

Palliative Radiotherapy: Bleeding and Gastrointestinal Obstruction

Effective Date: September, 2016

The recommendations contained in this guideline are a synthesis of currently accepted approaches to management, derived from a review of relevant scientific literature. Clinicians applying these guidelines should, in consultation with the patient, use independent medical judgment in the context of individual clinical circumstances to direct care.

BACKGROUND

This guideline is targeted at palliative oncology patients with low grade/ low volume/ malignancy related bleeding. Acute and/or large volume bleeds may be managed urgently with radiological intervention or surgery if clinically appropriate.

Clinically significant bleeding occurs in approximately six to ten percent of patients with advanced cancer¹. Bleeding can be caused by many different underlying processes, and is associated with a variety of clinical presentations, ranging from chronic, low-volume bleeding to acute episodes of major hemorrhage^{1,2}. Bleeding (hematemesis, hematuria, vaginal or rectal bleeding) is amenable to control with external-beam radiotherapy^{1,2}. Other management strategies for malignancy-associated bleeding may involve local measures (i.e., packing, hemostatic agents, dressings), systemic agents, endoscopy, interventional radiology, and/or surgery; the choice of interventions will depend on the underlying causes, PS, and the patient's life expectancy^{2,3}. Hemoptysis and other thoracic symptoms are discussed in a separate CPG ([link](#)).

The global prevalence of malignant bowel obstruction is estimated to range between 3-15% of cancer patients, but reaches as high as 20-50% in those with ovarian and 10-29% of those with colon⁴⁻⁶. In patients with advanced disease causing malignant bowel obstruction, the six-month survival rate is 50% in patients who are candidates for surgery, and 8% in patients who are not⁷⁻⁹.

Dysphagia is the most common symptom of malignancy-associated gastrointestinal obstruction or compression. Over 70 percent of patients with esophageal or gastro-esophageal junction cancers will experience dysphagia at some point in their disease trajectory^{10,11}.

Recognizing that patients with bleeding or gastrointestinal obstruction, compression or invasion may benefit from a multidisciplinary palliative/supportive care team (including physiotherapy therapy/ occupational therapy/ psychosocial support/ speech-language pathology etc.), the focus of this guideline is to detail radiotherapy options. This guideline will discuss the evidence supporting palliative radiotherapy for symptoms associated with gastrointestinal obstruction, compression or invasion. Whenever possible, participation in a clinical trial is strongly encouraged.

GUIDELINE QUESTIONS

Limited info exists to guide palliative symptom control measures in patients with advanced cancer: This guideline will focus on:

- What are the recommended strategies for the management of adult patients with malignant gastrointestinal compression or obstruction?
- What are the recommended strategies for the management of adult patients with malignancy-associated urogenital or gastrointestinal bleeding?

DEVELOPMENT AND REVISION HISTORY

The original guideline was developed in 2008 by the clinical leaders of the Fast Track Palliative Radiotherapy Clinic for Bone Metastases in Calgary and the Palliative Radiation Oncology program (originally called the Rapid Access Palliative Radiotherapy Program) in Edmonton, with input from

provincial radiation oncologists. For the 2010 updates, evidence was selected and reviewed by a working group comprised of radiation oncologists from Alberta Health Services – CancerControl Alberta and a Knowledge Management Specialist from the Guideline Resource Unit. In 2012, a literature review was conducted by no modifications to the guideline were made. In 2014 the larger guideline was converted into several smaller guidelines. A detailed description of the methodology followed during the guideline development process can be found in the [Guideline Resource Unit Handbook](#).

SEARCH STRATEGY

For the 2015 update, the National Library of Medicine’s PubMed database was searched (January, 2012 to September 2014) using 5 independent searches (Full details in Appendix A). In brief, articles were excluded if they: were not written or translated into English, were case studies involving less than 10 patients, or if the study involved pediatric patients. The references cited in articles identified through the formal searches were also scanned for additional sources. In total, 12 articles were identified and reviewed in detail for possible inclusion in the guideline based on a title/abstract screen.

TARGET POPULATION

- Patients who are at least 18 years of age with gastrointestinal obstruction, compression, or invasion.
- Patients who are at least 18 years of age with malignancy-associated urogenital or gastrointestinal bleeding.

RECOMMENDATIONS

Summary of Recommendations:

Gastrointestinal Obstruction

- For palliation of dysphagia in esophageal cancer, treatment options include external beam radiotherapy (EBRT) or brachytherapy with or without prior stent placement, or in select situations surgical bypass.

Bleeding

- EBRT is recommended for advanced prostate or bladder cancer associated with hematuria. It also effectively palliates bleeding caused by gynecologic malignancies.
- In advanced GI malignancies, bleeding, dysphagia, and pain can be controlled with radiotherapy.

I. GASTROINTESTINAL OBSTRUCTION OR COMPRESSION

Recommendations:

1. For palliation of dysphagia secondary to esophageal cancer, EBRT with 30Gy/10 fractions or 35Gy/15 fractions are reasonable options ^{12,13}.
2. Stent placement or brachytherapy are also options in appropriately selected patients ¹⁰. A randomized controlled trial (RCT) comparing outcomes of brachytherapy (12Gy/1) and stent placement in patients with dysphagia from inoperable esophageal or gastro-esophageal junction carcinoma reported faster symptom relief and better QoL after stent insertion ¹⁴. Although long-term relief of dysphagia was

better with brachytherapy, no survival difference was noted. Stent insertion was associated with more complications, mainly due to late hemorrhage ¹⁴. Combining stent insertion, EBRT and photodynamic therapy (PDT) may also be effective in relieving malignant esophageal obstruction ¹⁵. PDT involves the use of an intravenous photosensitising agent which is activated at the target location using a low-power laser, resulting in the generation of high-energy oxygen, which causes necrosis through a photochemical effect.

3. Surgical bypass may be considered in select patients with advanced cancer and malignancy-associated gastrointestinal obstruction or compression, who are not amenable to other palliative interventions ^{16,17}.
4. Outside of a clinical trial, concurrent chemoradiotherapy is not considered standard of care at present. An international RCT investigating the addition of concurrent cisplatin and 5FU to EBRT for patients with advanced esophageal cancer has reported, in abstract form, that chemoradiotherapy slightly improved dysphagia and median survival; however, bowel toxicity was worse compared to those who received RT alone ¹⁸.

II. BLEEDING

Recommendations for Urogenital Bleeding:

1. EBRT improves hematuria in up to 60 percent of patients with advanced bladder cancer and in 80 percent of patients with advanced prostate cancer at six weeks ^{19,20}. In patients with a life expectancy of less than six months, EBRT with 8Gy/1 fraction could be delivered. Otherwise, a short course multi-fraction schedule could be considered.
2. In patients with vaginal bleeding who are unsuitable for radical treatment, EBRT is effective in resolving bleeding secondary to endometrial or cervical cancer ²¹. There is insufficient evidence to recommend a specific dose and fractionation schedule. Radiotherapy may also be used to control bleeding and palliate pain and mass effect in advanced ovarian cancer ²².

Recommendations for Gastrointestinal Bleeding:

3. Palliative radiotherapy either alone or with chemotherapy²³ provides reasonable control of bleeding, dysphagia, and pain associated with gastrointestinal malignancies ^{12,13,24,25}. Insufficient information exists to recommend a specific fractionation schedule, although one recent retrospective analysis noted a response rate of 68 percent in patients with unresectable gastric cancer after a median total dose of 40Gy ²⁶. 30Gy in 10 fractions has also been reported as adequate for control of bleeding secondary to gastric cancer; concurrent chemotherapy yielded significantly lower rebleeding rates than RT alone (albeit with higher toxicity) ²⁴.
4. For refractory GI bleeds non-radiotherapy options would require a review of available options with GI services.

GLOSSARY OF ABBREVIATIONS

Acronym	Description
EBRT	External beam radiotherapy
PDT	Photodynamic therapy
QoL	Quality of Life
RT	Radiotherapy

DISSEMINATION

- Post the guideline on the Alberta Health Services website.
- Send an electronic notification of the new guideline to all members of CancerControl Alberta.

MAINTENANCE

This guideline will be reviewed annually for required updates; however, if critical new evidence is brought forward before that time, however, the guideline working group members will revise and update the document accordingly.

CONFLICT OF INTEREST

Participation of members of the working group in the development of this guideline has been voluntary and the authors have not been remunerated for their contributions. There was no direct industry involvement in the development or dissemination of this guideline. CancerControl Alberta recognizes that although industry support of research, education and other areas is necessary in order to advance patient care, such support may lead to potential conflicts of interest. Some members of the working group are involved in research funded by industry or have other such potential conflicts of interest. However the developers of this guideline are satisfied it was developed in an unbiased manner.

REFERENCES

1. Pereira J, Phan T. Management of bleeding in patients with advanced cancer. *Oncologist* 2004;9(5):561-570 **PubMed ID 15477642**.
2. Pereira J. Control of bleeding in cancer. *Cancer Treat Res* 2009;148:305-326 **PubMed ID 19377932**.
3. Prommer E. Management of bleeding in the terminally ill patient. *Hematology* 2005 Jun;10(3):167-175 **PubMed ID 16019465**.
4. Ripamonti CI, Easson AM, Gerdes H. Management of malignant bowel obstruction. *Eur J Cancer* 2008 May;44(8):1105-1115 **PubMed ID 18359221**.
5. Dvoretzky PM, Richards KA, Angel C, Rabinowitz L, Beecham JB, Bonfiglio TA. Survival time, causes of death, and tumor/treatment-related morbidity in 100 women with ovarian cancer. *Hum Pathol* 1988 Nov;19(11):1273-1279 **PubMed ID 3181948**.
6. Baines M, Oliver DJ, Carter RL. Medical management of intestinal obstruction in patients with advanced malignant disease. A clinical and pathological study. *Lancet* 1985 Nov 2;2(8462):990-993 **PubMed ID 2414614**.
7. Miller G, Boman J, Shrier I, Gordon PH. Small-bowel obstruction secondary to malignant disease: an 11-year audit. *Can J Surg* 2000 Oct;43(5):353-358 **PubMed ID 11045093**.
8. Tuca A, Roca R, Sala C, Porta J, Serrano G, Gonzalez-Barboteo J, et al. Efficacy of granisetron in the antiemetic control of nonsurgical intestinal obstruction in advanced cancer: a phase II clinical trial. *J Pain Symptom Manage* 2009 Feb;37(2):259-270 **PubMed ID 18789638**.
9. Blair SL, Chu DZ, Schwarz RE. Outcome of palliative operations for malignant bowel obstruction in patients with peritoneal carcinomatosis from nongynecological cancer. *Ann Surg Oncol* 2001 Sep;8(8):632-637 **PubMed ID 11569777**.
10. Sreedharan A, Harris K, Crellin A, Forman D, Everett SM. Interventions for dysphagia in oesophageal cancer. *Cochrane Database Syst Rev* 2009 Oct 7;(4):CD005048. doi(4):CD005048 **PubMed ID 19821338**.
11. Weigel TL, Frumiento C, Gaumintz E. Endoluminal palliation for dysphagia secondary to esophageal carcinoma. *Surg Clin North Am* 2002 Aug;82(4):747-761 **PubMed ID 12472128**.
12. Tey J, Back MF, Shakespeare TP, Mukherjee RK, Lu JJ, Lee KM, et al. The role of palliative radiation therapy in symptomatic locally advanced gastric cancer. *Int J Radiat Oncol Biol Phys* 2007 Feb 1;67(2):385-388 **PubMed ID 17118569**.
13. Kim MM, Rana V, Janjan NA, Das P, Phan AT, Delclos ME, et al. Clinical benefit of palliative radiation therapy in advanced gastric cancer. *Acta Oncol* 2008;47(3):421-427 **PubMed ID 17899453**.
14. Homs MY, Steyerberg EW, Eijkenboom WM, Tilanus HW, Stalpers LJ, Bartelsman JF, et al. Single-dose brachytherapy versus metal stent placement for the palliation of dysphagia from oesophageal cancer: multicentre randomised trial. *Lancet* 2004 Oct 23-29;364(9444):1497-1504 **PubMed ID 15500894**.
15. Yoon HY, Cheon YK, Choi HJ, Shim CS. Role of photodynamic therapy in the palliation of obstructing esophageal cancer. *Korean J Intern Med* 2012 Sep;27(3):278-284 **PubMed ID 23019392**.
16. Feuer DJ, Broadley KE, Shepherd JH, Barton DP. Surgery for the resolution of symptoms in malignant bowel obstruction in advanced gynaecological and gastrointestinal cancer. *Cochrane Database Syst Rev* 2000;(4)(4):CD002764 **PubMed ID 11034757**.
17. Watson DI, Devitt PG, Game PA, Gill PG, Jamieson G. Surgical bypass for palliation of malignant oesophageal obstruction. *Aust N Z J Surg* 1993 May;63(5):333-335 **PubMed ID 7683194**.
18. Penniment M, Harvey J, Wong R, Stephens S, Au H, et al. **A randomized phase III study in advanced esophageal cancer (OC) to compare the quality of life (QoL) and palliation of dysphagia in patients treated with radiotherapy (RT) or chemoradiotherapy (CRT) TROG 03.01 NCIC CTG ES.2..** *J Clin Oncol* 2014;32(5s):(suppl; abstr 4009).
19. Din OS, Thanvi N, Ferguson CJ, Kirkbride P. Palliative prostate radiotherapy for symptomatic advanced prostate cancer. *Radiother Oncol* 2009 Nov;93(2):192-196 **PubMed ID 19464745**.
20. Srinivasan V, Brown CH, Turner AG. A comparison of two radiotherapy regimens for the treatment of symptoms from advanced bladder cancer. *Clin Oncol (R Coll Radiol)* 1994;6(1):11-13 **PubMed ID 7513538**.
21. Onsrud M, Hagen B, Strickert T. 10-Gy single-fraction pelvic irradiation for palliation and life prolongation in patients with cancer of the cervix and corpus uteri. *Gynecol Oncol* 2001 Jul;82(1):167-171 **PubMed ID 11426980**.

22. Tinger A, Waldron T, Peluso N, Katin MJ, Dosoretz DE, Blitzer PH, et al. Effective palliative radiation therapy in advanced and recurrent ovarian carcinoma. *Int J Radiat Oncol Biol Phys* 2001 Dec 1;51(5):1256-1263 **PubMed ID 11728685**.
23. Cameron MG, Kersten C, Vistad I, Fossa S, Gurren MG. Palliative pelvic radiotherapy of symptomatic incurable rectal cancer - a systematic review. *Acta Oncol* 2014 Feb 53(2): 164-73 **PubMed ID 24195692**
24. Asakura H, Hashimoto T, Harada H, Mizumoto M, Furutani K, Hasuike N, et al. Palliative radiotherapy for bleeding from advanced gastric cancer: is a schedule of 30 Gy in 10 fractions adequate? *J Cancer Res Clin Oncol* 2011 Jan;137(1):125-130 **PubMed ID 20336314**.
25. Bae SH, Park W, Choi DH, Nam H, Kang WK, Park YS, et al. Palliative radiotherapy in patients with a symptomatic pelvic mass of metastatic colorectal cancer. *Radiat Oncol* 2011 May 21;6:52-717X-6-52 **PubMed ID 21600018**.
26. Hashimoto K, Mayahara H, Takashima A, Nakajima TE, Kato K, Hamaguchi T, et al. Palliative radiation therapy for hemorrhage of unresectable gastric cancer: a single institute experience. *J Cancer Res Clin Oncol* 2009 Aug;135(8):1117-1123 **PubMed ID 19205735**.

APPENDIX A SEARCH STRATEGY

For the 2015 update, the National Library of Medicine's PubMed database was searched (January, 2012 to September 2014) using the following search terms (4 independent searches): (1) palliative[All Fields] AND ("radiotherapy"[Subheading] OR "radiotherapy"[All Fields] OR "radiotherapy"[MeSH Terms]) AND gastrointestinal[All Fields] AND gi[All Fields] AND esophageal[All Fields] AND obstruction[All Fields]; palliative[All Fields] AND ("radiotherapy"[MeSH Terms] OR "radiotherapy"[All Fields] OR ("rt"[All Fields] AND "radiotherapy"[All Fields]) OR "rt radiotherapy"[All Fields]) AND obstruction[All Fields] (2) ("urogenital system"[MeSH Terms] OR ("urogenital"[All Fields] AND "system"[All Fields]) OR "urogenital system"[All Fields] OR "urogenital"[All Fields]) AND ("hemorrhage"[MeSH Terms] OR "hemorrhage"[All Fields] OR "bleeding"[All Fields]) AND palliative[All Fields] AND ("radiotherapy"[Subheading] OR "radiotherapy"[All Fields] OR "radiotherapy"[MeSH Terms]); ("hemorrhage"[MeSH Terms] OR "hemorrhage"[All Fields] OR "bleeding"[All Fields]) AND palliative[All Fields] (3) ("gastrointestinal hemorrhage"[MeSH Terms] OR ("gastrointestinal"[All Fields] AND "hemorrhage"[All Fields]) OR "gastrointestinal hemorrhage"[All Fields] OR ("gastrointestinal"[All Fields] AND "bleeding"[All Fields]) OR "gastrointestinal bleeding"[All Fields]) AND palliative[All Fields] AND ("radiotherapy"[Subheading] OR "radiotherapy"[All Fields] OR "radiotherapy"[MeSH Terms]) (4) ("haemoptysis"[All Fields] OR "hemoptysis"[MeSH Terms] OR "hemoptysis"[All Fields]) AND palliative[All Fields] AND ("radiotherapy"[Subheading] OR "radiotherapy"[All Fields] OR "radiotherapy"[MeSH Terms]). Articles were excluded if they: were not written or translated into English, were case studies involving less than 10 patients, or involved pediatric patients. The references cited in articles identified through the formal searches were also scanned for additional sources. In total, 2566 articles were identified, of which 12 were reviewed in detail based on a title/abstract screen.

COPYRIGHT DISCLOSURE

Copyright © (2016) Alberta Health Services.

This material is protected by Canadian and other international copyright laws. All rights reserved. This material may not be copied, published, distributed or reproduced in any way in whole or in part without the express written permission of Alberta Health Services (please contact the Guideline Resource Unit Manager at CancerControl Alberta at guru@ahs.ca).

This material is intended for general information only and is provided on an "as is", "where is" basis. Although reasonable efforts were made to confirm the accuracy of the information, Alberta Health Services does not make any representation or warranty, express, implied or statutory, as to the accuracy, reliability, completeness, applicability or fitness for a particular purpose of such information. This material is not a substitute for the advice of a qualified health professional. Alberta Health Services expressly disclaims all liability for the use of these materials, and for any claims, actions, demands or suits arising from such use.