Bölüm 9

MİNİMAL İNVAZİV KOLOREKTAL CERRAHİDE DOĞAL DELİK SPESMEN ÇIKARIMI

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1. GİRİŞ

Son yıllarda yaşanan teknolojik gelişmelerin sağladığı faydayla uygulanan ileri cerrahi teknikler ve cerrahların deneyimin artmasıyla elde edilen iyi sonuçlar nedeniyle kolorektal cerrahi (KRC) geleneksel açık tekniklerden minimal invaziv cerrahi (MİC) tekniklere doğru önemli bir evrim geçirmiştir. MİC teknikler, geleneksel açık cerrahi teknikler karşısında intraoperatif kanama miktarının daha az olması, daha az travma, hastanede kalış süresinin kısa olması, postoperatif ağrı ve komplikasyonların daha az olması ve onkolojik sonuçların benzer olması gibi çok önemli avantajlar sunmuştur (1–3).

2. TARİHSEL SÜREÇ

Tıbbi teknolojinin sürekli gelişen yapısı ve doktorlar arasında kullanımının artması sonucunda birçok kavram ve teknik geliştirilmiştir. Bunlardan bir tanesi olan minimal invaziv teknikler artık cerrahi dünyasında ana kavramlardan biri olarak kabul görmüştür. Ameliyattan sonraki süreçte hastaların psikolojik olarak iyilik halinin sürdürülmesine ve hızlı bir şekilde topluma dönüş yapmasına olumlu katkıları olmaktadır.

Klinik uygulamada bu teknikler minimal travmatik girişimlerle en iyi cerrahi sonuçları sağlamayı amaçlar. En iyi bilinen ve en çok kullanılanı laparoskopik girişimlerdir. KRC'de Jacobs ve arkadaşları (4) ilk laparoskopik rezeksiyonları bildirdiğinden beri MİC teknikler cerrahlar tarafından giderek artan oranda kullanılmaya devam etmiştir. Sağladığı faydalar nedeniyle artık birçok merkezde altın standart cerrahi yaklaşım olarak kabul görmüştür.

Başlangıçta sadece benign hastalıklarda spesmen çıkarımı için kullanılan transanal ve transvajinal yaklaşımlar zamanla kolorektal kanser cerrahisinde de

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KAYNAKÇA

1. Yang ZF, Wu DQ, Wang JJ, Lv ZJ, Li Y. Short- and long-term outcomes following laparoscopic vs open surgery for pathological T4 colorectal cancer: 10 years of experience in a single center. World J Gastroenterol. 2018 Jan 7;24(1):76–86.
2. Gehrman J, Angenete E, Björholt I, Lesén E, Haglind E. Cost-effectiveness analysis of laparoscopic and open surgery in routine Swedish care for colorectal cancer. Surg Endosc. 2020 Oct;34(10):4403–12.
3. Green BL, Marshall HC, Collinson F, Quirke P, Guillou P, Jayne DG, et al. Long-term follow-up of the Medical Research Council CLASICC trial of conventional versus laparoscopically assisted resection in colorectal cancer. Br J Surg. 2013 Jan;100(1):75–82.
4. Jacobs M, Verdeja JC, Goldstein HS. Minimally invasive colon resection (laparoscopic colectomy). Surg Laparosc Endosc. 1991 Sep;1(3):144–50.
5. Stewart EA, Liau AS, Friedman AJ. Operative laparoscopy followed by colpotomy for resecting a colonic leiomyosarcoma. A case report. J Reprod Med. 1991 Dec;36(12):883–4.
6. Nezhat F. Laparoscopic segmental resection for infiltrating endometriosis of rectosigmoid colon: a preliminary report. Surg Laparosc Endosc Percutan Tech. 2001 Feb;11(1):67–8.
7. Franklin ME, Ramos R, Rosenthal D, Schuessler W. Laparoscopic colonic procedures. World J Surg. 1993;17(1):51–6.
8. Palanivelu C, Rangarajan M, Jategaonkar PA, Anand NV. An innovative technique for colorectal specimen retrieval: a new era of "natural orifice specimen extraction" (N.O.S.E). Dis Colon Rectum. 2008 Jul;51(7):1120–4.
9. Efetov S, Popova E, Zubayraeva A, Tsarkov P. Natural orifice specimen extraction surgery in left-sided colon and upper rectal cancer: a narrative review. Ann Laparosc Endosc Surg [Internet]. 2022 Oct 30 [cited 2023 Jun 26];7(0).
10. Guan X, Liu Z, Longo A, Cai JC, Tzu-Liang Chen W, Chen LC, et al. International consensus on natural orifice specimen extraction surgery (NOSES) for colorectal cancer. Gastroenterol Rep. 2019 Feb;7(1):24–31.
11. Wang X, editor. Natural Orifice Specimen Extraction Surgery: Gastrointestinal Tumor [Internet]. Singapore: Springer Nature; 2021 [cited 2023 Jun 26].
12. Chida K, Watanabe J, Suwa Y, Suwa H, Momiyama M, Ishibe A, et al. Risk factors for incisional surgical site infection after elective laparoscopic colorectal surgery. Ann Gastroenterol Surg. 2019 Mar;3(2):202–8.
13. Ihnát P, Tulinský L, Jonszta T, Koscielnik P, Ihnát Rudinská L, Penka I. Parastomal and incisional hernia following laparoscopic/open abdominoperineal resection: is there a real difference? Surg Endosc. 2019 Jun;33(6):1789–94.
14. Liu H, Guan X, Liu Z, Wang X. Classification of natural orifice specimen extraction surgery (NOSES) for colorectal procedures: a review. Ann Laparosc Endosc Surg [Internet]. 2022 Oct 30 [cited 2023 Jun 19];7(0).
15. Karagul S, Tardu A. Who is suitable for natural orifice specimen extraction (NOSE) following laparoscopic colorectal surgery: a narrative review. Ann Laparosc Endosc Surg [Internet]. 2022 Jul 30 [cited 2023 Jun 19];7(0).

16. Yagci MA, Kayaalp C, Novruzov NH. Intracorporeal mesenteric division of the colon can make the specimen more suitable for natural orifice extraction. J Laparoendosc Adv Surg Tech A. 2014 Jul;24(7):484–6.
17. Wang S, Tang J, Sun W, Yao H, Li Z. The natural orifice specimen extraction surgery compared with conventional laparoscopy for colorectal cancer: A meta-analysis of efficacy and long-term oncological outcomes. Int J Surg Lond Engl. 2022 Jan;97:106196.
18. Franklin ME, Liang S, Russek K. Natural orifice specimen extraction in laparoscopic colorectal surgery: transanal and transvaginal approaches. Tech Coloproctology. 2013 Feb;17 Suppl 1:S63-67.
19. Karagul S, Kayaalp C, Sumer F, Ertugrul I, Kirmizi S, Tardu A, et al. Success rate of natural orifice specimen extraction after laparoscopic colorectal resections. Tech Coloproctology. 2017 Apr;21(4):295–300.
20. Huang B, Liu MC, Gao W, Tang J, Zhu Z, Chen L, et al. Nomogram for predicting the feasibility of natural orifice specimen extraction after laparoscopic rectal resection. J Gastroenterol Hepatol. 2021 Jul;36(7):1803–11.
21. Gundogan E, Kayaalp C, Gokler C, Gunes O, Bag M, Sumer F. Natural orifice specimen extraction versus transabdominal extraction in laparoscopic right hemicolectomy. Cir Cir. 2021;89(3):326–33.
22. Hirpara DH, O'Rourke C, Azin A, Quereshy FA, Wexner SD, Chadi SA. Impact of BMI on Adverse Events After Laparoscopic and Open Surgery for Rectal Cancer. J Gastrointest Cancer. 2022 Jun;53(2):370–9.
23. Ye XZ, Chen XY, Ruan XJ, Chen WZ, Ma LL, Dong QT, et al. Laparoscopic-assisted colorectal surgery benefits visceral obesity patients: a propensity-matched analysis. Eur J Gastroenterol Hepatol. 2019 Jul;31(7):786–91.
24. Awad ZT, Qureshi I, Seibel B, Sharma S, Dobbertien MA. Laparoscopic right hemicolectomy with transvaginal colon extraction using a laparoscopic posterior colpotomy: a 2-year series from a single institution. Surg Laparosc Endosc Percutan Tech. 2011 Dec;21(6):403–8.
25. Kayaalp C, Yagci MA. Laparoscopic Right Colon Resection With Transvaginal Extraction: A Systematic Review of 90 Cases. Surg Laparosc Endosc Percutan Tech. 2015 Oct;25(5):384–91.
26. Wolthuis AM, de Buck van Overstraeten A, Fieuws S, Boon K, D'Hoore A. Standardized laparoscopic NOSE-colectomy is feasible with low morbidity. Surg Endosc. 2015 May;29(5):1167–73.
27. Bag YM, Ozdemir E. Benign and malignant colorectal pathologies for natural orifice specimen extraction surgery. Ann Laparosc Endosc Surg [Internet]. 2022 Jul 30 [cited 2023 Jun 26];7(0).
28. Zhou Z, Chen L, Liu J, Ji F, Shang Y, Yang X, et al. Laparoscopic Natural Orifice Specimen Extraction Surgery versus Conventional Surgery in Colorectal Cancer: A Meta-Analysis of Randomized Controlled Trials. Gastroenterol Res Pract. 2022;2022:6661651.
29. Chin YH, Decruz GM, Ng CH, Tan HQM, Lim F, Foo FJ, et al. Colorectal resection via natural orifice specimen extraction versus conventional laparoscopic extraction: a meta-analysis with meta-regression. Tech Coloproctology. 2021 Jan;25(1):35–48.
30. Aydin MC, Bag YM, Gunes O, Sumer F, Kayaalp C. Comparison of Natural Orifice Versus Transabdominal Specimen Extraction Following Laparoscopic Minor Hepatectomy. Indian J Surg. 2022 Apr 1;84(2):288–93.

31. Gundogan E, Kayaalp C, Sansal M, Saglam K, Sumer F. Transanal specimen extraction following combined laparoscopic colectomy and liver resection. Cir Cir. 2020;88(Suppl 1):120–3.
32. Sumer F, Karakas S, Gundogan E, Sahin T, Kayaalp C. Totally laparoscopic resection and extraction of specimens via transanal route in synchronous colon and gastric cancer. Il G Chir. 2018;39(2):82–6.
33. Meng H, Xu H, Wang X, Chen L, Yang F, Geng R, et al. Total laparoscopic en bloc right hemicolectomy and pancreaticoduodenectomy with transvaginal specimen extraction for locally advanced right colon cancer: a case report. Gland Surg. 2021 May;10(5):1780–5.
34. Wang YLM, Huang R, Wu HY, Hu HQ, Jin YH, Tang QC, et al. Totally laparoscopic resection and natural orifice specimen extraction surgery (NOSES) in synchronous rectal and gastric cancer. Gastroenterol Rep. 2020 Feb;8(1):79–81.
35. Wang D, Fan K, Yan Y, Fu W. Totally laparoscopic subtotal gastrectomy and radical anterior resection for synchronous gastric and rectal cancer with natural orifice specimen extraction (NOSE) - a video vignette. Colorectal Dis Off J Assoc Coloproctology G B Irel. 2020 Dec;22(12):2361.
36. Lock JF, Galata C, Reißfelder C, Ritz JP, Schiedeck T, Germer CT. The Indications for and Timing of Surgery for Diverticular Disease. Dtsch Arzteblatt Int. 2020 Aug 31;117(35–36):591–6.
37. Izquierdo KM, Unal E, Marks JH. Natural orifice specimen extraction in colorectal surgery: patient selection and perspectives. Clin Exp Gastroenterol. 2018;11:265–79.
38. Costantino FA, Diana M, Wall J, Leroy J, Mutter D, Marescaux J. Prospective evaluation of peritoneal fluid contamination following transabdominal vs. transanal specimen extraction in laparoscopic left-sided colorectal resections. Surg Endosc. 2012 Jun;26(6):1495–500.
39. Leroy J, Costantino F, Cahill RA, D'Agostino J, Morales A, Mutter D, et al. Laparoscopic resection with transanal specimen extraction for sigmoid diverticulitis. Br J Surg. 2011 Sep;98(9):1327–34.
40. Chung CC, Kwok SP, Leung KL, Kwong KH, Lau WY, Li AK. Laparoscopy-assisted sigmoid colectomy for volvulus. Surg Laparosc Endosc. 1997 Oct;7(5):423–5.
41. Sundin JA, Wasson D, McMillen MM, Ballantyne GH. Laparoscopic-assisted sigmoid colectomy for sigmoid volvulus. Surg Laparosc Endosc. 1992 Dec;2(4):353–8.
42. Uylas U, Gunes O, Kaplan K. A review of sigmoid volvulus and natural orifice specimen extraction surgery. Ann Laparosc Endosc Surg [Internet]. 2022 Jul 30 [cited 2023 Jun 23];7(0).
43. Gundogan E, Gokler C, Sansal M. Laparoscopic total colectomy with natural orifice specimen extraction current status until 2022: a scoping review. Ann Laparosc Endosc Surg [Internet]. 2022 Jul 30 [cited 2023 Jun 23];7(0).
44. Aydin MC, Saglam K. Combined resections with colorectal surgeries and their combined natural orifice specimen extractions (NOSE): a clinical practice review. Ann Laparosc Endosc Surg [Internet]. 2023 Jan 30 [cited 2023 Jun 23];8(0).
45. Lin J, Lin S, Chen Z, Zheng B, Lin Y, Zheng Y, et al. Meta-analysis of natural orifice specimen extraction versus conventional laparoscopy for colorectal cancer. Langenbecks Arch Surg. 2021 Mar;406(2):283–99.

46. Awad ZT, Griffin R. Laparoscopic right hemicolectomy: a comparison of natural orifice versus transabdominal specimen extraction. Surg Endosc. 2014 Oct 1;28(10):2871–6.
47. Park JS, Choi GS, Kim HJ, Park SY, Jun SH. Natural orifice specimen extraction versus conventional laparoscopically assisted right hemicolectomy. Br J Surg. 2011 May 1;98(5):710–5.
48. Wolthuis AM, Meuleman C, Tomassetti C, D'Hooghe T, Fieuws S, Penninckx F, et al. Laparoscopic sigmoid resection with transrectal specimen extraction: a novel technique for the treatment of bowel endometriosis. Hum Reprod Oxf Engl. 2011 Jun;26(6):1348–55.
49. Hisada M, Katsumata K, Ishizaki T, Enomoto M, Matsudo T, Kasuya K, et al. Complete laparoscopic resection of the rectum using natural orifice specimen extraction. World J Gastroenterol. 2014 Nov 28;20(44):16707–13.
50. Tang Q, Zhu Y, Xiong H, Sheng X, Hu Z, Hu H, et al. Natural Orifice Specimen Extraction Surgery versus Conventional Laparoscopic-Assisted Resection in the Treatment of Colorectal Cancer: A Propensity-Score Matching Study. Cancer Manag Res. 2021;13:2247–57.
51. He J, Hu JF, Shao SX, Yao HB, Zhang XF, Yang GG, et al. The Comparison of Laparoscopic Colorectal Resection with Natural Orifice Specimen Extraction versus Mini-Laparotomy Specimen Extraction for Colorectal Tumours: A Systematic Review and Meta-Analysis of Short-Term Outcomes. J Oncol. 2020;2020:6204264.
52. Liu Z, Efetov S, Guan X, Zhou H, Tulina I, Wang G, et al. A Multicenter Study Evaluating Natural Orifice Specimen Extraction Surgery for Rectal Cancer. J Surg Res. 2019 Nov;243:236–41.
53. Wolthuis AM, Fieuws S, Van Den Bosch A, de Buck van Overstraeten A, D'Hoore A. Randomized clinical trial of laparoscopic colectomy with or without natural-orifice specimen extraction. Br J Surg. 2015 May;102(6):630–7.
54. Zhu Z, Wang KJ, Orangio GR, Han JY, Lu B, Zhou ZQ, et al. Clinical efficacy and quality of life after transrectal natural orifice specimen extraction for the treatment of middle and upper rectal cancer. J Gastrointest Oncol. 2020 Apr;11(2):260–8.
55. Zhu Y, Xiong H, Chen Y, Liu Z, Jiang Z, Huang R, et al. Comparison of natural orifice specimen extraction surgery and conventional laparoscopic-assisted resection in the treatment effects of low rectal cancer. Sci Rep. 2021 Apr 29;11(1):9338.
56. He J, Yao HB, Wang CJ, Yang QY, Qiu JM, Chen JM, et al. Meta-analysis of laparoscopic anterior resection with natural orifice specimen extraction (NOSE-LAR) versus abdominal incision specimen extraction (AISE-LAR) for sigmoid or rectal tumors. World J Surg Oncol. 2020 Aug 19;18(1):215.
57. Zhou S, Wang X, Zhao C, Zhou H, Pei W, Liang J, et al. Can transanal natural orifice specimen extraction after laparoscopic anterior resection for colorectal cancer reduce the inflammatory response? J Gastroenterol Hepatol. 2020 Jun;35(6):1016–22.
58. Ouyang Q, Peng J, Xu S, Chen J, Wang W. Comparison of NOSES and Conventional Laparoscopic Surgery in Colorectal Cancer: Bacteriological and Oncological Concerns. Front Oncol. 2020;10:946.
59. Zhou S, Wang X, Zhao C, Pei W, Zhou H, Liu Q, et al. Comparison of short-term and survival outcomes for transanal natural orifice specimen extraction with conventional mini-laparotomy after laparoscopic anterior resection for colorectal cancer. Cancer Manag Res. 2019;11:5939–48.

60. Chang SC, Lee TH, Chen YC, Chen MT, Chen HC, Ke TW, et al. Natural orifice versus conventional mini-laparotomy for specimen extraction after reduced-port laparoscopic surgery for colorectal cancer: propensity score-matched comparative study. Surg Endosc. 2022 Jan;36(1):155–66.
61. Frasson M, Granero-Castro P, Ramos Rodríguez JL, Flor-Lorente B, Braithwaite M, Martí Martínez E, et al. Risk factors for anastomotic leak and postoperative morbidity and mortality after elective right colectomy for cancer: results from a prospective, multicentric study of 1102 patients. Int J Colorectal Dis. 2016 Jan;31(1):105–14.
62. Han FH, Hua LX, Zhao Z, Wu JH, Zhan WH. Transanal natural orifice specimen extraction for laparoscopic anterior resection in rectal cancer. World J Gastroenterol. 2013 Nov 21;19(43):7751–7.
63. Gündoğan E, Cicek E, Sumer F, Kayaalp C. A case of vaginal recurrence following laparoscopic left-sided colon cancer resection combined with transvaginal specimen extraction. J Minimal Access Surg. 2019;15(4):345–7.
64. Park JS, Kang H, Park SY, Kim HJ, Lee IT, Choi GS. Long-term outcomes after Natural Orifice Specimen Extraction versus conventional laparoscopy-assisted surgery for rectal cancer: a matched case-control study. Ann Surg Treat Res. 2018 Jan;94(1):26–35.
65. Ngu J, Wong ASY. Transanal natural orifice specimen extraction in colorectal surgery: bacteriological and oncological concerns. ANZ J Surg. 2016 Apr;86(4):299–302.
66. Liu G, Shi L, Wu Z. Is Natural Orifice Specimen Extraction Surgery Really Safe in Radical Surgery for Colorectal Cancer? Front Endocrinol. 2022;13:837902.
67. Ma B, Huang XZ, Gao P, Zhao JH, Song YX, Sun JX, et al. Laparoscopic resection with natural orifice specimen extraction versus conventional laparoscopy for colorectal disease: a meta-analysis. Int J Colorectal Dis. 2015 Nov;30(11):1479–88.