Cancer Therapy & Oncology
International Journal
ISSN: 2473-554X

Juniper PUBLISHERS
key to the Researchers

Research Article
Volume 30 Issue 2 - October 2025
DOI: 10.19080/CTOIJ.2025.30.556289

Cancer Ther Oncol Int J

Assessment of Changes in Tumor Size for Carcinoid Tumors of the Stomach Receiving Neoadjuvant Systemic Treatment

Omer Sager*, Ferrat Dincoglan, Selcuk Demiral and Murat Beyzadeoglu

Department of Radiation Oncology; University of Health Sciences, Gulhane Medical Faculty, Ankara, Turkey

Submission: October 07, 2025; **Published**: October 24, 2025

Corresponding author: Omer Sager, Department of Radiation Oncology; University of Health Sciences, Gulhane Medical Faculty, Ankara, Turkey

Abstract

Objective: Carcinoid tumors represent a heterogeneous group of relatively rare neoplasms that can arise in various anatomical locations and often secrete a range of bioactive substances, including serotonin, histamine, prostaglandins, gastrin, ACTH, among others. Within the gastrointestinal tract, the most frequently affected sites are the small intestine, followed by the rectum and stomach. We evaluated tumor size changes for patients receiving neoadjuvant systemic therapy for carcinoid tumors of the stomach in this study.

Materials and Methods: Department of Radiation Oncology in Gulhane Medical Faculty, University of Health Sciences has long functioned as a tertiary cancer center, providing care for patients from both Turkey and abroad. Over the years, we have treated a wide range of benign and malignant tumors using advanced radiotherapy technologies and techniques, including IGRT, IMRT, ART, stereotactic radiotherapy, automatic segmentation, and molecular imaging. Main purpose of this study was to assess changes in tumor size after neoadjuvant systemic therapy in patients' patients suffering from carcinoid tumors of the stomach. To address this objective, we analyzed patients with carcinoid tumors of the stomach who had accessible imaging data. All selected patients received neoadjuvant systemic therapy. A comparative analysis of tumor sizes was performed using imaging scans obtained before and after systemic treatment. Changes in tumor size have been recorded to facilitate evaluation and interpretation.

Results: For the primary endpoint of this study, we observed reduction in tumor size after neoadjuvant systemic treatment in patients suffering from carcinoid tumors of the stomach.

Conclusion: From a certain perspective, our findings may support the broader application of systemic therapies for carcinoid tumors of the stomach; however, further clinical studies are necessary to validate these results.

Keywords: Stomach; Carcinoid tumor; Neoadjuvant systemic treatment; Adaptive Radiotherapy; Gastrin

Abbreviations: ACTH: Adrenocorticotropic Hormone; ART: Adaptive Radiotherapy; IGRT: Image-Guided Radiotherapy; IMRT: Intensity-Modulated Radiotherapy

Introduction

Carcinoids comprise a diverse group of relatively rare tumors which could be encountered in several body sites and might secrete various bioactive substances, including serotonin, histamine, prostaglandins, gastrin, adrenocorticotropic hormone (ACTH), and others [1-7]. Most common sites in the gastrointestinal tract include the small intestine, followed by the rectum, and stomach. Carcinoid tumors of the stomach may be categorized based on the level of the hormone gastrin and the amount of stomach acid which could facilitate defining the specific type of gastric carcinoid tumor. While type 1 carcinoid tumors are associated with typically elevated gastrin levels and low stomach acid, tumors rarely invade deeper stomach layers or spread to other organs.

Type 2 carcinoid tumors are associated with elevation of both gastrin and stomach acid levels, and the tumors are usually small and multiple, with limited invasiveness and spread like type 1 carcinoid tumors. Type 3 carcinoid tumors present mostly as a single tumor with a higher predilection for invasion of deeper tissues or spread to lymph nodes or other organs (e.g., liver). While these tumors are not too common, management could require multidisciplinary input [1-7]. While surgery could serve as a curative option, neoadjuvant treatment might be considered for selected cases to reduce tumor size, rendering surgical removal easier and potentially lowering recurrence risk.

Particularly more advanced tumors may benefit more from neoadjuvant therapy, and multidisciplinary decision making with expert surgeons and oncologists may be strongly recommended to provide tailored and individualized therapy based on tumor type, stage, symptoms, and patient health. From the perspective of radiation oncology, recent years have witnessed significant technological advancements which have substantially contributed to improved outcomes in radiotherapy. Innovations such as automatic segmentation, image-guided radiotherapy (IGRT), molecular imaging, intensity-modulated radiotherapy (IMRT), stereotactic radiotherapy, and adaptive radiotherapy (ART) have all been integrated to enhance therapeutic effectiveness [8-106].

In the broader context of cancer care, achieving optimal treatment outcomes relies heavily on close interdisciplinary collaboration. Multidisciplinary tumor boards play a crucial role in fostering coordination among surgical, medical, and radiation oncologists. These boards provide a valuable forum for discussing patient profiles, tumor characteristics, treatment options, and expected outcomes. Neoadjuvant systemic therapy might be considered for management of selected patients suffering from carcinoid tumors of the stomach, and we evaluated tumor size changes for patients receiving neoadjuvant systemic therapy for carcinoid tumors of the stomach in this study.

Materials and Methods

Department of Radiation Oncology in Gulhane Medical Faculty, University of Health Sciences has long functioned as a tertiary cancer center, providing care for patients from both Turkey and abroad. Over the years, we have treated a wide range of benign and malignant tumors using advanced radiotherapy technologies and techniques, including IGRT, IMRT, ART, stereotactic radiotherapy, automatic segmentation, and molecular imaging. Main purpose of this study was to assess changes in tumor size after neoadjuvant systemic therapy in patients' patients suffering from carcinoid tumors of the stomach. To address this objective, we analyzed patients with carcinoid tumors of the stomach who had accessible imaging data. All selected patients received neoadjuvant systemic therapy. A comparative analysis of tumor sizes was performed using imaging scans obtained before and after systemic treatment. Changes in tumor size have been recorded to facilitate evaluation and interpretation.

Results

The current study has been designed to analyze changes in tumor size after neoadjuvant systemic treatment in patients suffering from carcinoid tumors of the stomach. All patients included in the analysis have been thoroughly evaluated by a multidisciplinary team of experts, and patients with available pre- and post-neoadjuvant systemic treatment imaging data were selected. Systemic treatment was administered as the initial treatment modality. Tumor sizes were recorded using imaging scans obtained before and after neoadjuvant systemic therapy, and a comparative analysis has been conducted to assess changes. For the primary endpoint of this study, we observed reduction in tumor size after neoadjuvant systemic treatment in patients suffering from carcinoid tumors of the stomach.

Discussion

Carcinoid tumors represent a heterogeneous group of relatively rare neoplasms that can arise in various anatomical locations and often secrete a range of bioactive substances, including serotonin, histamine, prostaglandins, gastrin, ACTH, among others [1-7]. Within the gastrointestinal tract, the most frequently affected sites are the small intestine, followed by the rectum and stomach. Gastric carcinoid tumors are typically classified based on serum gastrin levels and gastric acid secretion, which aids in determining the tumor subtype. Type 1 gastric carcinoids are associated with elevated gastrin levels and hypochlorhydria (low stomach acid). These tumors are usually small, non-invasive, and rarely metastasize. Type 2 tumors also exhibit elevated gastrin levels but are distinguished by increased gastric acid secretion; they are generally small, multiple, and, like Type 1, demonstrate limited invasive potential.

In contrast, Type 3 gastric carcinoid tumors usually present as solitary lesions, with normal gastrin and acid levels, and have a higher likelihood of local invasion and metastasis to lymph nodes or distant organs, such as the liver. Although gastric carcinoid tumors are uncommon, their management often necessitates a multidisciplinary approach. Surgery remains the mainstay of curative treatment. However, in selected cases-particularly those with advanced or invasive disease-neoadjuvant systemic therapy may be employed to reduce tumor burden, improve resectability, and potentially decrease the risk of recurrence. Multidisciplinary decision-making involving surgical, medical, and radiation oncologists is essential to develop individualized treatment strategies tailored to the tumor's type, stage, symptomatology, and the overall health status of the patient.

From a radiation oncology standpoint, recent technological advancements have significantly enhanced radiotherapeutic outcomes. Innovations such as automatic segmentation, image-guided radiotherapy (IGRT), molecular imaging, intensity-modulated radiotherapy (IMRT), stereotactic radiotherapy, and

How to cite this article: Omer S, Ferrat D, Selcuk D, Murat B. Assessment of Changes in Tumor Size for Carcinoid Tumors of the Stomach Receiving Neoadjuvant Systemic Treatment. Canc Therapy & Oncol Int J. 2025; 30(2): 556289. DOI: 10.19080/CTOIJ.2025.30.556289

adaptive radiotherapy (ART) have been integrated into clinical practice to optimize therapeutic efficacy [8-106]. In contemporary cancer care, effective management increasingly depends on interdisciplinary collaboration. Multidisciplinary tumor boards are instrumental in facilitating coordination among different oncology subspecialties by providing a structured platform for discussing patient-specific factors, tumor characteristics, therapeutic strategies, and anticipated outcomes.

In this study, we focused on evaluating tumor size changes in patients with gastric carcinoid tumors who received neoadjuvant systemic therapy. By analyzing pre- and post-treatment imaging data, we aimed to assess the impact of systemic therapy on tumor sizes prior to surgical intervention. Our department has served as a tertiary cancer center for many years, providing comprehensive care to patients from both Turkey and abroad. Throughout this period, a broad spectrum of benign and malignant tumors has been managed using state-of-the-art radiotherapy technologies, including image-guided radiotherapy (IGRT), intensity-modulated radiotherapy (IMRT), adaptive radiotherapy (ART), stereotactic radiotherapy, automatic segmentation, and molecular imaging techniques.

The primary aim of this study was to evaluate tumor size reduction following neoadjuvant systemic therapy in patients diagnosed with gastric carcinoid tumors. To achieve this, we retrospectively analyzed cases with available imaging data both before and after systemic treatment. All included patients underwent neoadjuvant systemic therapy prior to further oncological management. Tumor size measurements were compared using pre- and post-treatment imaging, and changes were systematically documented to support clinical interpretation and outcome evaluation. From a certain perspective, our findings may support the broader application of systemic therapies for carcinoid tumors of the stomach; however, further clinical studies are necessary to validate these results.

References

1. Siegel RL, Kratzer TB, Giaquinto AN, Sung H, Jemal A (2025) Cancer statistics. CA Cancer J Clin 75(1): 10-45.
2. Pavel M, Öberg K, Falconi M, Krenning EP, Sundin A, et al. (2020) ESMO Guidelines Committee. Gastroenteropancreatic neuroendocrine neoplasms: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. Ann Oncol 31(7): 844-860.
3. Iwasaki K, Barroga E, Enomoto M, Tsurui K, Shimoda Y, Matsumoto M, Miyoshi K, Ota Y, Matsubayashi J, Nagakawa Y (2022) Long-term surgical outcomes of gastric neuroendocrine carcinoma and mixed neuroendocrine-non-neuroendocrine neoplasms. World J Surg Oncol 20(1): 165.
4. Giakoustidis A, Serrablo A, Giakoustidis D, Moschos I, Papadopoulos VN, Toumpanakis C (2023) Editorial: Neuroendocrine tumors of the gastrointestinal tract, liver, and pancreas: current management and treatment strategies. Front Surg 10: 1207630.
5. Maroun J, Kocha W, Kvols L, Bjarnason G, Chen E, et al. (2006) Guidelines for the diagnosis and management of carcinoid tumours. Part 1: the gastrointestinal tract. A statement from a Canadian National Carcinoid Expert Group. Curr Oncol 13(2): 67-76.
6. Mulkeen A, Cha C (2005) Gastric carcinoid. Curr Opin Oncol 17(1): 1-6.
7. Grozinsky-Glasberg S, Alexandraki KI, Angelousi A, Chatzellis E, Sougioultzis S, Kaltsas G (2018) Gastric Carcinoids. Endocrinol Metab Clin North Am 47(3): 645-660.
8. Sager O, Dincoglan F, Demiral S, Uysal B, Gamsiz H, et al. (2023) Adaptive radiation therapy (art) for patients with limited-stage small cell lung cancer (LS-SCLC): A dosimetric evaluation. Indian J Cancer 60(1): 140-147.
9. Gamsiz H, Sager O, Uysal B, Dincoglan F, Demiral S, et al. (2023) Outcomes of Sterotactic Body Radiotherapy (SBRT) for pelvic lymph node recurrences after adjuvant or primary radiotherapy for prostate cancer. J Cancer Res Ther 19(Suppl 2): S851-S856.
10. Uysal B, Gamsiz H, Sager O, Dincoglan F, Demiral S, et al. (2022) Comparative outcomes of short-term and long-term fractionation with temozolomide in older glioblastoma patients: Single-center experience. J Cancer Res Ther 18(6): 1610-1615.
11. Gamsiz H, Sager O, Uysal B, Dincoglan F, Demiral S, et al. (2022) Active breathing control guided stereotactic body ablative radiotherapy for management of liver metastases from colorectal cancer. Acta Gastroenterol Belg 85(3):469-475.
12. Sager O, Dincoglan F, Demiral S, Uysal B, Gamsiz H, et al. (2022) Concise review of radiosurgery for contemporary management of pilocytic astrocytomas in children and adults. World J Exp Med 12(3): 36-43.
13. Sager O, Dincoglan F, Demiral S, Gamsiz H, Uysal B, et al. (2022) Optimal timing of thoracic irradiation for limited stage small cell lung cancer: Current evidence and prospects. World J Clin Oncol 13(2): 116-124.
14. Demiral S, Sager O, Dincoglan F, Uysal B, Gamsiz H, et al. (2021) Evaluation of breathing-adapted radiation therapy for right-sided early stage breast cancer patients. Indian J Cancer 58(2): 195-200.
15. Sager O, Dincoglan F, Demiral S, Uysal B, Gamsiz H, et al. (2021) Omission of Radiation Therapy (RT) for Metaplastic Breast Cancer (MBC): A Review Article. International Journal of Research Studies in Medical and Health Sciences 6(1): 10-15.
16. Sager O, Dincoglan F, Demiral S, Uysal B, Gamsiz H, et al. (2021) Concise review of stereotactic irradiation for pediatric glial neoplasms: Current concepts and future directions. World J Methodol 11(3): 61-74.
17. Sager O, Dincoglan F, Demiral S, Uysal B, Gamsiz H, et al. (2020) Adaptive radiation therapy of breast cancer by repeated imaging during irradiation. World J Radiol 12(5): 68-75.
18. Sager O, Beyzadeoglu M, Dincoglan F, Demiral S, Gamsiz H, et al. (2020) Multimodality management of cavernous sinus meningiomas with less extensive surgery followed by subsequent irradiation: Implications for an improved toxicity profile. J Surg Surgical Res 6: 056-061.
19. Beyzadeoglu M, Sager O, Dincoglan F, Demiral S, Uysal B, et al. (2020) Single Fraction Stereotactic Radiosurgery (SRS) versus Fractionated Stereotactic Radiotherapy (FSRT) for Vestibular Schwannoma (VS). J Surg Surgical Res 6: 062-066.
20. Dincoglan F, Beyzadeoglu M, Sager O, Demiral S, Uysal B, et al. (2020) A Concise Review of Irradiation for Temporal Bone Chemodectomas (TBC). Arch Otolaryngol Rhinol 6: 016-020.
21. Sager O, Dincoglan F, Demiral S, Uysal B, Gamsiz H, et al. (2019) Utility of Molecular Imaging with 2-Deoxy-2-[Fluorine-18] Fluoro-DGlucose Positron Emission Tomography (18F-FDG PET) for Small Cell Lung Cancer (SCLC): A Radiation Oncology Perspective. Curr Radiopharm 12(1): 4-10.

How to cite this article: Omer S, Ferrat D, Selcuk D, Murat B. Assessment of Changes in Tumor Size for Carcinoid Tumors of the Stomach Receiving Neoadjuvant Systemic Treatment. Canc Therapy & Oncol Int J. 2025; 30(2): 556289. DOI: 10.19080/CTOIJ.2025.30.556289

22. Dincoglan F, Sager O, Demiral S, Gamsiz H, Uysal B, et al. (2019) Fractionated stereotactic radiosurgery for locally recurrent brain metastases after failed stereotactic radiosurgery. Indian J Cancer 56(2): 151-156.

23. Sager O, Dincoglan F, Demiral S, Uysal B, Gamsiz H, et al. (2019) Breathing adapted radiation therapy for leukemia relapse in the breast: A case report. World J Clin Oncol 10(11): 369-374.

24. Dincoglan F, Sager O, Uysal B, Demiral S, Gamsiz H, et al. (2019) Evaluation of hypofractionated stereotactic radiotherapy (HFSRT) to the resection cavity after surgical resection of brain metastases: A single center experience. Indian J Cancer 56(3): 202-206.

25. Sager O, Dincoglan F, Uysal B, Demiral S, Gamsiz H, et al. (2018) Evaluation of adaptive radiotherapy (ART) by use of replanning the tumor bed boost with repeated computed tomography (CT) simulation after whole breast irradiation (WBI) for breast cancer patients having clinically evident seroma. Jpn J Radiol 36(6): 401-406.

26. Demiral S, Dincoglan F, Sager O, Uysal B, Gamsiz H, et al. (2018) Contemporary Management of Meningiomas with Radiosurgery. Int J Radiol Imaging Technol 80: 187-190.

27. Sager O, Dincoglan F, Uysal B, Demiral S, Gamsiz H, et al. (2017) Splenic Irradiation: A Concise Review of the Literature. J App Hem Bl Tran 1: 101.

28. Dincoglan F, Sager O, Demiral S, Uysal B, Gamsiz H, et al. (2017) Radiosurgery for recurrent glioblastoma: A review article. Neurol Disord Therap 1: 1-5.

29. Demiral S, Dincoglan F, Sager O, Gamsiz H, Uysal B, et al. (2016) Hypofractionated stereotactic radiotherapy (HFSRT) for who grade I anterior clinoid meningiomas (ACM). Jpn J Radiol 34(11): 730-737.

30. Dincoglan F, Beyzadeoglu M, Sager O, Demiral S, Gamsiz H, et al. (2015) Management of patients with recurrent glioblastoma using hypofractionated stereotactic radiotherapy. Tumori 101(2): 179-184.

31. Gamsiz H, Beyzadeoglu M, Sager O, Demiral S, Dincoglan F, et al. (2015) Evaluation of stereotactic body radiation therapy in the management of adrenal metastases from non-small cell lung cancer. Tumori 101(1): 98-103.

32. Sager O, Beyzadeoglu M, Dincoglan F, Demiral S, Uysal B, et al. (2015) Adaptive splenic radiotherapy for symptomatic splenomegaly management in myeloproliferative disorders. Tumori 101(1): 84-90.

33. Sager O, Dincoglan F, Beyzadeoglu M (2015) Stereotactic radiosurgery of glomus jugulare tumors: Current concepts, recent advances and future perspectives. CNS Oncol 4(2): 105-114.

34. Sager O, Beyzadeoglu M, Dincoglan F, Uysal B, Gamsiz H, et al. (2014) Evaluation of linear accelerator (LINAC)-based stereotactic radiosurgery (SRS) for cerebral cavernous malformations: A 15-year single-center experience. Ann Saudi Med 34(1): 54-58.

35. Demiral S, Beyzadeoglu M, Sager O, Dincoglan F, Gamsiz H, et al. (2014) Evaluation of Linear Accelerator (Linac)-Based Stereotactic Radiosurgery (Srs) for the Treatment of Craniopharyngiomas. UHOD-Uluslararasi Hematoloji Onkoloji Dergisi 24(2): 123-129.

36. Sager O, Beyzadeoglu M, Dincoglan F, Gamsiz H, Demiral S, et al. (2014) Evaluation of linear accelerator-based stereotactic radiosurgery in the management of glomus jugulare tumors. Tumori 100(2): 184-188.

37. Ozsavaş EE, Telatar Z, Dirican B, Sager O, Beyzadeoğlu M (2014) Automatic segmentation of anatomical structures from CT scans of thorax for RTP. Comput Math Methods Med 2014: 472890.

38. Demiral S, Beyzadeoglu M, Sager O, Dincoglan F, Gamsiz H, et al. (2014) Evaluation of linear accelerator (linac)-based stereotactic radiosurgery (srs) for the treatment of craniopharyngiomas. UHOD - Uluslararasi Hematoloji-Onkoloji Dergisi 24: 123-129.

39. Gamsiz H, Beyzadeoglu M, Sager O, Dincoglan F, Demiral S, et al. (2014) Management of pulmonary oligometastases by stereotactic body radiotherapy. Tumori 100(2): 179-183.

40. Dincoglan F, Sager O, Gamsiz H, Uysal B, Demiral S, et al. (2014) Management of patients with ≥ 4 brain metastases using stereotactic radiosurgery boost after whole brain irradiation. Tumori 100(3): 302-306.

41. Sager O, Beyzadeoglu M, Dincoglan F, Demiral S, Uysal B, et al. (2013) Management of vestibular schwannomas with linear accelerator-based stereotactic radiosurgery: a single center experience. Tumori 99(5): 617-622.

42. Dincoglan F, Beyzadeoglu M, Sager O, Uysal B, Demiral S, et al. (2013) Evaluation of linear accelerator-based stereotactic radiosurgery in the management of meningiomas: A single center experience. J BUON 18(3): 717-722.

43. Dincoglan F, Beyzadeoglu M, Sager O, Oysul K, Kahya YE, et al. (2013) Dosimetric evaluation of critical organs at risk in mastectomized left-sided breast cancer radiotherapy using breath-hold technique. Tumori 99(1): 76-82.

44. Demiral S, Beyzadeoglu M, Uysal B, Oysul K, Kahya YE, et al. (2013) Evaluation of stereotactic body radiotherapy (SBRT) boost in the management of endometrial cancer. Neoplasma 60(3): 322-327.

45. Sager O, Beyzadeoglu M, Dincoglan F, Oysul K, Kahya YE, et al. (2012) Evaluation of active breathing control-moderate deep inspiration breath-hold in definitive non-small cell lung cancer radiotherapy. Neoplasma 59(3): 333-340.

46. Sağer Ö, Dinçoğlan F, Gamsiz H, Demiral S, Uysal B, et al. (2012) Evaluation of the impact of integrated [18f]-fluoro-2-deoxy-D-glucose positron emission tomography/computed tomography imaging on staging and radiotherapy treatment volume definition of nonsmall cell lung cancer. Gulhane Med J 54: 220-227.

47. Sager O, Beyzadeoglu M, Dincoglan F, Oysul K, Kahya YE, et al. (2012) The Role of Active Breathing Control-Moderate Deep Inspiration Breath-Hold (ABC-mDIBH) Usage in non-Mastectomized Left-sided Breast Cancer Radiotherapy: A Dosimetric Evaluation UHOD - Uluslararasi Hematoloji-Onkoloji Dergisi 22(3): 147-155.

48. Dincoglan F, Sager O, Gamsiz H, Uysal B, Demiral S, et al. (2012) Stereotactic radiosurgery for intracranial tumors: A single center experience. Gulhane Med J 54: 190-198.

49. Dincoglan F, Beyzadeoglu M, Sager O, Oysul K, Sirin S et al. (2012) Image-guided positioning in intracranial non-invasive stereotactic radiosurgery for the treatment of brain metastasis. Tumori 98(5): 630-635.

50. Sirin S, Oysul K, Surenkok S, Sager O, Dincoglan F, et al. (2011) Linear accelerator-based stereotactic radiosurgery in recurrent glioblastoma: A single center experience. Vojnosanit Pregl 68(11): 961-966.

51. Dincoglan F, Demiral S, Sager O, Beyzadeoglu M (2024) Assessment of Changes in Tumor Size After Induction Systemic Therapy for Locally Advanced Cervical Squamous Cell Carcinoma Running title: Tumor size changes in cervical carcinoma. Cancer Ther Oncol Int J 26(1): 001-007.

52. Beyzadeoglu M, Demiral S, Dincoglan F, Sager O (2024) Reappraisal of Target Definition for Sacrococcygeal Chordoma: Comparative Assessment with Computed Tomography (CT) and Magnetic Resonance Imaging (MRI. Biomed J Sci & Tech Res 55 (1): 46686-46692.

53. Dincoglan F, Beyzadeoglu M, Demiral S, Sager O (2024) Appraisal of Changes in Tumor Volume After Neoadjuvant Systemic Therapy for Hepatocellular Carcinoma (HCC). Cancer Ther Oncol Int J 26(2): 001-004.

How to cite this article: Omer S, Ferrat D, Selcuk D, Murat B. Assessment of Changes in Tumor Size for Carcinoid Tumors of the Stomach Receiving Neoadjuvant Systemic Treatment. Canc Therapy & Oncol Int J. 2025; 30(2): 556289. DOI: 10.19080/CTOIJ.2025.30.556289

54. Beyzadeoglu M, Demiral S, Dincoglan F, Sager O (2023) Evaluation of Target Definition for Radiotherapeutic Management of Recurrent Merkel Cell Carcinoma (MCC). Canc Therapy & Oncol Int J 24(2): 556133.

55. Dincoglan F, Demiral S, Sager O, Beyzadeoglu M (2023) Reappraisal of Treatment Volume Determination for Recurrent Gastroesophageal Junction Carcinoma (GJC). Biomed J Sci & Tech Res 50(5): 42061-42066.

56. Beyzadeoglu M, Dincoglan F, Demiral S, Sager O (2023) An Original Article Revisiting the Utility of Multimodality Imagıng for Refıned Target Volume Determinatıon of Recurrent Kidney Carcinoma. Canc Therapy & Oncol Int J 23(5): 556122.

57. Beyzadeoglu M, Demiral S, Dincoglan F, Sager O (2023) Appraisal of Target Definition for Recurrent Cancers of the Supralottic Larynx. Biomed J Sci & Tech Res 50(5): 42131-42136.

58. Beyzadeoglu M, Demiral S, Dincoglan F, Sager O (2022) Assessment of Target Definition for Extramedullary Soft Tissue Plasmacytoma: Use of Multımodalıty Imaging for Improved Targetıng Accuracy. Canc Therapy & Oncol Int J 22(4): 556095.

59. Dincoglan F, Sager O, Demiral S, Beyzadeoglu M (2022) Target Volume Determination for Recurrent Uterine Carcinosarcoma: An Original Research Article Revisiting the Utility of Multimodality Imaging. Canc Therapy & Oncol Int J 22(3): 556090.

60. Demiral S, Sager O, Dincoglan F, Beyzadeoglu M (2022) Reappraisal of Computed Tomography (CT) And Magnetic Resonance Imaging (MRI) Based Target Definition for Radiotherapeutic Management of Recurrent Anal Squamous Cell Carcinoma (ASCC): An Original Article. Canc Therapy & Oncol Int J 22(2): 556085.

61. Demiral S, Dincoglan F, Sager O, Beyzadeoglu M (2022) An Original Article for Assessment of Multimodality Imaging Based Precise Radiation Therapy (Rt) in the Management of Recurrent Pancreatic Cancers. Canc Therapy & Oncol Int J 22(1): 556078.

62. Sager O, Demiral S, Dincoglan F, Beyzadeoglu M (2022) Assessment of Target Volume Definition for Precise Radiotherapeutic Management of Locally Recurrent Biliary Tract Cancers: An Original Research Article. Biomed J Sci & Tech Res 46(1): 37054-37059.

63. Sager O, Demiral S, Dincoglan F, Beyzadeoglu M (2022) Radiation Therapy (RT) Target Volume Determination for Locally Advanced Pyriform Sinus Carcinoma: An Original Research Article Revisiting the Role of Multimodality Imaging. Biomed J Sci & Tech Res 45(1): 36155-36160.

64. Demiral S, Sager O, Dincoglan F, Beyzadeoglu M (2022) Improved Target Volume Definition for Radiotherapeutic Management of Parotid Gland Cancers by use of Multimodality Imaging: An Original Article. Canc Therapy & Oncol Int J 21(3): 556062.

65. Beyzadeoglu M, Sager O, Demiral S, Dincoglan F (2022) Reappraisal of multimodality imaging for improved Radiation Therapy (RT) target volume determination of recurrent Oral Squamous Cell Carcinoma (OSCC): An original article. J Surg Surgical Res 8: 004-008.

66. Dincoglan F, Sager O, Demiral S, Beyzadeoglu M (2022) Multimodality imaging-based treatment volume definition for recurrent Rhabdomyosarcomas of the head and neck region: An original article. J Surg Surgical Res 8(2): 013-018.

67. Dincoglan F, Demiral S, Sager O, Beyzadeoglu M (2022) Appraisal of Target Definition for Management of Paraspinal Ewing Tumors with Modern Radiation Therapy (RT): An Original Article. Biomed J Sci & Tech Res 44(4): 35691-35696.

68. Beyzadeoglu M, Sager O, Demiral S, Dincoglan F (2022) Assessment of Target Volume Definition for Contemporary Radiotherapeutic Management of Retroperitoneal Sarcoma: An Original Article. Biomed J Sci & Tech Res 44(5): 35883-35887.

69. Demiral S, Dincoglan F, Sager O, Beyzadeoglu M (2021) Assessment of Multimodality Imaging for Target Definition of Intracranial Chondrosarcomas. Canc Therapy Oncol Int J 18(2): 001-005.

70. Dincoglan F, Sager O, Demiral S, Beyzadeoglu M (2021) Impact of Multimodality Imaging to Improve Radiation Therapy (RT) Target Volume Definition for Malignant Peripheral Nerve Sheath Tumor (MPNST). Biomed J Sci Tech Res 34(3): 26734-26738.

71. Sager O, Demiral S, Dincoglan F, Beyzadeoglu M (2021) Multimodality Imaging Based Treatment Volume Definition for Reirradiation of Recurrent Small Cell Lung Cancer (SCLC). Arch Can Res 9(1): 1-5.

72. Demiral S, Sager O, Dincoglan F, Beyzadeoglu M (2021) Radiation Therapy (RT) Target Volume Definition for Peripheral Primitive Neuroectodermal Tumor (PPNET) by Use of Multimodality Imaging: An Original Article. Biomed J Sci & Tech Res 34: 26970-26974.

73. Dincoglan F, Demiral S, Sager O, Beyzadeoglu M (2021) Evaluation of Target Definition for Management of Myxoid Liposarcoma (MLS) with Neoadjuvant Radiation Therapy (RT). Biomed J Sci Tech Res 33: 26171-26174.

74. Sager O, Dincoglan F, Demiral S, Beyzadeoglu M (2021) Radiation Therapy (RT) target determination for irradiation of bone metastases with soft tissue component: Impact of multimodality imaging. J Surg Surgical Res 7(1): 042-046.

75. Sager O, Dincoglan F, Demiral S, Beyzadeoglu M (2021) Evaluation of Changes in Tumor Volume Following Upfront Chemotherapy for Locally Advanced Non-Small Cell Lung Cancer (NSCLC). Glob J Cancer Ther 7(1): 031-034.

76. Sager O, Demiral S, Dincoglan F, Beyzadeoglu M (2021) Assessment of posterior fossa target definition by multimodality imaging for patients with medulloblastoma. J Surg Surgical Res 7(1): 037-041.

77. Dincoglan F, Sager O, Demiral S, Beyzadeoglu M (2021) Assessment of the role of multimodality imaging for treatment volume definition of intracranial ependymal tumors: An original article. Glob J Cancer Ther 7: 043-045.

78. Beyzadeoglu M, Dincoglan F, Demiral S, Sager O (2020) Target Volume Determination for Precise Radiation Therapy (RT) of Central Neurocytoma: An Original Article. International Journal of Research Studies in Medical and Health Sciences 5(3): 29-34.

79. Dincoglan F, Demiral S, Sager O, Beyzadeoglu M (2020) Utility of Multimodality Imaging Based Target Volume Definition for Radiosurgery of Trigeminal Neuralgia: An Original Article. Biomed J Sci & Tech Res 26(2): 19728-19732.

80. Demiral S, Beyzadeoglu M, Dincoglan F, Sager O (2020) Assessment of Target Volume Definition for Radiosurgery of Atypical Meningiomas with Multimodality Imaging. Journal of Hematology and Oncology Research 3(4): 14-21.

81. Dincoglan F, Beyzadeoglu M, Demiral S, Sager O (2020) Assessment of Treatment Volume Definition for Irradiation of Spinal Ependymomas: an Original Article. ARC Journal of Cancer Science 6(1): 1-6.

82. Sager O, Demiral S, Dincoglan F, Beyzadeoglu M (2020) Target Volume Definition for Stereotactic Radiosurgery (SRS) Of Cerebral Cavernous Malformations (CCMs). Canc Therapy & Oncol Int J 15(4): 555917.

83. Sager O, Dincoglan F, Demiral S, Beyzadeoglu M (2020) Treatment Volume Determination for Irradiation of Recurrent Nasopharyngeal Carcinoma with Multimodality Imaging: An Original Article. ARC Journal of Cancer Science 6: 18-23.

84. Sager O, Dincoglan F, Demiral S, Beyzadeoglu M (2020) Assessment of Target Volume Definition for Irradiation of Hemangiopericytomas: An Original Article. Canc Therapy & Oncol Int J 17(2): 555959.

How to cite this article: Omer S, Ferrat D, Selcuk D, Murat B. Assessment of Changes in Tumor Size for Carcinoid Tumors of the Stomach Receiving Neoadjuvant Systemic Treatment. Canc Therapy & Oncol Int J. 2025; 30(2): 556289. DOI: 10.19080/CTOIJ.2025.30.556289

85. Sager O, Dincoglan F, Demiral S, Beyzadeoglu M (2020) Evaluation of Treatment Volume Determination for Irradiation of chordoma: an Original Article. International Journal of Research Studies in Medical and Health Sciences 5(10): 3-8.

86. Demiral S, Dincoglan F, Sager O, Beyzadeoglu M (2020) Multimodality Imaging Based Target Definition of Cervical Lymph Nodes in Precise Limited Field Radiation Therapy (Lfrt) for Nodular Lymphocyte Predominant Hodgkin Lymphoma (Nlphl). ARC Journal of Cancer Science 6(2): 06-11.

87. Sager O, Dincoglan F, Demiral S, Beyzadeoglu M (2020) Radiosurgery Treatment Volume Determination for Brain Lymphomas with and without Incorporation of Multimodality Imaging. Journal of Medical Pharmaceutical and Allied Sciences 9: 2398-2404.

88. Beyzadeoglu M, Dincoglan F, Sager O, Demiral S (2020) Determination of Radiosurgery Treatment Volume for Intracranial Germ Cell Tumors (GCTS). Asian Journal of Pharmacy, Nursing and Medical Sciences 8(3): 18-23.

89. Dincoglan F, Sager O, Demiral S, Beyzadeoglu M (2020) Target Definition of orbital Embryonal Rhabdomyosarcoma (Rms) by Multimodality Imaging: An Original Article. ARC Journal of Cancer Science 6(2): 12-17.

90. Sager O, Dincoglan F, Demiral S, Beyzadeoglu M (2020) Evaluation of Target Volume Determination for Irradiatıon of Pilocytic Astrocytomas: An Original Article. ARC Journal of Cancer Science 6: 1-5.

91. Demiral S, Beyzadeoglu M, Dincoglan F, Sager O (2020) Evaluation of Radiosurgery Target Volume Definition for Tectal Gliomas with Incorporation of Magnetic Resonance Imaging (MRI): An Original Article. Biomedical Journal of Scientific & Technical Research (BJSTR) 27: 20543-20547.

92. Beyzadeoglu M, Sager O, Dincoglan F, Demiral S (2019) Evaluation of Target Definition for Stereotactic Reirradiation of Recurrent Glioblastoma. Arch Can Res 7(1): 3.

93. Sager O, Dincoglan F, Demiral S, Gamsiz H, Uysal B, et al. (2019) Evaluation of the Impact of Magnetic Resonance Imaging (MRI) on Gross Tumor Volume (GTV) Definition for Radiation Treatment Planning (RTP) of Inoperable High-Grade Gliomas (HGGs). Concepts in Magnetic Resonance Part A 2019.

94. Sager O, Dincoglan F, Demiral S, Gamsiz H, Uysal B, et al. (2019) Utility of Magnetic Resonance Imaging (Imaging) in Target Volume Definition for Radiosurgery of Acoustic Neuromas. Int J Cancer Clin Res 6: 119.

95. Demiral S, Sager O, Dincoglan F, Beyzadeoglu M (2019) Assessment of Computed Tomography (CT) And Magnetic Resonance Imaging (MRI) Based Radiosurgery Treatment Planning for Pituitary Adenomas. Canc Therapy & Oncol Int J 13(2): 555857.

96. Dincoglan F, Sager O, Demiral S, Beyzadeoglu M (2019) Multimodality Imaging for Radiosurgical Management of Arteriovenous Malformations. Asian Journal of Pharmacy, Nursing and Medical Sciences 7(1): 7-12.

97. Sager O, Dincoglan F, Demiral S, Beyzadeoglu M (2019) Evaluation of Radiosurgery Target Volume Determination for Meningiomas Based on Computed Tomography (CT) And Magnetic Resonance Imaging (MRI). Cancer Sci Res Open Access 5: 1-4.

98. Demiral S, Sager O, Dincoglan F, Beyzadeoglu M (2019) Assessment of target definition based on Multimodality imaging for radiosurgical Management of glomus jugulare tumors (GJTs). Canc Therapy & Oncol Int J 15: 555909.

99. Dincoglan F, Sager O, Demiral S, Beyzadeoglu M (2019) Incorporation of Multimodality Imaging in Radiosurgery Planning for Craniopharyngiomas: An Original Article. SAJ Cancer Sci 6: 103.

100. Demiral S, Sager O, Dincoglan F, Uysal B, Gamsiz H, et al. (2018) Evaluation of Target Volume Determination for Single Session Stereotactic Radiosurgery (SRS) of Brain Metastases. Canc Therapy & Oncol Int J 12(5): 555848.

101. Duzova M, Akin M (2022) Evaluation of survival outcomes and prognostic factors in acinic cell carcinomas of the parotid gland receiving adjuvant radiotherapy. Anatolian Current Medical Journal 4(3): 290-294.

102. Akin M, Duzova M (2022) Single fraction image guided radiation therapy for management of bone metastases during the COVID-19 pandemic. Journal of Health Sciences and Medicine 5(4): 961-965.

103. Akin M, Duzova M (2022) Evaluatin of Treatment Volume Determination for Anaplastic Oligodendrogliomas Based on Multimodality Imaging: An Original Article. Celal Bayar Universitesi Saglik Bilimleri Enstitusu Dergisi 9(3): 414-417.

104. Akin M (2022) Tobacco and lung cancer in elderly patients located in southern marmara: epidemiological study. Celal Bayar Universitesi Saglik Bilimleri Enstitusu Dergisi 9(2): 310-313.

105. Cinar D, Karadakovan A, Akin M (2022) Effects of Paper Marbling Art in the Cancer Rehabilitation Process: Descriptive Research. Journal of Traditional Medical Complementary Therapies 5(2): 132-142.

106. Cinkaya A, Akin M, Sengul A (2016) Evaluation of treatment outcomes of triple negative breast cancer. Journal of Cancer Research and Therapeutics 12(1): 150-154.

DOI: 10.19080/CTOIJ.2025.30.556289