM, Kim J, Um JW, Kim SH. Risk factors causing structural sequelae after anastomotic leakage in mid to low rectal cancer. *World J Gastroenterol* 2015; 21:

5910–5917.

50. Chorti A, Stavrou G, Stelmach V, et al. Endoscopic repair of anastomotic leakage after low anterior resection for rectal cancer: A systematic review. *Asian J Endosc Surg*. 2019;1 <https://doi.org/10.1111/ases.12733>
51. Gardenbroek TJ, Musters GD, Buskens CJ, Ponsioen CY, D’Haens GR, Dijkgraaf MG et al. Early reconstruction of the leaking ileal pouch–anal anastomosis: a novel solution to an old problem. *Colorectal Dis* 2015; 17: 426–432
52. Verlaan T, Bartels SA, van Berge Henegouwen MI, Tanis PJ, Fockens P, Bemelman WA. Early, minimally invasive closure anastomotic leaks: a new concept. *Colorectal Dis* 2011; 13(Suppl 7): 18–22
53. Nagell CF, Holte K. Treatment of anastomotic leakage after rectal resection with transrectal vacuum-assisted drainage (VAC). A method for rapid control of pelvic sepsis and healing. *Int J Colorectal Dis* 2006; 21: 657–660.