

GASTROİNTESTİNAL SİSTEM SARKOMLARININ CERRAHİ TEDAVİSİ

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GİRİŞ

Sarkomlar, mezenkimden köken alan malign tümörlerdir. Gastrointestinal sistemin malign mezenkimal tümörleri iki kategoriye ayrılır:

1. Gastrointestinal sistemde ortaya çıkan tüm sarkomların % 85' ini oluşturan Gastrointestinal stromal tümörler (GIST).
2. Non-GIST gastrointestinal sarkomlar olarak adlandırılan; leiomyosarkom, fibrosarkom, liposarkom, kaposi sarkomu, schwannom, anjiyosarkom gibi yumuşak doku sarkomlarıdır.

Gastrointestinal stromal tümörler (GIST) en yaygın görülen intraperitoneal sarkomlardır (1,2). En sık mide ve proksimal ince bağırsakta bulunmakla birlikte gastrointestinal sistemin herhangi bir yerinden kaynaklanabilir ve daha az sıklıkla omentum, mezenter ve peritonadan köken alabilirler (3-5).

Non-GIST sarkomlar daha az sıklıkla karşımıza çıkmaktadır. Bunlar arasında leiomyosarkom gastrointestinal sisteme en sık görülen non-GIST yumuşak doku sarkomudur (6).

Cerrahi Yaklaşım

Gastrointestinal (GI) sistem yerleşimli GIST'lerin, ve leiomyosarkomların yönetimi, preoperatif tanıya, tümörün yerleşim yerine, büyülüğüne, yayılımın şecline ve klinik prezantasyonuna (obstruksiyon, perforasyon veya kontrol altına alınamayan kanama gibi) bağlıdır (7).

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Cerrahi için uygun zamanlama bilinmemektedir. Bazı yaynlarda 6-9 ay TKİ tedavisi sonrası tümör rezektabl hale gelince cerrahi yapılması gerektiği belirtilmektedir (66). Tümör yükünün bir yıl imatinib tedavisinden sonra bile azalmaya devam ettiği gösterilmiş olsa da, en iyi yanıt için ortanca zaman 3.5 aydır ve dokuz aydan sonra tümör hücrelerinde azalma çok yavaş olmaktadır (68).

Karaciğer, tekrarlayan GIST hastalarının %67'sinde rekürrens bölgesidir (69). GIST'in karaciğer metastazı sonrası 5 yıllık sağkalım oranı %27-34 arasında değişmektedir (70). İzole karaciğer metastazı olanlarda hepatik rezeksiyon ve imatinib tedavisinin kombine edilmesi hastalığın uzun dönemde kontrol altına alınmasına fırsat verir (70,71).

KAYNAKLAR

1. Fletcher CDM, Bridge JA, Hogendoorn PCW, et al. WHO classification of tumours of soft tissue and bone. 4th ed. Lyon, France: IARC, 2013; 10–11.
2. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2016. CA Cancer J Clin 2016;66(1):7–30.3.
3. Miettinen M, Sarlomo-Rikala M, Lasota J. Gastrointestinal stromal tumors: recent advances in understanding of their biology. Hum Pathol 1999; 30:1213.
4. Reith JD, Goldblum JR, Lyles RH, et al. Extragastrintestinal (soft tissue) stromal tumors: an analysis of 48 cases with emphasis on histologic predictors of outcome. Mod Pathol 2000; 13:577.
5. Medeiros F, Corless CL, Duensing A, et al. KIT-negative gastrointestinal stromal tumors: proof of concept and therapeutic implications. Am J Surg Pathol 2004; 28:889.
6. Atlas of Tumor Pathology: Tumors of the esophagus and stomach. Electronic fascicle v2.0b, Armed Forces Institute of Pathology, Washington DC.
7. Ma GL, Murphy JD, Martinez ME, et al. Epidemiology of gastrointestinal stromal tumors in the era of histology codes: results of a population-based study. Cancer Epidemiol Biomarkers Prev 2015; 24:298.
8. Janeway KA, Pappo A. Treatment guidelines for gastrointestinal stromal tumors in children and young adults. J Pediatr Hematol Oncol 2012; 34 Suppl 2:S69.
9. https://www.nccn.org/professionals/physician_gls/default.aspx(Accessed on April 23, 2019)
10. Casali PG, Jost L, Reichardt P, et al. Gastrointestinal stromal tumours: ESMO clinical recommendations for diagnosis, treatment and follow-up. Ann Oncol 2009; 20 Suppl 4:64.
11. Blackstein ME, Blay JY, Corless C, et al. Gastrointestinal stromal tumours: consensus statement on diagnosis and treatment. Can J Gastroenterol 2006; 20:157.
12. Demetri GD, Benjamin RS, Blanke CD, et al. NCCN task force report: optimal management of patients with gastrointestinal stromal tumor (GIST)- Update of NCCN Clinical Practice Guidelines. J Natl Comp Cancer Net 2007; 5(2 suppl):S.
13. Bakaeen FG, Murr MM, Sarr MG, et al. What prognostic factors are important in duodenal adenocarcinoma? Arch Surg 2000; 135:635.
14. Aparicio T, Boige V, Sabourin JC, et al. Prognostic factors after surgery of primary resectable gastrointestinal stromal tumours. Eur J Surg Oncol 2004; 30:1098.
15. Giuliano K, Nagarajan N, Canner J, et al. Gastric and small intestine gastrointestinal stromal tumors: Do outcomes differ? J Surg Oncol 2017; 115:351.
16. Everett M, Gutman H. Surgical management of gastrointestinal stromal tumors: analysis of outcome with respect to surgical margins and technique. J Surg Oncol 2008; 98:588.

17. Corless CL, McGreevey L, Haley A, et al. KIT mutations are common in incidental gastrointestinal stromal tumors one centimeter or less in size. *Am J Pathol* 2002; 160:1567.
18. Miettinen M, Lasota J. Gastrointestinal stromal tumors: pathology and prognosis at different sites. *Semin Diagn Pathol* 2006; 23:70.
19. Miettinen M, Sarlomo-Rikala M, Sabin LH, et al. Esophageal stromal tumors: a clinicopathologic, immunohistochemical, and molecular genetic study of 17 cases and comparison with esophageal leiomyomas and leiomyosarcomas. *Am J Surg Pathol* 2000; 24:211.
20. Rocco G, Trastek VF, Deschamps C, et al. Leiomyosarcoma of the esophagus: results of surgical treatment. *Ann Thorac Surg* 1998; 66:894.
21. Rijcken E, Kersting CM, Senninger N, et al. Esophageal resection for giant leiomyoma: report of two cases and a review of the literature. *Langenbecks Arch Surg* 2009; 394:623.
22. Pesarini AC, Ernst H, Ell C, et al. [Leiomyosarcoma of the esophagus. Clinical aspects, diagnosis and therapy based on an individual case]. *Med Klin (Munich)* 1997; 92:234.
23. Tran T, Davila JA, El-Serag HB. The epidemiology of malignant gastrointestinal stromal tumors: an analysis of 1,458 cases from 1992 to 2000. *Am J Gastroenterol* 2005; 100:162.
24. Blum MG, Bilimoria KY, Wayne JD, et al. Surgical considerations for the management and resection of esophageal gastrointestinal stromal tumors. *Ann Thorac Surg* 2007; 84:1717.
25. Winant AJ, Gollub MJ, Shia J, et al. Imaging and clinicopathologic features of esophageal gastrointestinal stromal tumors. *AJR Am J Roentgenol* 2014; 203:306.
26. Lee HJ, Park SI, Kim DK, et al. Surgical resection of esophageal gastrointestinal stromal tumors. *Ann Thorac Surg* 2009; 87:1569.
27. Robb WB, Bruyere E, Amielh D, et al. Esophageal gastrointestinal stromal tumor: is tumoral enucleation a viable therapeutic option? *Ann Surg* 2015; 261:117.
28. Igwilo OC, Byrne MP, Nguyen KD, et al.. Malignant gastric stromal tumor: unusual metastatic patterns. *South Med J* 2003; 96:512.
29. Miettinen M, Sabin LH, Lasota J. Gastrointestinal stromal tumors of the stomach: a clinicopathologic, immunohistochemical, and molecular genetic study of 1765 cases with long-term follow-up. *Am J Surg Pathol* 2005; 29:52.
30. Bischof DA, Kim Y, Dodson R, et al. Open versus minimally invasive resection of gastric GIST: a multi-institutional analysis of short- and long-term outcomes. *Ann Surg Oncol* 2014; 21:2941.
31. Koh YX, Chok AY, Zheng HL, et al. A systematic review and meta-analysis comparing laparoscopic versus open gastric resections for gastrointestinal stromal tumors of the stomach. *Ann Surg Oncol* 2013; 20:3549.
32. Pelletier JS, Gill RS, Gazala S, et al.. A Systematic Review and Meta-Analysis of Open vs. Laparoscopic Resection of Gastric Gastrointestinal Stromal Tumors. *J Clin Med Res* 2015; 7:289.
33. Hsieh CC, Shih CS, Wu YC, et al. Leiomyosarcoma of the gastric cardia and fundus. *Zhonghua Yi Xue Za Zhi (Taipei)* 1999; 62:418.
34. Pannu HK, Hruban RH, Fishman EK. CT of gastric leiomyosarcoma: patterns of involvement. *AJR Am J Roentgenol* 1999; 173:369.
35. Katai H, Sasako M, Sano T, et al. Surgical treatment for gastric leiomyosarcoma. *Ann Chir Gynaecol* 1998; 87:293.
36. Blanchard DK, Budde JM, Hatch GF 3rd, et al. Tumors of the small intestine. *World J Surg* 2000; 24:421.
37. Huang CC, Yang CY, Lai IR, et al. Gastrointestinal stromal tumor of the small intestine: a clinicopathologic study of 70 cases in the postimatinib era. *World J Surg* 2009; 33:828.
38. Yang WL, Yu JR, Wu YJ, et al. Duodenal gastrointestinal stromal tumor: clinical, pathologic, immunohistochemical characteristics, and surgical prognosis. *J Surg Oncol* 2009; 100:606.
39. Bilimoria KY, Bentrem DJ, Wayne JD, et al. Small bowel cancer in the United States: changes in epidemiology, treatment, and survival over the last 20 years. *Ann Surg* 2009; 249:63.

40. Miettinen M, Kopczynski J, Makhlof HR, et al. Gastrointestinal stromal tumors, intramural leiomyomas, and leiomyosarcomas in the duodenum: a clinicopathologic, immunohistochemical, and molecular genetic study of 167 cases. *Am J Surg Pathol* 2003; 27:625.
41. Lee SY, Goh BK, Sadot E, et al. Surgical Strategy and Outcomes in Duodenal Gastrointestinal Stromal Tumor. *Ann Surg Oncol* 2017; 24:202.
42. Nguyen SQ, Divino CM, Wang JL, et al.. Laparoscopic management of gastrointestinal stromal tumors. *Surg Endosc* 2006; 20:713.
43. Oida Y, Motojuku M, Morikawa G, et al. Laparoscopic-assisted resection of gastrointestinal stromal tumor in small intestine. *Hepatogastroenterology* 2008; 55:146.
44. Tien YW, Lee CY, Huang CC, et al. Surgery for gastrointestinal stromal tumors of the duodenum. *Ann Surg Oncol* 2010; 17:109.
45. Johnston FM, Kneuertz PJ, Cameron JL, et al. Presentation and management of gastrointestinal stromal tumors of the duodenum: a multi-institutional analysis. *Ann Surg Oncol* 2012; 19:3351.
46. Colombo C, Ronellenfitsch U, Yuxin Z, et al. Clinical, pathological and surgical characteristics of duodenal gastrointestinal stromal tumor and their influence on survival: a multi-center study. *Ann Surg Oncol* 2012; 19:3361.
47. Chok AY, Koh YX, Ow MY, et al. A systematic review and meta-analysis comparing pancreaticoduodenectomy versus limited resection for duodenal gastrointestinal stromal tumors. *Ann Surg Oncol* 2014; 21:3429.
48. Duffaud F, Meeus P, Bachet JB, et al. Conservative surgery vs. duodeneopancreatectomy in primary duodenal gastrointestinal stromal tumors (GIST): a retrospective review of 114 patients from the French sarcoma group (FSG). *Eur J Surg Oncol* 2014; 40:1369.
49. Miettinen M, Makhlof H, Sabin LH, et al. Gastrointestinal stromal tumors of the jejunum and ileum: a clinicopathologic, immunohistochemical, and molecular genetic study of 906 cases before imatinib with long-term follow-up. *Am J Surg Pathol* 2006; 30:477.
50. Crosby JA, Catton CN, Davis A, et al. Malignant gastrointestinal stromal tumors of the small intestine: a review of 50 cases from a prospective database. *Ann Surg Oncol* 2001; 8:50.
51. Miettinen M, Sabin LH. Gastrointestinal stromal tumors in the appendix: a clinicopathologic and immunohistochemical study of four cases. *Am J Surg Pathol* 2001; 25:1433.
52. Manouras A, Pappas A, Katergiannakis V, et al. Gastrointestinal stromal tumors of the rectum: report of five cases. *Acta Gastroenterol Belg* 2009; 72:257.
53. Miettinen M, Sarlomo-Rikala M, Sabin LH, et al. Gastrointestinal stromal tumors and leiomyosarcomas in the colon: a clinicopathologic, immunohistochemical, and molecular genetic study of 44 cases. *Am J Surg Pathol* 2000; 24:1339.
54. Tielen R, Verhoef C, van Coevorden F, et al. Surgical management of rectal gastrointestinal stromal tumors. *J Surg Oncol* 2013; 107:320.
55. Birkenmaier A, Ries JJ, Kuhle J, et al. Placental α -microglobulin-1 to detect uncertain rupture of membranes in a European cohort of pregnancies. *Arch Gynecol Obstet* 2012; 285:21.
56. Liu H, Yan Z, Liao G, et al. Treatment strategy of rectal gastrointestinal stromal tumor (GIST). *J Surg Oncol* 2014; 109:708.
57. Jakob J, Mussi C, Ronellenfitsch U, et al. Gastrointestinal stromal tumor of the rectum: results of surgical and multimodality therapy in the era of imatinib. *Ann Surg Oncol* 2013; 20:586.
58. Cavdar MJ, Wang L, Balachandran VP, et al. Rectal Gastrointestinal Stromal Tumor (GIST) in the Era of Imatinib: Organ Preservation and Improved Oncologic Outcome. *Ann Surg Oncol* 2017; 24:3972.
59. Wilkinson MJ, Fitzgerald JE, Strauss DC, et al. Surgical treatment of gastrointestinal stromal tumour of the rectum in the era of imatinib. *Br J Surg* 2015; 102:965.
60. Hawkins AT, Wells KO, Krishnamurti DM, et al. Preoperative Chemotherapy and Survival for Large Anorectal Gastrointestinal Stromal Tumors: A National Analysis of 333 Cases. *Ann Surg Oncol* 2017; 24:1195.

61. Carboni F, Carlini M, Scardamaglia F, et al. Gastrointestinal stromal tumors of the stomach. A ten-year surgical experience. *J Exp Clin Cancer Res* 2003; 22:379.
62. Chacón M, Roca E, Huertas E, et al. CASE 3. Pathologic complete remission of metastatic gastrointestinal stromal tumor after imatinib mesylate. *J Clin Oncol* 2005; 23:1580.
63. Bauer S, Hartmann JT, de Wit M, et al. Resection of residual disease in patients with metastatic gastrointestinal stromal tumors responding to treatment with imatinib. *Int J Cancer* 2005; 117:316.
64. Antonescu CR, Besmer P, Guo T, et al. Acquired resistance to imatinib in gastrointestinal stromal tumor occurs through secondary gene mutation. *Clin Cancer Res* 2005; 11:4182.
65. Raut CP, Posner M, Desai J, et al. Surgical management of advanced gastrointestinal stromal tumors after treatment with targeted systemic therapy using kinase inhibitors. *J Clin Oncol* 2006; 24:2325.
66. DeMatteo RP, Maki RG, Singer S, et al. Results of tyrosine kinase inhibitor therapy followed by surgical resection for metastatic gastrointestinal stromal tumor. *Ann Surg* 2007; 245:347.
67. Fairweather M, Balachandran VP, Li GZ, et al. Cytoreductive Surgery for Metastatic Gastrointestinal Stromal Tumors Treated With Tyrosine Kinase Inhibitors: A 2-institutional) Analysis. *Ann Surg* 2018; 268:296.
68. Verweij J, Casali PG, Zalcberg J, et al. Progression-free survival in gastrointestinal stromal tumours with high-dose imatinib: randomised trial. *Lancet* 2004; 364:1127.
69. DeMatteo RP, Lewis JJ, Leung D, et al. Two hundred gastrointestinal stromal tumors: recurrence patterns and prognostic factors for survival. *Ann Surg* 2000; 231:51.
70. Pawlik TM, Vauthey JN, Abdalla EK, et al. Results of a single-center experience with resection and ablation for sarcoma metastatic to the liver. *Arch Surg* 2006; 141:537.
71. Turley RS, Peng PD, Reddy SK, et al. Hepatic resection for metastatic gastrointestinal stromal tumors in the tyrosine kinase inhibitor era. *Cancer* 2012; 118:3571.