

Gynecologic Oncologic Surgery for the Palliation of Life-Limiting Cancer Crises—The Importance of Education and Training in Palliative Care for the Gynecologic Oncologist

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Abstract

Introduction: Palliative care expertise is an important component of the comprehensive care of women with gynecologic cancers. Palliative care ranges from treatment of symptoms experienced by people with cancer such as constipation, nausea, anxiety, pain to careful and the skillful discussion of prognosis and goals of care. The purpose of this review is to summarize the basic issues in palliative care faced by healthcare providers caring for people with cancer and then focus on some examples of diagnostic and treatment dilemmas faced by gynecologic oncologists caring for women with recurrent cancers. **Review Summary:** Palliative and hospice care strategies are described. Palliative care refers to symptom management from diagnosis through active treatment, problems encountered by survivors, and concerns at the end of life. Hospice care pertains to care during the last six months of life and includes the alleviation of suffering of those dying from cancer and the support for family members. The symptoms at the end of life including pain, anorexia, and intestinal complications are reviewed. Palliative surgical procedures range from the drainage of pleural and abdominal fluid, including the management of intestinal obstruction via drains, diversionary procedures, or the creation of an ostomy. A comparison of outcomes between medical (when surgery was not feasible) and surgical management of bowel obstruction shows the average survival of 54 days compared to 193 days respectively. **Conclusion:** Gynecologic oncologists are uniquely positioned among other oncologists in managing intestinal obstruction, malignant ascites and pleural effusions, and oligometastatic recurrences where they must decide whether a medical or surgical approach will be effective in palliation and alleviation of suffering. The combination of traditional surgical gynecologic oncology train-

ing with palliative care is crucial to become the most effective clinician for each patient with advanced or recurrent gynecologic cancer.

Keywords

Palliative Care Training, Palliative Surgery, Gynecologic Oncology, Ovarian Cancer, Intestinal Obstruction

1. Introduction

Gynecologic oncology, a subspecialty of obstetrics and gynecology, focuses on the comprehensive care of women with gynecologic cancers [1]. Gynecologic oncologists are trained to educate other specialties about women's cancers, advocate for legislation to increase funding for research, and have both medical and surgical expertise to treat gynecologic malignancies [1]. Part of comprehensive cancer care is an understanding of the prognosis of gynecologic cancers, the implications of recurrence and progression of cancers, and when active therapy may no longer be beneficial. For instance, survivorship care plans may help guide decisions after primary therapy [2]. Fear of recurrence is distressing and can impact quality of life and use of health services and careful discussions about prognosis and support plans are an important part of ongoing follow-up [3]. Given the importance of understanding prognosis and symptom management, during active treatment, recurrence, in end-of-life care, palliative care should be part of routine training for gynecologic oncologists. A survey of gynecologic oncology fellows and junior faculty in 2013 revealed that only 11% had participated in a formal palliative care rotation during their training [4]. A survey of gynecologic oncology fellowship directors identified that four of the top five palliative care topics for fellowship education involved communication skills [5]. Over the past decade, there has been significant effort within the national and international organizations representing healthcare practitioners, who care for women with gynecologic cancers, to improve palliative care training [6] [7]. Training has included skill building for delivering difficult news and learning how to discuss goals of care with patients at high risk of relapse and progression [8] [9] Palliative care has also been included in new gynecologic oncology training programs in resource limited countries [10].

This review defines the basic issues in palliative care faced by healthcare providers caring for people with cancer and then focuses on some examples of diagnostic and treatment dilemmas faced by gynecologic oncologists caring for women with recurrent cancers. Gynecologic oncologists are uniquely positioned among other oncologists in managing intestinal obstruction, malignant ascites and pleural effusions, and oligometastatic recurrences where they must decide whether a medical or surgical approach will be effective in palliation and alleviation of suffering. The combination of traditional surgical gynecologic oncology

training with palliative care is crucial to become the most effective clinicians for each patient with advanced or recurrent gynecologic cancer.

2. Definition and Practice of Palliative Care

The World Health Organization defines palliative care as an approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness. The goals of palliative care include the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems [11]. Palliative care focuses on four central pillars of clinical intervention that are important in cancer care from diagnosis to end-of-life support: symptom management, psychosocial support, patient-centered care, and communication [12]. **Table 1** lists the many possible team members either within the hospital setting or for home care that can be part of the palliative care team [13]. In addition to physicians, advance practice nurses, and nurses, other care experts can enhance symptom management and the alleviation of suffering. Occupational and physical therapists focus on helping patients be active and participate in activities of daily living. In a survey of occupational therapists in Germany who participated in palliative care, they reported providing relaxation therapy, helping patients with positioning, training relatives, and needs-based therapies [14]. A music therapy at the end of life improves quality of life and humanization of medical care [15]. Pet therapy can significantly increase patients' feeling of wellbeing [16]. Social workers can play a key role in incorporating palliative care earlier in the courses of patients' illnesses and facilitate goals of care discussions [17]. Interfaith chaplains can offer spiritual support and improve psychosocial and spiritual care outcomes for patients with cancer [18]. Grief and bereavement are significant experiences for family caretakers who have been involved in the hospice and palliative care of a departed family member [19]. Hospice care must also offer support services to family members and friends who have mental health symptoms related to grief [20].

There has been a growing movement to include palliative care concepts and interventions along with cancer care at the diagnosis of a cancer [21]. The benefits include effective interventions for management of both cancer-related symptoms and side effects of therapy. Early patient-centered discussions about prognosis and the wishes and goals of a patient with cancer and their family members can reduce chaos and family conflicts when cancer progression leads to medical crises at the end of life. There are no treatment restrictions when patients are receiving palliative care, including curative or life-prolonging treatments. Treatments that may all be within the purview of palliative medicine include hemodialysis, chemotherapy, radiation therapy, blood transfusions, and surgical procedures. While palliative care is part of hospice care, hospice care refers specifically to the last six months of life [22]. **Table 2** summarizes these differences. In summary, palliative care focuses on managing symptoms, quali-

ty-of-life (QOL) issues, and discussions about the meaning of an illness and its prognosis for patients with serious illnesses and their family members. **Table 3** summarizes the leading symptoms experienced by people with cancer especially in their last year of life [23]. Pain, loss of appetite, nausea and vomiting, and sleep disorders are the leading symptoms at the end of life. With appropriate training, most gynecologic oncologists and other cancer care healthcare providers will be comfortable managing many of these issues. However, the complexity of suffering, both physical and existential, can be best managed with a multidisciplinary team (**Table 1**).

Table 1. Multidisciplinary nature of palliative care: the potential members of a palliative care team.

MEMBERS OF THE PALLIATIVE CARE TEAM
• Physicians and advance practice nurses
• Occupational therapists
• Music and pet therapists
• Mindfulness training practitioners
• Massage Therapists
• Child life experts
• Bereavement/grief counselors
• Chaplains
• Social workers
• Psychiatrists
• Psychologists
• Dietitians
• Pharmacists
• Physical therapists

Table 2. Differences between palliative care and hospice care.

PALLIATIVE CARE	HOSPICE CARE
Interdisciplinary: addresses goals of care, quality of life, family support, symptom management	Specific type of palliative care: recognizing end-of-life trajectory
Includes ongoing curative or disease-directed therapies	No active disease-directed therapies No life-sustaining interventions
Can begin with symptom onset from life-limiting disease	Prognosis is less than six months
Assists with symptoms, hard conversations, family dynamics	Assists with symptoms, hard conversations, family dynamics
Often provided in hospitals or an outpatient clinic setting	Team-based support services in home or institution

Table 3. Symptoms of patients with advanced disease.

SYMPTOM	% SYMPTOM IN LAST YEAR OF LIFE
Pain	84
Loss of Appetite	71
Sleeplessness	51
Dyspnea	47
Constipation	47
Depression	38
Nausea/ vomiting	51
Loss of Bladder control	37

3. Surgery and Palliative Care

Palliative Surgery is a surgical procedure used with the primary intention of improving QOL or relieving symptoms caused by a disease such as cancer.

The effectiveness of palliative surgery is judged by the presence and durability of patient-acknowledged symptom resolution. In contrast, noncurative surgery encompasses operations with curative intent in asymptomatic patients that result in residual disease or positive margins. In this setting, further therapy with chemotherapy, radiation therapy, or both is necessary for further therapy. The American College of Surgeons (ACS) has developed principles to guide its members on the indications for surgical palliative care (**Table 4**) [24].

In the palliative setting, there are three main determinants for selecting a surgical procedure. First, what are the patient's symptoms and personal goals?

The second determinant addresses the expected impact of the procedure on quality of life, function, and prognosis. Thirdly, the prognosis of the underlying disease with an understanding of how long the patient is expected to survive and what are functional decline expectations. There are tools that can help assist in prognostication or estimating survival in seriously ill patients. **Table 5** lists various prognostication scores. The clinical picture adds prognostic information to the scoring tools. Signs of impending death include the following: rapidly increasing weakness and fatigue, inability to get out of bed, decreasing or lack of intake of food and fluids, difficulty in swallowing, and a decreasing level of consciousness.

Palliative surgical procedures encompass drainage procedures for ascites, pleural effusions, pericardial effusions, laparotomy vs laparoscopic procedures for relief of biliary or bowel obstruction, and endoscopic interventions for stenting an obstructed lumen, ablation of tumor, or hemostasis. **Table 6** summarizes various palliative surgical procedures and their rationale.

4. Ovarian Cancer and the Management of Malignant Gastrointestinal Obstruction

One of the most difficult clinical dilemmas for gynecologic oncologists is how to manage the obstruction of the gastrointestinal tract from recurrent ovarian can-

cer. The natural history of ovarian cancer with intraperitoneal spread and surface involvement of multiple intra-abdominal organs leads to inevitable bowel obstruction and intestinal failure [32]. In close to two-thirds of women, the most common cause of death includes bowel obstruction and subsequent sepsis from disseminated carcinomatosis [33]. The goals of surgery fall into three categories, to cure, to prolong life, and to alleviate suffering. The rationale for secondary surgical interventions after primary therapy and in the setting of ovarian cancer recurrence include the management of bowel obstruction—both curative and palliative, resection of an isolated recurrence or oligometastatic disease for prolongation of life, and non-neoplastic surgical emergencies.

Table 4. The American college of surgeons guidelines for palliative surgery.

American College of Surgeons’ Statement of Principles of Palliative Care

- Respect the dignity & autonomy of patients & caregivers.
- Honor the right of the competent patient or surrogate to choose among treatments, including those that may or may not prolong life.
- Communicate effectively with patients, families, caregivers.
- Identify the primary goals of care from the patient’s perspective and address how the surgeon’s care can achieve these goals.
- Strive to alleviate pain and other burdensome symptoms.
- Recognize, assess, discuss, and offer services for psychological, social, spiritual issues.
- Provide access to therapeutic support.
- Recognize the physician’s responsibility to discourage treatments that are unlikely to achieve the patient’s goals.
- Arrange for continuity of care thus alleviating the sense of abandonment that patients may feel when “curative” therapies are no longer useful.
- Maintain a collegial & supportive attitude towards others entrusted with the care of the patient.

Table 5. Prognostic score tools.

PROGNOSTIC SCORE	GOALS
Karnofsky Performance Score [25] Eastern Cooperative Oncology Group Performance Status (ECOG) [26]	Prognosis: based on basic functional status assessment Useful for: advanced cancer, HIV/AIDS Not useful: chronic degenerative diseases (>75% U.S. deaths)
Palliative Performance Score [27]	Helps determine: if days or weeks vs. weeks to months to live
Mitchell Mortality Index for dementia [28]	Disease-specific prognostic tools Used in collaboration with disease-specific subspecialist
Seattle Heart Failure Score for heart failure [29]	Disease-specific prognostic tools Used in collaboration with disease-specific subspecialist
Physical Performance Test [30]	Geriatric Performance assessment
Frankel spinal cord injury functional classification scale Spinal instability neoplastic score (SINS) [31]	Highly predictive of death after bone metastases and spinal cord metastases

Table 6. Palliative surgical procedures.

PROCEDURE	PALLIATIVE RATIONALE
Gastrostomy	Relief of obstruction Feeding
Craniotomy	Excision of symptomatic metastases Evacuation of hematoma
Fixation of pathological fracture	Relief of pain Improve ability to move
Limb amputation	Relief of pain and control of infection with gangrenous extremity
Tumor embolization	Management of hemorrhage
Suprapubic cystotomy	Relief of bladder outlet obstruction
Nephrostomy tubes	Relief of ureteral obstruction in setting of pain, pyelonephritis
Simple mastectomy	Management of odorous breast tumors
Tracheostomy	Management of compromised airway
Vascular access procedures	Medication administration Dialysis Parenteral nutrition

Intestinal obstruction can be unifocal or multifocal and can involve one of the four areas of the gastrointestinal tract including the stomach, small intestine, large intestine, or rectum. There are important clinical predictors of poor prognosis for patients with malignant bowel obstructions [34]. Advanced age, comorbidities, and compromised nutritional status with weight loss can impair healing and increase surgical complications. Poor prognostic indicators of cancer behavior such as a heavy tumor burden, ascites, and a short interval between cancer diagnosis and obstruction predict a poor overall outcome. Patients who have had extensive prior chemotherapy and those who have received radiation are unlikely to survive any interventions to alleviate gastrointestinal obstructions.

Gastric Outlet Obstruction occurs when there is either an obstruction beyond the pyloric sphincter in the duodenum or the stomach becomes encased by cancer. Interventions range from inserting a nasogastric tube, the placement of a venting gastrostomy tube, endoscopic placement of stents, to a Billroth II gastrojejunostomy. In a retrospective study, twenty-two patients underwent palliative endoscopic stenting of malignant gastric outlet obstruction, and seventeen patients were treated with palliative gastric bypass surgery [35]. Obstructive symptoms improved in all twenty-two patients (100%) after endoscopic stenting compared to 11 of 17 patients (64.5%) after palliative gastric bypass surgery. The stent patients had a shorter hospital stay (4 days vs. 13 days), tolerated oral nutrition earlier (1 day vs. 6 days), had lower costs for hospital treatment and had no procedure-related mortality after stent implantation (0/22 vs. 3/17). However, in a systematic review and meta-analysis of 27 studies with 2354 patients comparing gastrojejunostomy with stenting, there was significantly longer sur-

vival with gastrojejunostomy with a mean difference of 43 days [36]. Gastrostomy tubes can alleviate uncontrolled vomiting and allow a patient to drink fluids to relieve mouth dryness. However, patients and family members must be counseled that, as with other surgical interventions, a gastrostomy tube will be painful at the skin incision site for at least two weeks. In this highly palliative setting, the current standard to alleviate suffering from a gastric outlet obstruction is a gastrostomy tube unless a patient is thought to have less than a month to live (Table 5).

Small intestinal obstruction in patients with recurrent ovarian cancer can be due to adhesions, widespread carcinomatosis leading to carcinomatous ileus, and/or obstruction from discrete tumor implants. The criteria for operability include new pain, abdominal distension, tympany, air-fluid levels, and a discrete transition point seen on CT scan. Distension of bowel proximal to the transition point suggests that this bowel is not constricted by carcinomatosis and that a bypass or resection may have a durable benefit. This topic has been intensively studied since the beginning of the formation of the specialty of gynecologic oncology and studies dating back to the 1980s built the foundation of knowledge about the natural history of ovarian cancer and an understanding about the efficacy or lack of efficacy of various interventions. Table 7 summarizes the perioperative and overall survival experience of many cancer centers managing women suffering from recurrent ovarian cancer. Adhesions played a causative role in 5 to 23% of obstructions. The mean and median perioperative death rate of 14.6%. In contrast, in a study of 877 patients who underwent surgery for small bowel obstruction where patients with abdominal cancer was excluded, the perioperative death rate was 5% [37]. Risk factors for perioperative mortality included age, comorbidities, nonviable strangulation, and treatment delay. Table 8 summarizes outcomes for those patients managed medically with supportive care, octreotide, and venting gastrostomy. The average survival was 54 days illustrating the terminal nature to most intestinal obstructions where surgery is not an option compared to an average of 193 days with surgical intervention.

Large bowel obstructions usually occur for patients with recurrent ovarian cancer when pelvic tumor obstructs the rectosigmoid. This can occur in isolation or with other areas of peritoneal carcinomatosis. Surgical interventions include colectomy with end colostomy, diverting colostomy, or the endoscopic placement of rectal stents [57]. The decision of which surgical approach is appropriate will be guided by the patient's overall clinical picture, comorbidities, and prognosis. Untreated large bowel obstruction is universally fatal and if goals of care discussions have not previously occurred, it is crucial to do so at this point [58]. Overall, gastrointestinal obstructions in all locations from recurrent ovarian cancer are preterminal events, even those that can be temporarily palliated [59]. Palliation of gastrointestinal obstruction may allow a patient to eat and reduce vomiting and pain from intestinal distention. Gynecologic oncologists must become expert at understanding the natural history, the outcomes of different palliative interventions, and be able to guide patients and their families

during this difficult time in their patients' lives.

In a systematic review of 17,656 studies about patients with malignant bowel obstruction, 25 evidence-based suggestions were compiled [60]. **Table 9** summarizes these recommendations. Medical interventions included the use of anti-emetics, laxatives, analgesics, and corticosteroids. Of note, in a Cochrane review of the use of corticosteroids for malignant bowel obstruction, there was a trend, not statistically significant, for the resolution of the obstruction with intravenous dexamethasone [61]. Procedures included bowel decompression and palliative surgery and stenting of obstructed regions. The authors also cautioned against the use of parenteral nutrition and hydration at the end of life as there is no evidence that these measures alleviate suffering or improve symptoms [60].

Table 7. Survival and perioperative death rates in surgical series of patients with ovarian cancer and bowel obstruction.

study	Number of patients	Non-surgical management (%)	Survival (days)	% obstruction due to nonmalignant factors	% perioperative death rate
Larson, 1989 [38]	19	0	102	5	16
Rubin, 1989 [39]	54	20 (37%)	174	0	16
Clarke-Pearson, 1987 [40]	49	0	140	14	14
Paganelli, 1990 [41]	20	0	780	0	6
Redman, 1988 [42]	26	8 (30%)	81	23	15
Zoetmulder, 1994 [43]	30	na	na	17	10
Krebs, 1983 [44]	98	12 (12.2%)	88	na	12
Piver, 1982 [45]	60	18 (30%)	75	na	15
Tunca, 1981 [46]	90	na	212	9	14
Lund, 1989 [47]	25	na	68	na	32
Fernandes, 1988 [48]	34	na	210	na	na
Castaldo, 1981 [49]	23	na	na	na	13
Solomon, 1983 [50]	21	14	243	14	5
Jong, 1995 [51]	53	49 (93%)	>60	0	na
Bais, 1995 [52]	19	11 (58%)	109	0	22

Table 8. Strategies and survival in patients receiving non-surgical palliation for bowel obstruction due to ovarian cancer.

STUDY	N	PALLIATIVE STRATEGY	SURVIVAL (DAYS)
Larson, 1989 [38]	14	Not reported	92
Redman, 1988 [42]	12	Not reported	30
Zoetmulder, 1994 [43]	28	Not reported	na
Hopkins, 1987 [53]	6	Venting gastrostomy, intravenous fluids	na
Tunca, 1981 [46]	37	Not reported	64
Isbister, 1990 [54]	14	Morphine, metoclopramide	45
Fernandes, 1988 [48]	16	Not reported	30
Lund, 1989 [47]	28	Not reported	112
Mangili, 1996 [55]	13	Octreotide	27
Malone, 1986 [56]	10	Gastrostomy for venting, opioids	>35

Table 9. Summary of evidence based recommendations for the management of malignant bowel obstruction*.

MEDICAL		PROCEDURAL		INTRAVENOUS	
+Antiemetics	+Antihistamine H ₁			+Parenteral hydration:	+Central
+Anticholinergics	antagonists	Bowel	+Nasogastric tube	not recommended.	venous
+Haloperidol	+5HT ₃ antagonist	Decompression	+Gastrostomy tube	+Nutritional Interventions:	access is
+Dopamine antagonist prokinetic	+Somatostatin analogue			oral preferred over IV.	preferred
	+Antipsychotics				
Laxatives		Stents	+Esophageal stent		
			+Biliary stent		
			+Rectal stent		
Analgesics		Palliative surgery	+Ileostomy		
			+Cecostomy		
			+Colostomy		
			+Intestinal bypass		
Corticosteroids					

*Modified from Madariaga *et al.*, 2022 [60].

5. Conclusion

Palliative care which encompasses symptom management, prognostication, and superb communication skills must be part of the training of gynecologic oncologists. Surgical skills alone in the absence of understanding the natural history of each gynecologic cancer, the risks of recurrence, the complications of treatment modalities and the complications of cancer reduces the ability of a gynecologic oncologist to give the most comprehensive care. For those patients who recur and for whom cure is no longer an option, thoughtful decision making with the patient, family, and potentially multidisciplinary colleagues delivers the best possible medical care.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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