

Bölüm 29

LAPAROSKOPİ KOMPLİKASYONLARI ÖNLEM VE YÖNETİMİ

Özgür ERDOĞAN¹

GİRİŞ

Jinekolojik cerrahide laparoskopinin kullanıma girmesi yaklaşık 60 yıllık bir süreçtir. Önceleri teşhis amaçlı ve tüp ligasyonu gibi komplike olmayan tedavi süreçlerinde laparoskopiden faydalanılırken, kullanılan ekipmanlarda meydana gelen teknolojik gelişmeler çerçevesinde günümüzde hemen hemen açık cerrahi ile yapılabilen her tür operasyonda kullanılabilir. Bu yaygın kullanılan yöntemin komplikasyon oranı yüksek değildir. Genel komplikasyon oranı 1000 prosedürde 5,7' olarak bildirilmektedir (1-3). 1,5 milyondan fazla jinekolojik hastayı içeren bir inceleme, prosedürlerin yüzde 0,1 ila 10'unda komplikasyon (herhangi bir tür) bildirmiştir (4). Komplikasyonların yarısı batına giriş aşamasında oluşmuş, %20-25 komplikasyon ise postoperatif dönemde fark edilmiştir.

1980 ve 1999 yılları arasında abdominal giriş esnasında oluşan yaralanmalarından kaynaklanan durumların sonuçlarını ve ABD Gıda ve İlaç Dairesi'ne (FDA) tıbbi cihaz raporlarını bildiren bir çalışma yayınlandı (5). Buna göre batına giriş esnasında oluşan yaralanma insidansı 10.000 prosedürde 5 ila 30 arasındaydı. Bağırsak ve retroperitoneal vasküler yaralanmalar, tüm yaralanmaların yüzde 76'sını oluşturuyordu. İnce ve kalın bağırsak yaralanmalarının neredeyse yüz-

de 50'si en az 24 saat boyunca fark edilmedi. Abdominal erişim sırasında organ yaralanmasının tipi ve oranı ise şu şekil deydi.

- İnce bağırsak (yüzde 25)
- İlyak arter (yüzde 19)
- Kolon (yüzde 12)
- İlyak veya diğer retroperitoneal ven (yüzde 9)
- Mezenterik bir damarın ikincil dalları (yüzde 7)
- Aort (yüzde 6)
- Alt vena kava (yüzde 4)
- Karın duvarı damarları (yüzde 4)
- Mesane (yüzde 3)
- Karaciğer (yüzde 2)
- Diğer (yüzde 2'den az)

Risk Faktörleri

Önceden batın cerrahisi geçirmiş olan ya da batın içi endometriozis, pelvik inflamatuvar hastalık vb hastalık geçirmiş hastalardaki işlemlerde komplikasyon riski, bunlar olmayan hastalardan yüksektir. Komplikasyon riskini arttıran durumlar; intestinal obstrüksiyon, büyük pelvik ya da batın içi kitlesel oluşumlar dens yapışıklıklar, kardiyopulmoner hastalık ve diyafram hernisidir. Bu durumlardaki hastalar için genelde laparoskopik olmayan yaklaşımlar daha uygun olabilir. Diğer cerrahi prosedürlerde olduğu gibi, komplikasyon sayısı cerrahin deneyimi ve uygulanan işlemlerin sayısı ile de ilişkili görünmektedir.

¹ Dr. Sağlık Bilimleri Üniversitesi, İzmir Tepecik EAH Jinekolojik Onkoloji Kliniği, Yan Dal Asistanı, ozgrerd@gmail.com

KAYNAKLAR

- Harkki-Sirén, P. and T. Kurki, *A nationwide analysis of laparoscopic complications*. *Obstetrics & Gynecology*, 1997. **89**(1) : p. 108-112.
- Jansen, F. W. , et al. , *Complications of laparoscopy: a prospective multicentre observational study*. *BJOG: An International Journal of Obstetrics & Gynaecology*, 1997. **104**(5) : p. 595-600.
- Neudecker, J. , et al. , *The European Association for Endoscopic Surgery clinical practice guideline on the pneumoperitoneum for laparoscopic surgery*. *Surgical endoscopy*, 2002. **16**(7) : p. 1121-1143.
- Magrina, J. F. , *Complications of laparoscopic surgery*. *Clin Obstet Gynecol*, 2002. **45**(2) : p. 469-80.
- Chandler, J. G. , S. L. Corson, and L. W. Way, *Three spectra of laparoscopic entry access injuries*. *Journal of the American College of Surgeons*, 2001. **192**(4) : p. 478-490.
- Fuller, J. , B. S. Ashar, and J. Carey-Corrado, *Trocar-associated injuries and fatalities: an analysis of 1399 reports to the FDA*. *Journal of minimally invasive gynecology*, 2005. **12**(4) : p. 302-307.
- Ponsky, J. L. , *Complications of laparoscopic cholecystectomy*. *Am J Surg*, 1991. **161**(3) : p. 393-5.
- Deziel, D. J. , et al. , *Complications of laparoscopic cholecystectomy: a national survey of 4,292 hospitals and an analysis of 77,604 cases*. *Am J Surg*, 1993. **165**(1) : p. 9-14.
- Jansen, F. W. , et al. , *Complications of laparoscopy: an inquiry about closed- versus open-entry technique*. *Am J Obstet Gynecol*, 2004. **190**(3) : p. 634-8.
- Nuzzo, G. , et al. , *Routine use of open technique in laparoscopic operations*. *J Am Coll Surg*, 1997. **184**(1) : p. 58-62.
- Shea, J. A. , et al. , *Mortality and complications associated with laparoscopic cholecystectomy. A meta-analysis*. *Annals of surgery*, 1996. **224**(5) : p. 609.
- Larson, G. M. , et al. , *Multipractice analysis of laparoscopic cholecystectomy in 1,983 patients*. *The American journal of surgery*, 1992. **163**(2) : p. 221-226.
- Leibl, B. J. , et al. , *A single institution's experience with transperitoneal laparoscopic hernia repair*. *The American journal of surgery*, 1998. **175**(6) : p. 446-452.
- McDonald, P. T. , et al. , *Vascular trauma secondary to diagnostic and therapeutic procedures: laparoscopy*. *Am J Surg*, 1978. **135**(5) : p. 651-5.
- Mintz, M. , *Risks and prophylaxis in laparoscopy: a survey of 100,000 cases*. *The Journal of reproductive medicine*, 1977. **18**(5) : p. 269-272.
- Nordestgaard, A. G. , et al. , *Major vascular injuries during laparoscopic procedures*. *The American journal of surgery*, 1995. **169**(5) : p. 543-545.
- Peterson, H. , J. Hulka, and J. Phillips, *American Association of Gynecologic Laparoscopists 1988 Membership Survey on Operative Laparoscopy*. *Zentralblatt fur Gynakologie*, 1990. **112**(24) : p. 1497-1500.
- Phillips, J. , J. Hulka, and H. Peterson, *American Association of Gynecologic Laparoscopists' 1982 membership survey*. *The Journal of reproductive medicine*, 1984. **29**(8) : p. 592-594.
- Phillips, J. , et al. , *Gynecologic laparoscopy in 1975*. *The Journal of reproductive medicine*, 1976. **16**(3) : p. 105-117.
- Riedel, H. -H. , et al. , *German pelviscopic statistics for the years 1978-1982*. *Endoscopy*, 1986. **18**(06) : p. 219-222.
- Yuzpe, A. , *Pneumoperitoneum needle and trocar injuries in laparoscopy. A survey on possible contributing factors and prevention*. *The Journal of reproductive medicine*, 1990. **35**(5) : p. 485-490.
- Baadsgaard, S. E. , S. Bille, and K. Egeblad, *Major vascular injury during gynecologic laparoscopy: report of a case and review of published cases*. *Acta obstetrica et gynecologica Scandinavica*, 1989. **68**(3) : p. 283-285.
- Chapron, C. , et al. , *Gastrointestinal injuries during gynaecological laparoscopy*. *Human Reproduction*, 1999. **14**(2) : p. 333-337.
- Shirk, G. J. , A. Johns, and D. B. Redwine, *Complications of laparoscopic surgery: how to avoid them and how to repair them*. *Journal of minimally invasive gynecology*, 2006. **13**(4) : p. 352-359.
- Quilici, P. J. , et al. , *Transabdominal preperitoneal laparoscopic inguinal herniorrhaphy: results of 509 repairs*. *The American surgeon*, 1996. **62**(10) : p. 849-852.
- Phillips, P. A. and J. F. Amaral, *Abdominal access complications in laparoscopic surgery I*. *Journal of the American College of Surgeons*, 2001. **192**(4) : p. 525-536.
- Tews, G. , et al. , *Significant reduction of operational risk in laparoscopy through the use of a new blunt trocar*. *Surgery, gynecology & obstetrics*, 1991. **173**(1) : p. 67-68.
- Fernández, E. M. L. -T. , et al. , *Conservative treatment of a huge abdominal wall hematoma after*

- laparoscopic appendectomy*. Journal of Laparoscopic & Advanced Surgical Techniques, 2005. **15**(6) : p. 634-637.
29. Saidi, M. H. V. , T. G. & White, A. J. & Sadler, R. K. & Jr, F. D. & Akright, B. D. & Farhart, S. A. , *Complications and cost of multipuncture laparoscopy: A review of 264 cases*. Gynaecological Endoscopy, 1994. **3**: p. 85-90
 30. Ahmad, G. , et al. , *Laparoscopic Entry Techniques*. Cochrane Database of Systematic Reviews, 2008(2).
 31. Chapron, C. M. , et al. , *Major vascular injuries during gynecologic laparoscopy*. Journal of the American College of Surgeons, 1997. **185**(5) : p. 461-465.
 32. Deziel, D. J. , et al. , *Complications of laparoscopic cholecystectomy: a national survey of 4,292 hospitals and an analysis of 77,604 cases*. The American journal of surgery, 1993. **165**(1) : p. 9-14.
 33. McDonald, P. T. , et al. , *Vascular trauma secondary to diagnostic and therapeutic procedures: laparoscopy*. The American Journal of Surgery, 1978. **135**(5) : p. 651-655.
 34. Phillips, E. , et al. , *Incidence of complications following laparoscopic hernioplasty*. Surgical endoscopy, 1995. **9**(1) : p. 16-21.
 35. Sandadi, S. , et al. , *Recognition and management of major vessel injury during laparoscopy*. Journal of minimally invasive gynecology, 2010. **17**(6) : p. 692-702.
 36. Levinson, C. J. , *Laparoscopy is easy--except for the complications: a review with suggestions*. The Journal of reproductive medicine, 1974. **13**(5) : p. 187-194.
 37. Hurd, W. H. , et al. , *Abdominal wall characterization with magnetic resonance imaging and computed tomography. The effect of obesity on the laparoscopic approach*. J Reprod Med, 1991. **36**(7) : p. 473-6.
 38. Bhojrul, S. , et al. , *Trocar injuries in laparoscopic surgery*. Journal of the american college of surgeons, 2001. **192**(6) : p. 677-683.
 39. Sharp, H. T. , et al. , *Complications associated with optical-access laparoscopic trocars*. Obstetrics & Gynecology, 2002. **99**(4) : p. 553-555.
 40. Levy, B. , R. Soderstrom, and D. Dail, *Bowel injuries during laparoscopy. Gross anatomy and histology*. The Journal of reproductive medicine, 1985. **30**(3) : p. 168-172.
 41. Härkki-Siren, P. , J. Sjöberg, and T. Kurki, *Major complications of laparoscopy: a follow-up Finnish study*. Obstetrics & Gynecology, 1999. **94**(1) : p. 94-98.
 42. Sigman, H. H. , et al. , *Risks of blind versus open approach to celiotomy for laparoscopic surgery*. Surgical laparoscopy & endoscopy, 1993. **3**(4) : p. 296-299.
 43. Kaali, S. and G. Bartfai, *Direct insertion of the laparoscopic trocar after an earlier laparotomy*. The Journal of reproductive medicine, 1988. **33**(9) : p. 739-740.
 44. Philosophe, R. , *Avoiding complications of laparoscopic surgery*. Sexuality, Reproduction and Menopause, 2003. **1**(1) : p. 30-39.
 45. Chapron, C. , et al. , *Surgical complications of diagnostic and operative gynaecological laparoscopy: a series of 29,966 cases*. Human reproduction (Oxford, England), 1998. **13**(4) : p. 867-872.
 46. Southern Surgeons Club, A. , *A prospective analysis of 1518 laparoscopic cholecystectomies*. N Engl J Med, 1991. **324**(16) : p. 1073.
 47. Reich, H. , Levie, M. , McGlynn, F. , & Sekel, L. , *Establishment of pneumoperitoneum through the left ninth intercostal space*. Gynaecological Endoscopy, 1995. **4**(2) : p. 141-143.
 48. Hasson, H. M. , *Window for open laparoscopy*. Am J Obstet Gynecol, 1980. **137**(7) : p. 869-70.
 49. Georgy, F. M. and G. FM, *Complication of laparoscopy: two cases of perforated urinary bladder*. 1974.
 50. Sia-Kho, E. and R. E. Kelly, *Urinary drainage bag distention: an indication of bladder injury during laparoscopy*. Journal of clinical anesthesia, 1992. **4**(4) : p. 346-347.
 51. Poffenberger, R. J. , *Laparoscopic repair of intraperitoneal bladder injury: a simple new technique*. Urology, 1996. **47**(2) : p. 248-249.
 52. Azurin, D. J. , et al. , *Trocar site herniation following laparoscopic cholecystectomy and the significance of an incidental preexisting umbilical hernia*. The American Surgeon, 1995. **61**(8) : p. 718-720.
 53. Felix, E. L. , N. Harbertson, and S. Vartanian, *Laparoscopic hernioplasty: significant complications*. Surg Endosc, 1999. **13**(4) : p. 328-31.
 54. Fitzgibbons Jr, R. J. , et al. , *Laparoscopic inguinal herniorrhaphy. Results of a multicenter trial*. Annals of surgery, 1995. **221**(1) : p. 3.
 55. George, J. , *Presentation and management of laparoscopic incisional hernias*. The Journal of the American Association of Gynecologic Laparoscopists, 1994. **1**(4, Part 2) : p. S12-S12.

56. Ramshaw, B. , et al. , *A comparison of the approaches to laparoscopic herniorrhaphy*. Surgical endoscopy, 1996. **10**(1) : p. 29-32.
57. Swank, H. , et al. , *Systematic review of trocar-site hernia*. Journal of British Surgery, 2012. **99**(3) : p. 315-323.
58. Bensley, R. P. , et al. , *Risk of late-onset adhesions and incisional hernia repairs after surgery*. Journal of the American College of Surgeons, 2013. **216**(6) : p. 1159-1167. e12.
59. Johnson, W. , et al. , *VersaStep™ trocar hernia rate in unclosed fascial defects in bariatric patients*. Surgical Endoscopy And Other Interventional Techniques, 2006. **20**(10) : p. 1584-1586.
60. Marks, J. M. , et al. , *Single-incision laparoscopic cholecystectomy is associated with improved cosmesis scoring at the cost of significantly higher hernia rates: 1-year results of a prospective randomized, multicenter, single-blinded trial of traditional multiport laparoscopic cholecystectomy vs single-incision laparoscopic cholecystectomy*. Journal of the American College of Surgeons, 2013. **216**(6) : p. 1037-1047.
61. Boike, G. M. , et al. , *Incisional bowel herniations after operative laparoscopy: a series of nineteen cases and review of the literature*. American journal of obstetrics and gynecology, 1995. **172**(6) : p. 1726-1733.
62. Kadar, N. , et al. , *Incisional hernias after major laparoscopic gynecologic procedures*. American journal of obstetrics and gynecology, 1993. **168**(5): p. 1493-1495.
63. Tonouchi, H. , et al. , *Trocar site hernia*. Archives of surgery, 2004. **139**(11) : p. 1248-1256.
64. Liu, C. D. and D. W. McFadden, *Laparoscopic port sites do not require fascial closure when nonbladed trocars are used*. Am Surg, 2000. **66**(9) : p. 853-4.
65. Tsaltas, J. , Lolatgis, N. , Lawrence, A. S. , Healy, D. L. , & Moohan, J. , *A novel approach for the repair of an incisional hernia following laparoscopic hysterectomy*. Gynaecological Endoscopy, 1996. **5**(1) : p. 39-41.
66. El Dosoky, M. , *A simple method for fascial and peritoneal repairs in operative laparoscopy*. Gynaecological Endoscopy, 1996. **5**(1) : p. 37-38
67. Chapron, C. M. , J. B. Dubuisson, and Y. Ansquer, *Is total laparoscopic hysterectomy a safe surgical procedure?* Hum Reprod, 1996. **11**(11) : p. 2422-4.
68. Whitelaw, M. J. and V. F. Nola, *Letter: "Z" procedure for laparoscopy*. Am J Obstet Gynecol, 1973. **117**(6) : p. 864.
69. Chen, L. F. , et al. , *Surgical site infections after laparoscopic and open cholecystectomies in community hospitals*. Infect Control Hosp Epidemiol, 2008. **29**(1) : p. 92-4; author reply 94-5.
70. Bharathan, R. and M. Hanson, *Diagnostic laparoscopy complicated by group A streptococcal necrotizing fasciitis*. J Minim Invasive Gynecol, 2010. **17**(1) : p. 121-3.
71. Losanoff, J. E. , B. W. Richman, and J. W. Jones, *Trocar-site hernia complicated by necrotizing fasciitis--case report and review of the literature*. Hernia, 2003. **7**(4) : p. 220-3.
72. Tan, L. G. , J. Y. See, and K. S. Wong, *Necrotizing fasciitis after laparoscopic colonic surgery: case report and review of the literature*. Surg Laparosc Endosc Percutan Tech, 2007. **17**(6) : p. 551-3.
73. Voitk, A. J. and S. G. Tsao, *The umbilicus in laparoscopic surgery*. Surg Endosc, 2001. **15**(8) : p. 878-81.
74. Yacoub, O. F. , et al. , *Carbon dioxide embolism during laparoscopy*. Anesthesiology, 1982. **57**(6) : p. 533-5.
75. Beck, D. H. and P. J. McQuillan, *Fatal carbon dioxide embolism and severe haemorrhage during laparoscopic salpingectomy*. Br J Anaesth, 1994. **72**(2) : p. 243-5.
76. Corson, S. L. , P. G. Brooks, and R. M. Soderstrom, *Gynecologic endoscopic gas embolism*. Fertil Steril, 1996. **65**(3) : p. 529-33.
77. Pavan, N. , et al. , *Risk of Virus Contamination Through Surgical Smoke During Minimally Invasive Surgery: A Systematic Review of the Literature on a Neglected Issue Revived in the COVID-19 Pandemic Era*. Eur Urol Focus, 2020. **6**(5) : p. 1058-1069.
78. Vancaillie, T. G. , *Electrosurgery at laparoscopy: guidelines to avoid complications*. Gynaecol Endosc, 1994. **3**: p. 143-150.
79. Farooqui, M. O. and J. M. Bazzoli, *Significance of radiologic evidence of free air following laparoscopy*. J Reprod Med, 1976. **16**(3) : p. 119-25.
80. Birns, M. T. , *Inadvertent instrumental perforation of the colon during laparoscopy: nonsurgical repair*. Gastrointest Endosc, 1989. **35**(1) : p. 54-6.
81. Endler, G. C. and K. S. Moghissi, *Gastric perforation during pelvic laparoscopy*. Obstet Gynecol, 1976. **47**(1) : p. 40s-42s.
82. Milliken, R. A. and G. M. Milliken, *Gastric perforation: rare complication of laparoscopy*. N Y State J Med, 1975. **75**(1) : p. 77-9.

83. Roopnarinesingh, S. , G. Raj-Kumar, and J. Woo, *Laparoscopic trocar point perforation of the small bowel*. *Int Surg*, 1977. **62**(2) : p. 76.
84. Shell, J. H. , Jr. and R. C. Myers, Jr. , *Small bowel injury after laparoscopic sterilization*. *Am J Obstet Gynecol*, 1973. **115**(2) : p. 285.
85. Thompson, B. H. and C. R. Wheelless, Jr. , *Gastro-intestinal complications of laparoscopy sterilization*. *Obstet Gynecol*, 1973. **41**(5) : p. 669-76.
86. Deshmukh, A. S. , *Laparoscopic bladder injury*. *Urology*, 1982. **19**(3) : p. 306-7.
87. Homburg, R. and T. Segal, *Perforation of the urinary bladder by the laparoscope*. *Am J Obstet Gynecol*, 1978. **130**(5) : p. 597.
88. Sherer, D. M. , *Inadvertent transvaginal cystotomy during laparoscopy*. *Int J Gynaecol Obstet*, 1990. **32**(1) : p. 77-9.
89. Levy, B. F. , et al. , *Bladder injuries in emergency/ expedited laparoscopic surgery in the absence of previous surgery: a case series*. *Ann R Coll Surg Engl*, 2012. **94**(3) : p. e118-20.
90. Wong, J. M. K. , et al. , *Urinary Tract Injury in Gynecologic Laparoscopy for Benign Indication: A Systematic Review*. *Obstet Gynecol*, 2018. **131**(1) : p. 100-108.
91. Gao, J. S. , et al. , *Ureteral injury during gynecological laparoscopic surgeries: report of twelve cases*. *Chin Med Sci J*, 2007. **22**(1) : p. 13-6.
92. Gomel, V. and C. James, *Intraoperative management of ureteral injury during operative laparoscopy*. *Fertil Steril*, 1991. **55**(2) : p. 416-9.
93. Grainger, D. A. , et al. , *Ureteral injuries at laparoscopy: insights into diagnosis, management, and prevention*. *Obstet Gynecol*, 1990. **75**(5) : p. 839-43.
94. Kadar, N. and L. Lemmerling, *Urinary tract injuries during laparoscopically assisted hysterectomy: causes and prevention*. *Am J Obstet Gynecol*, 1994. **170**(1 Pt 1) : p. 47-8.
95. Saidi, M. H. , et al. , *Diagnosis and management of serious urinary complications after major operative laparoscopy*. *Obstet Gynecol*, 1996. **87**(2) : p. 272-6.
96. Tamussino, K. F. , P. F. Lang, and E. Breinl, *Ureteral complications with operative gynecologic laparoscopy*. *Am J Obstet Gynecol*, 1998. **178**(5) : p. 967-70.
97. Woodland, M. B. , *Ureter injury during laparoscopy-assisted vaginal hysterectomy with the endoscopic linear stapler*. *Am J Obstet Gynecol*, 1992. **167**(3) : p. 756-7.
98. Teeluckdharry, B. , D. Gilmour, and G. Flowerdew, *Urinary Tract Injury at Benign Gynecologic Surgery and the Role of Cystoscopy: A Systematic Review and Meta-analysis*. *Obstet Gynecol*, 2015. **126**(6) : p. 1161-1169.
99. Neven, P. , Vandeursen, H. , Baert, L. , & Koninckx, P. R. , *Ureteric injury at laparoscopic surgery: the endoscopic management*. *Gynaecological Endoscopy*, 1993. **2**(1) : p. 45-46.
100. Abu-Rustum, N. R. , et al. , *Subcutaneous tumor implantation after laparoscopic procedures in women with malignant disease*. *Obstet Gynecol*, 2004. **103**(3) : p. 480-7.
101. Ramirez, P. T. , J. K. Wolf, and C. Levenback, *Laparoscopic port-site metastases: etiology and prevention*. *Gynecol Oncol*, 2003. **91**(1) : p. 179-89.
102. Ost, M. C. , B. J. Tan, and B. R. Lee, *Urological laparoscopy: basic physiological considerations and immunological consequences*. *J Urol*, 2005. **174**(4 Pt 1) : p. 1183-8.
103. Pados, G. , et al. , *Unilateral vulvar edema after operative laparoscopy: a case report and literature review*. *Fertil Steril*, 2005. **83**(2) : p. 471-3.