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Cancer
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Cardiovascular Diseases
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**Abstract**

It is often said ‘what cannot be cured has to be endured’. However, the endurance of suffering can at least be minimized by a surgeon. Traditionally, healthcare research has mainly centered over treatment approaches which increased the longevity of patients with incurable cancer. However, in addition, the focus is now also on the role of surgical intervention in palliation of symptoms of these patients, in order to provide them with comfort and dignity along with end-of-life medical care. Any surgical procedure undertaken to relieve symptoms and to enhance quality of life, with little or no bearing on overall survival of the patient, constitute a part of ‘Palliative Surgery’. Surgery comprises a potentially viable option of palliation. However, it should not prove to be an unfavorable treatment to the patients. An effective and quality palliative surgery requires assessment of optimal timing and selection of suitable operative procedure(s) with a minimal perioperative morbidity and mortality.

**Keywords:** Palliative surgery; Palliative treatment; Cancer; Advanced malignancy

**Introduction**

The Task Force on Surgical Palliative Care and the Committee on Ethics (American College of Surgeons) in 2005 laid down several principles (1). It emphasized that traditionally, in surgery, control of suffering is as important as cure. The global cancer burden is increasing at an alarming pace. In 2015, there were an estimated 8.8 million cancer deaths (2). While healthcare research has mainly centered on treatment approaches which increase the longevity of these patients, in addition, the focus is now also on the role of surgical intervention in palliation of symptoms of patients who are facing imminent death in order to provide them with comfort and dignity along with end-of-life medical care.

**Methods**

A PubMed search using key word search strategy – (“Neoplasms”[Mesh]) AND “Palliative Care”[Mesh]) AND Surgery [Title/Abstract], undertaken on 20th December 2017, yielded 3848 articles. The search results were further refined to 462 articles using filters – “published in last five years” and “English language”. The abstract of these articles were screened to identify the suitable articles describing principles, indications, procedures and complications of palliative surgery. We confined ourselves to identifying the articles describing the role of palliative surgery in commonly encountered clinical scenarios, namely, – advanced gastric cancer, advanced colorectal cancer, malignant bowel obstruction, obstructive uropathy, breast cancer, and advanced limb tumours.

**Definition of Palliative Surgery**

- ‘pallium’ – to cloak (Latin). To palliate is ‘to disguise the seriousness of or to mitigate, alleviate or to make less severe’

Palliative care is a holistic concept which aims to provide improvement in quality of life in all domains – physical, psychological, social, and spiritual (Fig. 1). The World Health Organisation (WHO) defines it as “an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual”. Earlier, the term palliative surgery was being used for resections with a positive margin on histopathology. Thus, it often reflected the ineptitude or the incompetence of the surgeon and was used as a negative connotation. However, in recent times, it has been used to describe procedures undertaken for improving the subjective well-being of a patient. Broadly, any surgical procedure undertaken to relieve symptoms and to enhance quality of life, with little or no bearing
on overall survival of the patient, constitute a part of ‘Palliative Surgery’. Although it no more has a pessimistic and unfavorable undertone, it is usually difficult to assess the outcome or the success of a palliative surgical procedure and it thus faces the challenge of being called a futile treatment. The term “palliative surgery” should not be applied to portray: ‘resection with a microscopic or gross residual tumor left behind at the end of the surgical procedure’ or; ‘resection for recurrent or persistent disease after the failure of the primary treatment’ in an asymptomatic patient. Therefore, palliative surgery must not be done for asymptomatic patients. Palliative surgery is increasingly being acknowledged as an inseparable component of multidisciplinary comprehensive cancer care. It has its own indications and goals. The need for a palliative procedure has to be viewed independently from the possibility of cure. Moreover, it is as ethically and morally legitimate, as a curative surgery.

It is of paramount importance to assess the patients for a meaningful survival expectation before offering them a palliative surgical procedure. The goals of palliative surgery must be clearly defined and explained to the patient, his family and the health care team (Fig. 2).

Patient Selection

Patient selection is the most critical step which decides the success of any surgical palliative procedure. The patient should be considered for palliation only if a significant symptom is likely to get relieved with a palliative surgical procedure. Life expectancy is another pertinent factor for the patient selection. Only a patient with more than a month of expected survival is expected to benefit from palliative surgery. A patient with a preoperative Eastern Cooperative Oncology Group (ECOG) performance status of 3 or more is not likely to tolerate a major surgical procedure for palliation. Patients who present with acute symptoms requiring palliation and a good pre-morbid quality of life stand to benefit far more than those who had the same symptoms with several pre-existing co-morbidities and a poor quality of life.

In addition, costs and resources associated with provision of palliative surgery need to be anticipated and balanced with the ultimate outcome Kim and Aloia reviewed the cost effectiveness of palliative surgery versus nonsurgical measures in patients with incurable gastrointestinal cancer. For the initial palliation of gastric outlet obstruction, obstructive jaundice, small or large bowel obstruction, non-operative interventions such as stenting appear to be cost-effective when compared to palliative surgery. Nevertheless, the re-intervention rate for non-surgical procedures is high, while surgical palliation remains effective for a longer duration and thus, a significantly lower re-intervention rate. Surgery is potentially a more cost-effective option. However, in a patient population that is by and large expected to have an abbreviated survival, durability may be less important as recurrence of symptoms is unlikely occur in the short time period. Moreover, it has been estimated that the cost of urgent and emergent surgery is profoundly raised.

Thus, the patient selection is extremely important.

Selection of Procedure

The selection of a surgical procedure for palliation is primarily determined by the patient’s symptoms and personal goals. The likely outcome of the procedure on the quality of life, function and prognosis also plays a
significant role in the decision-making. Prognosis of underlying disease (in terms of expected functional decline over time) dictates the magnitude of the invasiveness of the interventional procedure to be undertaken. The surgeon must assess the feasibility and availability of non-surgical options, requirement for reconstructive procedures, and recovery and rehabilitation needs. It is vital that the surgeon is experienced in performing the palliative surgical procedure which has been elected by the patient and the healthcare team. The authors suggest an algorithm for assessment and management of cancer patients planned for palliative management (Fig. 3).

**Anaesthetic Considerations**

The patients selected for palliative care are the ones suffering from advanced malignant disease which

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**Figure 3: Algorithm for management of patient with incurable malignant disease planned for palliation of symptoms**
may be associated with various co-morbidities and a poor performance status. They are likely to be anemic, hypoproteinemic and may have decreased hepatic, renal or cardiopulmonary reserve. It is, thus, crucial to anticipate the physiological impact of the operative procedure and the anesthesia required on the patient. Special consideration must be given to adequate peri-operative pain relief in the form of ample injectable analgesics, patient controlled analgesia, epidural catheters, etc. depending upon the requirement, availability of options and expertise.

**Goals of Palliative Surgery**

Prior to planning a palliative surgery for any patient, the surgeon must ask himself – (a) can the patient have a meaningful quality of life after a surgical intervention? and (b) what is the chance of patient surviving the surgery and leaving the hospital?

The primary goal of any palliative surgery is amelioration of symptoms and improvement in quality of life. Frequently, increased survival is a secondary benefit (bonus) of the procedure. The patients must be able to maintain independent function thereby minimizing the burden of care on the family members. A prospective study from the University of Arkansas for Medical Sciences Hospital and Winthrop P. Rockefeller Cancer Institute evaluated patients undergoing palliative treatment by administering an open-ended questionnaire asking for their reasoning in choosing their treatment strategy \(^5\). 70% respondents wanted treatment for improvement of quality of life or on their doctor’s recommendation. The surgeon is often requested by the disconsolate family to “do something”; nevertheless, he must not get swayed by these pleas and the decision to operate should be taken after giving much thought into the goals and the likely outcome(s) of the surgery. Moreover, possibility of achieving these goals must be clearly appreciated by the healthcare team as well as the patient and family members.

**Complications of Palliative Surgery**

The complication rates for any palliative surgical procedure are high, and this is not limited to major surgeries only. The frequency of complications in all surgical subspecialties is comparable. The occurrence of a significant complication in the post-operative period reduces the probability of symptom relief greatly.

**Outcome Measure**

Unfortunately, outcome measures related to quality of life and symptom distress are not clearly defined and most studies focus on survival as an endpoint. Currently, there is no single instrument to measure Quality of Life after a palliative procedure. Previously, mortality, morbidity, performance status or functional measures were being used. Palliative Surgery Outcome Score (PSOS), a prospective measure of impact of palliative surgery, is calculated by dividing the number of symptom-free, non-hospitalized days by the number of post-operative survival days (maximum being 180 days). 0.7 is an acceptable PSOS. Another potential uncertainty is to decide when to perform the initial and interval assessments of the treatment response. The timing should suit the patient well and echo a balanced reporting of both symptomatic response and treatment-related morbidity.

**Moral Implications**

The moral challenges related to palliative surgery have not been addressed properly in the available surgical literature. The ‘duty to help’ is considered an essential obligation for all health professionals; nevertheless, it is challenged by reports on overtreatment, and must be balanced by moral sensibilities and other relevant factors. Moreover, patient autonomy is a fundamental moral principle in the present day medicine. However, the patients are vulnerable and have limited ability to understand information on options, outcomes and risk, which may be substantial, especially in developing countries where the literacy rate is low. Ethical crisis may also arise due to unclear clinical response when comparing a surgical approach vs. a non-surgical one.

**Indications**

The usual indications for palliative surgery include malignant bowel obstruction, gastric outlet obstruction, wounds or fistulae, biliary obstruction, malignant ascites, or tumor-related bleeding. Table 1 displays the common indications of palliative surgery in advanced cancer.

**Palliative Surgical Procedures**

These procedures may be (I) specifically undertaken for a cancer of a particular organ, or (II) generally undertaken to treat a complex of symptoms which are

<table>
<thead>
<tr>
<th>Indications</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastric Outlet Obstruction</td>
<td>Nausea, Vomiting, Pain</td>
</tr>
<tr>
<td>Malignant Bowel Obstruction</td>
<td>Nausea, Vomiting, Pain, Bloating, Inability to Eat</td>
</tr>
<tr>
<td>Wound/ Fistula</td>
<td>Pain, Foul odor, bleeding, discharge</td>
</tr>
<tr>
<td>Tumor Related Bleeding</td>
<td>Anemia, hemoptysis, hematemesia, melena, hematochezia, vaginal bleeding, Hematuria</td>
</tr>
<tr>
<td>Malignant Ascites</td>
<td>Dyspnea, pain, bloating, nausea, vomiting</td>
</tr>
<tr>
<td>Biliary obstruction</td>
<td>Pruritus, Jaundice, Bleeding</td>
</tr>
</tbody>
</table>

Table 1: Common symptoms which need palliation
common to several distinct or unrelated cancer types, in different organs.

I. Palliative surgeries for a specific organ:

Palliative surgery for advanced colorectal carcinoma

Patients with locally advanced or metastatic colorectal carcinoma often present with localized abdominal or pelvic pain, bleeding, perforation, sepsis or obstruction. It has been seen that salvage abdomino-perineal resections or low anterior resections reduce pelvic pain, pelvic sepsis, bleeding, obstruction and invasion of adjacent structures like the sacrum (6). Although patients with a diversion colostomy have a poorer quality of life, it is the procedure of choice in patients presenting with obstruction (5). It does not, however, help the patient in getting relief from pain, or bleeding from the lesion. Resective surgery, if feasible, offers definitive treatment of chronic hemorrhage (6). It is generally proposed for proximal colon tumors. Pelvic exenteration or abdominosacral resection for locally advanced rectal disease is a radical procedure with a high risk of associated peri-operative morbidity and mortality. Thus, the decision to proceed with this procedure must take into account surgeon’s expertise and patient’s other associated co-morbidities and expected benefit.

Laparoscopy may be used in palliative surgery for colostomy formation and resection. A faster recovery period with lesser post-operative pain, shorter duration of hospital stay and quicker resumption of activities of daily living, all make laparoscopic surgery a good option for palliative surgery (6). It should, however, be avoided in patients with multiple previous operations or large fixed or bulky tumors.

Palliative surgery for advanced breast carcinoma

The main goals of incurable locally advanced or metastatic breast cancer, or axillary and chest wall recurrence with or without metastasis are pain control and alleviation of chronic bleeding and odor. The patients are unable to maintain hygiene and the gross disfigurement results in isolation and disruption of a normal social life (Fig. 4). A mastectomy with or without axillary dissection is a commonly employed palliative procedure. A multimodality approach involving plastic surgeons is frequently utilized for reconstruction of the breast using fasciocutaneous or musculocutaneous flaps or muscle flaps with skin grafts or even free microvascular flaps (10). Excision of chest wall mass with chest wall reconstruction with methyl methacrylate usually palliates the symptoms of patients with chest wall recurrence or invasion. A prospective study by Morrogh at al demonstrated that palliative interventions for symptoms of metastatic breast cancer are safe and provide symptom control for the duration of life in 70% of patients. It was seen that definitive surgical treatment of neurologic or musculoskeletal symptoms provided the most reliable palliation (11).

With decreasing rates of complete axillary dissections being done, several patients present with pain, venous congestion, neurologic symptoms and new or exacerbated lymphedema due to progressive axillary disease, which are all severely disabling for them. Majority of patients attain good symptom control if the involved lymph nodes are safely removed. Surgeon experience is vital for this approach.

Thus, palliative approaches play an extremely important role in the comprehensive care and help restore the dignity of patients with incurable carcinoma breast.

Palliative surgery for advanced gastric cancer

A large number of patients with gastric carcinoma are incurable at presentation and overall prognosis of gastric cancer is poor. Symptom control remains a principal concern for these patients. They may present with bleeding, obstruction, pain or perforation caused by the primary tumor. The role of gastrectomy remains controversial and most data is suboptimal (12-14). In the past, the goals and indications of palliative surgery for these patients have been poorly understood and ‘palliative treatment’ has been designated based on intra-operative extent of disease and post-operative margin status. These factors limit the usefulness of prior studies on palliative surgery for gastric cancer (15). However, symptom control may be achieved with gastric resection for selected patients with severe symptoms (16).

Operative bypass with gastroenteric anastomosis has been frequently used in the past for palliation. It has however, been noted to offer poor palliation (17). Advances
Palliative surgery in cancer, Aakanksha Goel, et al.

In endoscopic surgery e.g. percutaneous endoscopic jejunostomy or gastrostomies now permit the bypass procedures to be carried out with lesser morbidity than that associated with an open procedure. However, self expanding metallic stents (SEMS) have short duration of palliation due to re-obstruction or stent migration (18).

As mentioned earlier, a number of dissimilar cancers in unassociated organs present with homogeneous symptoms, such as the malignant bowel obstruction, wounds or fistulae, tumor related bleeding, biliary obstruction, malignant ascites, obstructive uropathy, etc. Some of the common presentations are discussed below.

II. Palliative procedures for symptom complexes:

**Palliative surgery for malignant bowel obstruction**

The most common primary malignancies which may cause malignant bowel obstruction (MBO) are ovarian and colorectal cancers. Non-abdominal cancers, including lung cancer, breast cancer and melanoma are also known to cause MBO (19).

MBO may be caused by several potential mechanisms. Carcinomatosis is likely to cause small bowel obstruction while large bowel obstructions are usually single site. The obstruction may be mechanical or functional. Inflammatory edema, constipation, cancer—or treatment—induced fibrosis, abnormalities in intestinal mobility, decreased production of intestinal enzymes and secretions, a change in fecal flora, and side effects of medications are all likely to complicate the mechanical obstruction further.

MBO is rarely an emergency, thus the patient and his family must be allowed time to consider the treatment approach they would like to have employed. The patients may get relieved with conservative management using nasogastric decompression, correction of fluid and electrolyte imbalance and hydration alone. Unfortunately, a significant number of patients develop obstruction again. Therefore, conservative management is primarily undertaken for the duration of initial evaluation, for temporary relief as an adjunct to perioperative care or until more durable measures are commenced.

There are several surgical options for management of MBO. Maximal debulking of the tumor is done for a minority of patients, while the best outcomes are achieved with resection of the obstructed segment. Patients may simply be treated with a bypass procedure, such as an entero-enterostomy, formation of an intestinal stoma or placement of a large gastrostomy tube. The advent of self-expanding metallic stents (SEMS) that can pass through a colonoscope facilitated their use because of ease of application (20). It avoids a colostomy and potentially unnecessary laparotomy, which contributes to better quality of life and may be more cost effective than surgery. Gastrostomy, which is mainly a venting procedure, does not improve the ability to eat. It does alleviate the nausea, pain and the abdominal fullness. The rate of re-obstruction after surgery may be up to 50%.

With the emergence of minimally invasive strategies and endoscopy, percutaneous endoscopic gastrostomy (PEG) and endoscopic stenting is increasingly being used when patients are poor surgical candidates or have a large tumor burden, with a short expected survival. Multiple medical strategies are also being used as adjuvants e.g. somatostatin, anticholinergic agents, dopamine antagonists, serotonin antagonists and steroid therapy (21).

**Palliative surgery for advanced limb tumors**

Intractable pain due to a tumor in the limb (melanoma, sarcoma or carcinoma) is the commonest indication for which a major palliative amputation is undertaken. Such patients are also likely to have associated tumor-related complications like fungation, bleeding, infection, gangrene, pathological fractures and lymphedema, all contributing to functional loss (Fig. 5). Merimsky et al (22) and Witting et al (23) have reported significant improvement in symptoms and performance score after palliative forequarter and hindquarter amputations. Both upper limb...
as well as lower limb amputations can be done. Despite the occasional flap necrosis or surgical site infection, there is long lasting and satisfactory control of local symptoms (24–27). However, perioperative physical and occupational therapy must be initiated to achieve independent transfer, self-sufficiency and to prevent pressure sores (28).

**Palliative surgery for obstructive uropathy**

Obstructive uropathy usually arises from advanced cancer, such as rectal, bladder or prostate, cervical, uterine, ovarian, testicular, or metastatic breast cancers and indicates a poor prognosis (29). The primary tumor in the pelvic cavity or recurrence of a tumor or enlarged metastatic lymph nodes close to the ureters may all cause obstruction (30). Nephrostomy tubes or ureteral stents can be used for palliative urinary diversion but may be associated with significant morbidity, leading to inadequate palliation or worsening of symptoms.

Progressive obstructive uropathy may result in progressive uremia, electrolyte imbalances and persistent urinary tract infections (31). Retrograde ureteral stenting with double-J stents may be frequently impossible in cancer patients due to the presence of anatomical distortions, bleeding, or ureteral compression. Thus, ultrasonography-guided percutaneous nephrostomy is the method of choice (32) as it rapidly improves the laboratory parameters of renal function. However, it is often associated with significant complications and quality of life remains poor. The patient frequently requires hemodialysis despite the tube due to insufficient diversion. Other options which are available include various types of stents e.g. Metallic stents, self-expandable mesh stents, covered metal stents and coiled stents, etc. (33).

**Review of Surgery with Palliative Intent**

In a systematic review of palliative surgical outcomes following procedures done for MBO caused by carcinomatosis, there was resolution of obstructive symptoms postoperatively in 32% to 100% of the cases. However, the rates of significant complications were 7% to 44%, with re-obstruction occurring in 6% to 47% patients (34). A retrospective Korean study evaluated the role of endoscopic SEMS placement vs. surgery for the management of a malignant obstruction caused by unresectable colorectal cancer in 243 patients (35). Though the technical success rates (98.6% in the SEMS group and 100% in the surgery group) and operative success rates (93.2% in the SEMS group and 95.1% in the surgery group) were similar, the adverse event rates within 30 days of treatment were significantly lower in the SEMS group (13.7% vs. 19.5%, p value 0.042). Interestingly, the rate of late adverse events was significantly higher in the SEMS group (27.4 vs. 9.8%; P = .005). Patency duration was shorter after SEMS than after surgery (163 vs. 349 days; P<.001), even after additional intervention (202 vs. 349 days; P<.001). The median survival was significantly shorter after SEMS than after surgery (209 vs. 349 days; P = .005). The authors highlighted that surgery may be preferable to SEMS for the palliation of unresectable colorectal cancer obstruction in patients with good performance status. Daniele et al retrospectively selected all consecutive patients with recurrent ovarian cancer who received medical or surgical treatment for MBO between October 2008 and January 2014 (36). In patients undergoing surgical intervention, the hospitalization was shorter (p = 0.02), the pain reduction was more effective (p = 0.001) and re-obstruction was more rare (p = 0.02). Median survival after palliation was also found to be longer in this group (p = 0.025). A retrospective observational study conducted at a university–affiliated tertiary referral center in Israel, between January 2007 and May 2014 concluded that there is only a modest success rate of colonic stents in the treatment of malignant colonic obstruction (37). Although stenting seemed to be effective in relieving colonic obstruction, high failure rates and complications limited its applicability (38).

Tan et al, in a prospective study evaluated newly diagnosed patients presenting between June 2013 and June 2014 with incurable metastatic colorectal cancer who were offered elective palliative surgery (39). Those requiring emergency intervention were excluded. The European Organization for Research and Treatment of Cancer (EORTC) QLQ–C30 and the QLQ–CR29 questionnaire were administered to all patients. The change in the QLQ–C30 quality of life (QOL) scores at 3 and 6 months after surgery was compared with baseline. There was a statistically significant improvement in Global Health (GH) score and Social Functioning (SF) scores at 3 and 6 months after surgery. There was a marked improvement in diarrhea symptoms at 3 and 6 months after surgery and nausea was also improved at 3 months. Analysis of the QLQ–CR29 (colorectal cancer (CRC) Specific Module) QOL scores, showed markedly improved anxiety scores from the baseline at 3 and 6 months after surgery. Weight loss was significantly less compared with baseline.

A meta-analysis of 13 studies of which three were Randomized Control Trials (RCTs) was done in order to compare SEMS and surgery for palliative therapy of incurable malignant colorectal obstructive lesions in the elective setting (40). The mean length of hospital stay was significantly lower for the pooled SEMS group than the surgery group (p<0.00001). Rates of ICU use and mean time to chemotherapy was also significantly lower in the SEMS group (p=0.001). However, surgery group showed a significantly higher rate of clinical relief of...
obstruction than SEMS–treated patients (99.8% vs. 93.1%, p=0.0009). Compared to the surgery group, the SEMS–treated patients experienced significantly less early complications but more late complications. Overall survival time for patients who underwent either of the treatments was similar.

Blakely et al identified 31 patients who underwent palliative soft tissue resection for advanced malignancy (41). Symptom improvement was explicitly documented in 25 of 31 (80.6%) patients’ records within 30 days of surgery. Vidri et al did a retrospective review of cases from Rhode Island Hospital’s American College of Surgeons National Surgical Quality Improvement Program (ACS–NSQIP) database between 2007 and 2013 (42). Of the 138 patients who had ‘disseminated cancer,’ only 32 underwent surgery with palliative intent. At the 30–day data collection limit for ACS–NSQIP, palliative operations had a post–operative mortality of 9.4% which was not significantly different from postoperative mortality in those undergoing non palliative operations (9.4% vs. 7.5%, P=0.72). The postoperative morbidity also did not establish greater risk in patients within the palliative group compared to those within the non–palliative group (46.9% vs. 37.7%, P=0.41).

Giuliani emphasized on the need for multiple re–look surgeries and multimodality therapy for treatment of advanced carcinoma ovary in order to improve survival and quality of life (43). Keranen et al compared outcomes of endoscopic stenting, palliative resection and gastrojejunostomy as palliation of gastric outlet obstruction in gastric cancer (44). A total of 97 patients were included in this retrospective study. Compared to the operated patients group, endoscopic stenting resulted in a more rapid improvement of oral intake (P<0.001) and a shorter hospital stay in the ward ward (P<0.001). Survival was shortest in stented patients. The median symptom–free and overall survival were longest in the resection group (P<0.001). The complication rates were similar between the two groups and the majority of them were re–obstructions. Another single–center study from Korea retrospectively collected data from January 2001 to December 2014 (45). 224 consecutive patients with gastric outlet obstruction caused by unresectable gastric cancer were included in the study. Of these, 124 patients were treated with SEMS placement and 100 patients with surgical gastrojejunostomy. Overall, 94.6 % from the stent group and 98.6 % from the surgery group experienced improvement in their level of dietary intake of at least one grade. The clinical success rates as well as the overall complication rate did not differ between the two groups (P=0.366 and P=0.469 respectively). The recurrence rate of the obstructive symptoms was significantly higher in the stent group than in the surgery group (P=0.032).

The symptom–free duration in the surgery group was significantly longer than in the stent group (P=0.002). However, the hospital stay duration was shorter in the stent group than in the surgery group (12.8 days vs. 20.6 days, P<0.001). A retrospective study by Tokunaga et al from Japan included 137 patients with urgent symptoms like bleeding and obstruction (46). There was a high post–operative complication rate in 42% of all patients who underwent palliative surgical resection for advanced gastric cancer.

Deanna et al reviewed patient and disease factors that predict survival after palliative surgery for intestinal perforation from metastasis in advanced malignancies. Factors such as age, preoperative albumin, total leucocyte count (TLC), creatinine, ascites, ECOG performance status were evaluated. Preoperative albumin less than 2g/dl and high performance status were found to be significant predictors of increased mortality (47).

Operative morbidity and mortality are high after abdominal emergencies in the palliative setting. Dumont et al reported postoperative mortality to be 5–30% and morbidity 20–60%, with almost half the morbidities due to infectious complications (48). Santangelo et al reviewed the literature to determine the indications and benefits of palliative surgery for obstructive carcinomatosis and to identify the prognostic factors of successful outcome (49). They reported that the median survival after surgery was between 8 and 34 weeks. The median survival was longer in surgical patients than in those receiving conservative treatments (8–34 weeks vs 4–5 weeks). The median hospital stay in surgical cohorts ranged between 11 and 27 days and was longer than in non–surgical groups (8–16 days). Re–obstruction occurred in 6–74% of cases in the series presented in the literature. On the other hand, re–obstruction requiring repeated surgery occurred only in few cases (2–15%). Re–operation was associated with high rates of complications and mortality (46 and 23%, respectively).

**Limitations of Research in Palliative Surgery**

As is evident from the studies quoted above, there is a dearth of prospective studies to validate palliative surgery in literature at present. This is mainly the result of ethical considerations such as the patients’ vulnerability, lack of clarity of the risk–benefit relationship and the moral implication of doing research on terminally ill patients. Randomization is difficult and procedures are invasive and irreversible. Shariat– Madar et al conducted a literature review to assess studies documenting reported outcomes of obstructive peritoneal carcinomatosis between January 2003 and February 2013 (50). Out of the 9 studies included...
for qualitative analysis, none were RCTs. While 8 were retrospective studies, only one was prospective, with a poor follow up. Standard methods of research may not be possible in the palliative surgery setting, thus alternative outcome measures must be sought for. Moreover, it may be difficult for patients with mental status changes or lack of family support to give consent to participate in a trial. Dearth of financial support is another major barrier to palliative research, in low as well as high income countries. There may also be legal and regulatory implications.

**Conclusion**

Surgery comprises a potentially viable option for palliation. However, it should not prove to be an unfavorable treatment to the patients. An effective and quality palliative surgery requires optimal timing and selection of suitable operative procedures with a minimal perioperative procedure--related morbidity and mortality. Dignity, rights and autonomy of the patients should be met with respect.

**Authorship**

Garg PK conceptualized this study; Goel A made substantial contributions to conception and design of the study, acquisition of data, or analysis and interpretation of data; drafting the article. Garg PK made critical revisions related to important intellectual content of the manuscript. Both the authors read the final draft and approved it.

**References**


