



## Treatment of Gastrointestinal Tumors

INTRABEAM 600 from ZEISS



Seeing beyond

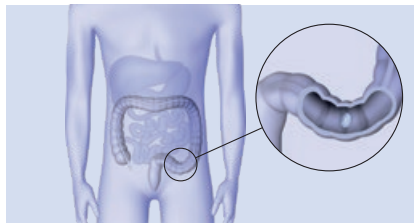
# Intraoperative radiation therapy (IORT) can be used for local control in gastrointestinal cancer treatments<sup>1</sup>

In cancer surgery, the primary goal is to completely excise the tumor. However, incomplete resection is sometimes the outcome. IORT can be used for local control of colorectal tumors.<sup>2</sup> Its value has also been demonstrated in the setting of laparoscopic hemicolectomy in patients with colon cancer and gastrectomy in patients with gastric cancer.<sup>3</sup> More effective systemic therapies in the metastatic setting have significantly extended life expectancy for patients with a metastatic disease. As a consequence, local control of the disease has taken on a greater importance given the potential for longer-term survival with fewer adverse symptoms.<sup>4</sup>

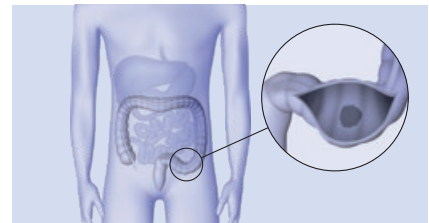
- Combination of surgical resection and low-energy IORT was found to neither increase the risk of postoperative complications nor prolong hospitalization.<sup>1</sup>
- IORT may be a suitable technique for delivering radiation in patients with locally advanced and recurrent rectal cancer.<sup>2</sup>
- Rates of local recurrence, survival, and long-term toxicity for IORT from ZEISS were comparable with published reports using other intraoperative radiotherapy methods.<sup>2</sup>



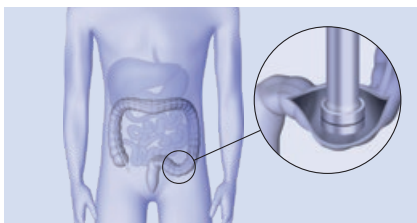
**1** The position of the tumor is determined.



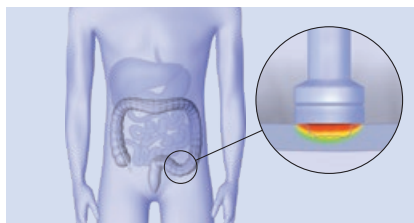
**2** During surgery an invasive access point is created.



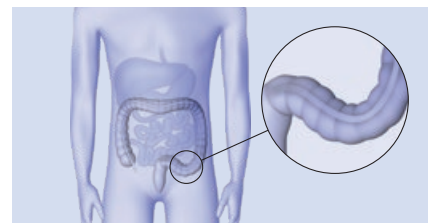
**3** The tumor is surgically removed.



**4** The correct size (Ø) of the applicator is determined and the applicator is positioned on the tumor bed.



**5** The tumor bed is locally irradiated for about 30 minutes.



**6** The applicator is removed and the incision closed.



IORT from ZEISS performed after surgical resection can increase local tumor control. Further, the use of IORT as an adjunct to surgical resection did not prolong hospitalization.<sup>5</sup>



#### **The clinical rationale**

IORT for gastrointestinal tumors shows low treatment-related side effects. The treatment causes no long-term toxicity and can improve local control in different patient groups.<sup>7</sup> The principle for the use of IORT is to eliminate microscopic tumor foci by increasing the radiobiological effects of a single dose of radiation and to optimize the length of treatment.<sup>6</sup> Based on initial studies on gastrointestinal tumors, IORT from ZEISS has shown that local recurrence improved and was well tolerated, with few side effects.<sup>2,3,5</sup> According to the guidelines of the National Comprehensive Cancer Network®, abdominal cancers are considered as an indication for the use of IORT.<sup>8</sup>



#### **Adapt the radiation to the needs of your patients**

To irradiate the tumor bed, e.g. in the treatment of surgically exposed surfaces such as the gastrointestinal tract, ZEISS offers a complete range of applicators in different shapes, sizes and diameters. This versatility enables the physician to exactly adapt the emitted radiation beam to the form and size of the tumor bed.

## Literature References

- 1 Skórzewska, M., Mielko, J., Kurylcio, A., Romanek, J., & Polkowski, W. P. (2016). Intraoperative radiotherapy with low energy photons in recurrent colorectal cancer: a single centre retrospective study. *Współczesna Onkologia*, 20(1), 52–57.
- 2 Guo, S., Reddy, C. A., Kolar, M., Woody, N., Mahadevan, A., Deibel, F., ... Suh, J. H. (2012). Intraoperative radiation therapy with the photon radiosurgery system in locally advanced and recurrent rectal cancer: retrospective review of the Cleveland clinic experience. *Radiation Oncology*, 7(1), 110.
- 3 Lyadov, K., Yu, S., Krymskiy, V., & Krymskiy, A. (2008). Improvement of Curativity of Video-Assisted Surgery for Colorectal Cancer Due to Intra-Operative Contact Radiotherapy Using the INTRABEAM System. Poster abstract ISORT.
- 4 Haddock, M. G. (2016). Irradiation of Very Locally Advanced and Recurrent Rectal Cancer. *Seminars in Radiation Oncology*, 26(3), 226–235.
- 5 Polkowski, W. P., & Skórzewska, M. (2014). Intraoperative Radiotherapy with Low-Energy Photons in Rectal Cancer Recurrence. (M. Keshtgar, K. Pigott, & F. Wenz, Eds.), *Targeted Intraoperative Radiotherapy in Oncology*. Berlin, Heidelberg: Springer Berlin Heidelberg.
- 6 Schneider, F., Clausen, S., Thölking, J., Wenz, F., & Abo-Madyan, Y. (2014). A novel approach for superficial intraoperative radiotherapy (IORT) using a 50 kV X-ray source: a technical and case report. *Journal of Applied Clinical Medical Physics / American College of Medical Physics*, 15(1), 4502.
- 7 Algur, E., Mahadevan, A., & Deibel, C. (2005). Interstitial photon radiosurgery system for re-current and locally advanced rectal cancer: a retrospective review of 24 patients. *ASCO Gastrointestinal Cancers Symposium*, Jan 27–29, Hollywood, Florida, USA, Abstract No 208.
- 8 National Comprehensive Cancer Network® - Guidelines for Colon & Rectal Cancer, 2016



**Carl Zeiss Meditec AG**  
Goeschwitzer Strasse 51–52  
07745 Jena  
Germany  
[www.zeiss.com/radiotherapy](http://www.zeiss.com/radiotherapy)  
[www.zeiss.com/med/contacts](http://www.zeiss.com/med/contacts)



**Carl Zeiss Meditec USA, Inc.**  
5300 Central Parkway  
Dublin, CA 94568  
USA  
[www.zeiss.com/us/radiotherapy](http://www.zeiss.com/us/radiotherapy)  
[www.zeiss.com/us/med](http://www.zeiss.com/us/med)

**CAP-en-US\_30\_020\_00061 CZ-IX/2021** Printed in the United States. United States edition. Only for sale in selected countries. The contents of the brochure may differ from the current status of approval of the product or service offering in your country. Please contact our regional representatives for more information. Subject to change in design and scope of delivery and as a result of ongoing technical development. INTRABEAM is either a trademark or registered trademark of Carl Zeiss Meditec AG or other companies of the ZEISS Group in Germany and/or other countries.  
© Carl Zeiss Meditec USA, Inc., 2021. All rights reserved.