

**Original Research Article****Contribution by Surgical Oncologist in Palliating Cancer Patients - Retrospective analysis at Acharya Harihar Regional Cancer Centre, Cuttack, India**

Authors

**Prafulla Kumar Das, Subrat Samantara, Bharat Bhusan Satapathy, Mohanlal Khadia, Kunal Goutam, Swdeep Mohanty, Padmalaya Devi**

Dept of Surgical Oncology, Acharya Harihar Regional Cancer Centre, Mangalabag, Cuttack, Odisha, India

Corresponding Author

**Dr Prafulla Kumar Das**

C-17, ISO-1 compound, Kanika square, Tulasipur, Cuttack-753008, India

Email- [pk\\_das1@yahoo.com](mailto:pk_das1@yahoo.com)**ABSTRACT**

A total of 583 cancer patients needing emergency surgical intervention treated in the surgical oncology department during period of 5 years and 10 months from April 2011 to January 2017 at Acharya Harihar Regional Cancer Centre, Cuttack were evaluated retrospectively. Most commonly encountered was gastric out let obstruction due to distal gastric carcinoma, total gastric obstruction needing a feeding jejunostomy tube insertion, large gut obstruction needing colostomy, next being acute dyspnoea following massive pleural effusion due to either primary or secondary lungs or pleural malignancy. Next common events were obstructive jaundice, intestinal obstruction, GI hemorrhage, hematuria, acute strider, obstructive uropathy, hollow viscous perforation in that order. The observations with regard to their incidence, etiology etc were compared to those found in literature, which was briefly reviewed and evaluated the contribution of surgical oncologist in cancer care at the above center.

**Keywords -** Surgical oncologist, Palliation, Obstruction, Dyspnoea, Hemorrhage.

**INTRODUCTION AND AIM OF STUDY**

A Cancer patient is potentially susceptible to a variety of emergencies, which are amenable to corresponding surgical procedures. Some arise as a direct consequence of the tumor itself or its metastasis sequel, some appear as the aftermath of treatment, and the toxicity and a third group arise completely independent of malignancy. The number of such problems is seen no less in the day-to-day practice by the team of oncologist. Hence the

purpose of the author writing this paper is to briefly review the contribution of the surgical oncologist in palliating the situation of oncosurgical emergency at Acharya Harihar Regional Cancer Centre Cuttack (AHRCC) from April 2011 to January 2017, also discussed with regard to their incidence and management. A literature review is done and comparison of data of all variables is made to find out cause of any discordance in our study. The maximum number of situation in our study is a

gastric outlet obstruction where some kind of palliation achieved by a gastric bypass surgery. The main objective of a palliative procedure in patients with malignant Gastric Outlet Obstruction is to restore their ability to eat. Several studies have shown that Stent (SEMS) placement is a safe and effective alternative to surgery [2-4]. We prefer open surgery and Gastro Jejunostomy as we in all cases want to take some chance of operability

## MATERIALS AND METHODS

Patients with symptoms and signs needing urgent surgical intervention at the above tertiary care cancer center and treated by department of Surgical Oncology during the period April 2011 to January 2017 were included in the study for analysis. Histologically proven malignancy was the inclusion criteria for all those patients. The hospital record like Operation theatre register and Individual case files from record section were used for retrospective retrieval of data. Analysis was done with respect to the types of presentations, their subtypes, the morbidity, mortality, and different types of treatment received and the overall contribution of surgical oncologist to palliation in a tertiary care cancer center of eastern India

## RESULTS

The following, observations were made with regards to various characteristics:

Table 1 described the types of presentations and their numbers. Please note that out of total 6324 numbers of oncological surgery, 663 (10.48%) patients were treated on emergency basis and mostly were for palliation during that period. Out of those 583 patients were to undergo emergency surgery for palliation (87.93%) where as rest 80 (12.07%) patients were managed conservatively.

**Table 1:** Showing number of palliative surgery out of total surgeries with percentage

Variables of Clinical situations	Number	Percentage
Total no of Surgery Apr 2011 to Jan 2017	6324	
Total no of Palliative and emergency conditions treated	663	(10.48%)
Total no of Palliative and emergency conditions Needing	583	(87.93%)

surgery		
Rest patients treated conservatively by Medical Oncologists ,Pulmonary Physicians, and or Interventional Urologists	80	(12.07%)

From Table 2, we could observe various variables as regards to the nature of emergency with their numbers and percentage. Please note that gastric outlet obstruction was the most commonly occurring variable (38.91%) which presented as an emergency, needed palliative gastro jejunostomy with a jejuno jejunostomy procedure with or without partial omentectomy .The anastomoses were made ante colic as they were mostly inoperable and advanced with disease left out completely. The logic behind this was either there were no disease free space in the transverse mesocolon due to advanced disease or there were a very high chance of spread of the disease around the stoma causing early obstruction. These procedures were exclusive of those patients who were undergone partial or subtotal radical gastrectomy for cancer stomach with gastric outlet obstruction. Most of these patients were operated within the first week of admission after supportive care and baseline workup. 92.64% of gastric outlet obstruction presented as initial presentation where as rest 7.36% were as a result of aftermath or during adjuvant therapy. Next in order of commonly occurring variable was Total or Proximal gastric obstruction needing a jejunostomy for feeding purpose only. Most of those 78.99% presented as initial presentation .The third most commonly occurring variable was large gut obstruction with or without small intestinal obstruction due to a malignancy sitting over the distal colon and rectum. Again most of them were presented as initial presentation. In most of them they were an initial presentation (81.25%) and in others there was history of radiation with or without chemotherapy. As a palliative or emergency procedure Transverse colostomy, Sigmoid colostomy or Ileostomy was performed. Out of those, mostly transverse colostomy was done in 76 (11.46 %) of all colonic cases, next pelvic colostomy 18 (2.71%) and

ileostomy in least no of such obstruction cases (1.51%).

**Table 2:** Showing the nature of emergency with their numbers and percentage

Nature of emergency	Numbers	Percentage
Massive pleural effusion- (All managed by medical oncologists or pulmonary physician by tapping of pleural fluids and injecting Mitoxantrone for chemical pleurodesis whenever required)	64	(9.65%).
Massive pleural effusion- (cases needed Intercostal tube drain by surgeon.)	21	(3.15%)
Strider/Tracheostomy	2	(0.30%)
Superior mediastinal syndrome (All managed by medical oncologists )	14	(2.11%)
Gastric outlet obstruction	258	(38.91%)
Gastric outlet obstruction with colonic obstruction(GJ JJ Ileostomy)	1	(0.15%)
Gastric outlet obstruction with colonic obstruction(GJ JJ Ileotransverse)	1	(0.15%)
Gastric outlet obstruction with ca pancreas head(GJ)	1	(0.15%)
Feeding Jejunostomy	138	(20.81%)
Feeding gastrostomy	1	(0.15%)
Feeding Jejunostomy+tracheostomy	1	(0.15%)
Ryles tube insersion under General anaesthesia	1	(0.15%)
Small Intestinal Obstruction	5	(0.75%)
Large gut obstruction-sigmoid colostomy	18	(2.71%)
Large gut obstruction-Transverse colostomy	76	(11.46%)
Large gut obstructio-Ileostomy	10	(1.51%)
Colostomy for RVF	2	(0.30%)
Cancer stomach with large gut obstruction	1	(0.15%)
Ileo transverse anastomosis	11	(1.66%)
Chemotherapy induced gut neuropathy	2	(0.30%)
Prolapse of colostomy	2	(0.30%)
Hollow viscus perforation	2	(0.30%)
GI Bleeding	8	(1.2%)
Haematuria due to haemorrhagic cystities	4	(0.60%)
Bleeding from fungated mass	17	( 2.56 %)
Infection-Ca rectum,huge ischeorectal abscess	1	(0.15%)
Jaundice-Trippl bypass	13	(1.96%)
Cholecysto jejunostomy	1	(0.15%)
Palliative hip disarticulation	1	(0.15%)
Palliative penectomy	1	(0.15%)
Toilet mastectomy	4	(0.60%)
Obstructive uropathy	2	(0.30%)
Total =	663	

Massive pleural effusion with dyspnea was the next commonly occurring condition needing emergency intervention. (9.65%) These patients were effectively managed by medical oncologists by paracentesis in one or several sittings. The surgical oncologists had to interfere only in 21 of those 64 patients of pleural effusion (3.15% of all palliative procedures) performing an intercostals tube drain with underwater seal bag and at the end of a week when the drain output comes down injection Mitoxan-trone injected intrapleurally by Medical oncologists for chemical pleurodesis. Most of them occurred during or after completion treatment of lung carcinoma either primary or metastatic (90.63%). Bleeding from fungated masses with or without maggot infestation were effectively managed by surgeons with conservative method in (2.56%).

Those cases also presented mostly (58.82%) during or after completion of treatment of solid organ malignancies. Most often there was a history of inadequate or neglected treatment. In 1.96% cases triple bypass surgery was performed to alleviate obstructive jaundice in carcinoma head pancreas or periampullary carcinoma and distal biliary sclerosing cholangio carcinoma. Superior mediastinal syndrome (2.11%) was effectively managed conservatively by Radiation Oncologists or Medical Oncologists. Ileotransverse anastomosis was done for inoperable carcinoma right colon with obstruction in 11 cases (1.66%). 2 cases (0.30%) of obstructive uropathy were managed by Interventional Urologist with double J stenting.

**Table 3:** showing types of presentation disease wise and their number and percentage

Types of Presentation	Disease	Number	Percentage
With initial Presentation	Gastric outlet obstruction	239/258	(92.64%)
	Proximal gastric obstruction	109/138	(78.99%)
	Colorectum obstruction	78/96	(81.25%)
	Right colon obstruction	19/26	(73.08)
	Pleural effusion	6/64	(9.38%)
	Fungation, bleeding, Maggot	7/17	(41.18%)
	Obstructive jaundice	13/14	(92.86%)
	Others all together	39 /50	(78.00%)
With History of treatment for cancer	Gastric outlet obstruction	19/258	(7.36%)
	Proximal gastric obstruction	29/128	(22.66%)
	Colorectum obstruction	18/96	(18.75%)
	Right colon obstruction	7/26	(26.92%0
	Pleural effusion	58/64	(90.63%)
	Fungation, bleeding, Maggot	10/17	(58.82%)
	Obstructive jaundice	1/14	(7.14%)
	Others all together	11/50	(22.00%)
Not related to cancer	Large incisional hernia and intestinal obstruction	2	

Gastric outlet obstruction, proximal gastric obstruction, Colorectal obstruction, Obstructive jaundice presented mostly as initial presentation where as Pleural effusion, fungation, bleeding and maggot infestation of the surface growths and superior mediastinal syndrome were having history of cancer treatment .Mostly they were progressive disease. There were very few cases of intestinal obstruction due to large incisional hernia and not related to the disease. There were 2 cases of obstructive uropathy referred to us and both were due to the recurrent disease or radiation fibrosis causing external constriction and were managed by stenting in one case and percutaneous nephrostomy in other by our Urology colleagues.

**Table 4:** Described the various etiologies of intestinal obstruction and their numbers.

Etiologies of intestinal obstruction	Number	Percentage
Adhesion of loop/loops of intestine to peritoneal disease	4/17	23.53
Loop to loop adhesions due to radiation	1/17	5.89
Intestinal obstruction due to large incisional hernia	2/17	11.76
Radiation enteritis and pseudo obstruction	1/17	5.89
Associated Ascites-all managed conservatively except one who needed surgical exploration	7/17	41.18
Chemotherapy induced Gut neuropathy and adynamic intestinal obstruction	2/17	11.76
Resultant strangulation	0/17	00
Recurrence of obstruction	2/17	11.76%
Operative morbidity	5/17	29.41%
Operative mortality for intestinal obstruction	2/17	11.76%

Chemotherapy induced Gut neuropathy we observed in 2 cases, out of which one patient of cancer stomach underwent subtotal radical gastrectomy after 3 weeks of NACT (Oxaliplatinum based) developed paralytic ileus for about 2 weeks and was to undergo a laparotomy and evacuation of small gut contents due to adynamic intestinal obstruction on 9th postoperative day. Cholecysto jejunostomy, cancer rectum with huge ischiorectal abscess needing incision and drainage under local or spinal anaesthesia, Feeding gastrostomy, feeding jejunostomy with tracheostomy, Ryles tube insertion under General anaesthesia were the least commonly occurring events each (0.15%).

From table 3 it was observed that out of all the variables of nature of emergencies, few presented as initial presentations in presence of a cancer, where as some others presented as a sequel of treatment of such cancer by chemotherapy, radiotherapy or both.

It was observed from the table no 4 that the intestinal obstruction associated with ascites was most common (41.18%) and all were managed conservatively except one who needed surgical exploration and an anastomosis between dilated to collapsed loop. Next in order was due to adhesion of the loops of intestine to an organic malignant



disease prevailing or recurring after completion of surgery, chemo, radiation or in combination(23.53%) whereas radiation enteritis and pseudo-obstruction and or loop to loop adhesions by radiation inflammation were least occurring condition(5.89% each ) attributable for such obstruction. Two cases (11.76%) of intestinal obstruction were due to chemotherapy induced Gut neuropathy causing adynamic obstruction and needed surgical exploration .It was noticed that there was no case of strangulation associated with intestinal obstruction. Extensive peritoneal disease with or without ascites associated with cancer ovary and omental cake was the cause in most of the cases. Some were uncontrolled progressive peritoneal recurrences following cancer stomach or colo rectum

The table 5 which described about various means of management of gastro intestinal bleeding denoted that most of the GI bleeding (75%) were controlled by conservative management and minimally invasive procedures (12.5%). Surgery was contemplated only in 1 out of 8 cases (12.5%).

**Table 5:** Showing methods of management of GI Bleeding

Methods of Management of GI Bleeding	Number	Percentage
Conservative by Ryles tube insertion and cold saline wash with local styptics	6/8	75
Minimally invasive procedure like endoscopic cauterization of bleeding points	1/8	12.5
Surgical procedure	1/8	12.5
Total		

It was also evident from all the individual case records that there was a very good palliation of the symptoms in the immediate post operative period before their discharge from the hospital. The operative mortality for intestinal obstruction was 12% where as the morbidity rate was as high as 30% with recurrence rate of obstruction being 12%.

## REVIEW OF LITERATURE AND DISCUSSION

The word “palliative” is defined when the primary aim is to optimise function or comfort without an

expectation that the course of the illness will be changed. Symptoms like pain, vomiting, distention of upper or lower abdomen, obstipation, breathing difficulty and blood coming from mouth, or with stool or urine are often important problems that invite surgical consultation in oncological practice. Now the responsibility of the surgeon comes through a detail clinical history, histopathological report, the details of recent and past treatment like how much the radiation the patient has received, which chemotherapy agent received within last 6 weeks etc. A thorough physical examination, an X-ray chest, plain roentgenogram of the abdomen in supine and erect position, CT or MR scans, plain or contrast, are required. It gives surgeon a good opportunity to compare the findings. Most of the patients receiving chemotherapy are immunologically compromised. In a survey by Turnbull and Starnes at Memorial Sloan Kettering Cancer Centre, one third (66 of 200) of the emergency procedures were done to manage the cancer or a complication of chemo-therapy <sup>[1]</sup> Forty-four percent (88 Of 200) were performed to manage a complication of prior surgery and 21 % (42 of 200) of the laparotomy was necessitated by nonneoplastic or antineoplastic treatment related diagnoses. In fact, 13 of those 42 procedures were done in patients without any evidence of cancer. Laparotomy failed to reveal any urgent problem in the remaining 2% (4 of 200) In AHRCC the authors got emergency surgical situation in 10.48% only. Initial presentation with gastric outlet obstruction, proximal or total gastric obstruction as well as colonic obstruction ranged from 92.74% to 73.08% where as in pleural effusion, fungation, bleeding with or without maggot infestation which were found in 90.63% to 58.82 % being presented during or aftermath of treatment of primary cancer. This clearly indicated that owing to illiteracy, lack of awareness regarding health screening of the population (which is prevailing in this part of country) and suboptimal government strategy of preventive oncology. The high incidence of gastric carcinoma in the south eastern India is another reason of such high presentation may be because of spicy diet and helicobacter infection. <sup>[2]</sup>

The incidence of lung cancer in south eastern India is no less and in spite of treatment many progress and present as pleural effusion. The main objective of a palliative procedure in patients with malignant Gastric Outlet Obstruction is to restore their ability to eat. Several studies have shown that Stent (SEMS) placement is a safe and effective alternative to surgery<sup>[3,4]</sup>. The authors preferred open surgery and GJ as in all cases they wanted to take some chance of operability. An introduction of nasogastric tube usually provides some degree of decompression, buys time and permits repletion of third space fluid loss and a decision about additional diagnostic studies to be done. Serial plain X-Rays can tell about whether the condition is getting better or worse. Dealing with an unprepared colon at surgery is a major hazard. Obstipated faeces themselves can compound the mechanical obstructive problem and potentially threaten the integrity of a proximal anastomosis and significantly provide peritoneal contamination if the colon is inadvertently entered. Such a situation should be managed with nothing more than a colostomy. The history of previous malignancy or its recurrence anywhere in the body invariably increases the probability that the obstructive pathology is due to a tumor. The proportion with malignant causes of the obstruction is between 59% and 97%; (mean, 78%)<sup>[7]</sup> Cancer patients can have benign causes for their intestinal obstruction; between 3% to 38% (mean 23%)<sup>[7]</sup> In few cases radiation enteritis is a cause of such emergency situation<sup>[7]</sup>. Between 12-28% of cancer patients spontaneously resolved their obstructive problems<sup>[7]</sup> but can again develop a recurrent bout of obstruction necessitating surgery. In all cases conservative management should be done for about 3-10 days. Persistent obstructions in the face of palliative treatment are indication that a surgical procedure to be considered. Many patients are deemed inoperable (6.2% to 50 %) <sup>[8]</sup>. If surgery becomes necessary, the technical options include adhesiolysis, bypass, resection, Ileostomy or colostomy. The optimal procedure is that which is the quickest, safest, and most efficacious in alleviating the obstruction. Although bowel

resection may lead to a best outcome, a bypass may be a safer option. Potential contra indications for surgery in patients with incurable cancer and malignant bowel obstruction include ascitis > 3 liters and in particular ascitis that rapidly fill up after drainage, carcinomatosis, multiple obstructions, or a palpable intra abdominal mass.<sup>[9]</sup> Surgical risks must be carefully considered prior to an operation because morbidity (42%)<sup>[10]</sup> and mortality (5% to 32%)<sup>[8,10]</sup> Operative mortality is very high in such patients 9-35% (average 19%) as is the corresponding morbidity rate 15 -49%<sup>[11,12]</sup>. Average 15% of the obstructions fail to resolve or recur soon after surgery. Unless a benign cause for these cancers is found, the survival of these patients are found to be in the order of several months<sup>[12,13]</sup> Most common primary tumors which were found culprit as a predisposing factor for obstruction are ovarian, colorectal, gastric, uterine and bladder Lymphoma and secondaries, whose primary are in breast, melanoma etc. Fortunately in most series of bowel obstruction, strangulation constitutes only 0-5% of cancer patients<sup>[13]</sup>. In our study there was not a single case of strangulation. Pseudo obstruction involving small or large intestine is a poorly understood entity that has been reported in the literature recently with increasing frequency<sup>[14]</sup> but is occasionally seen in cancer patients. In our study the authors observed 2 (11.76%) cases of chemotherapy (oxaliplatin) induced gut neuropathy leading to adynamic intestinal obstruction Most of the cases the site of bleeding is the gastroduodenum and the proximal jejunum and It is ideal to pass a large bore nasogastric tube to aspirate the clot and identify the site of bleeding source, electro coagulate, inject or photocoagulate the point source if it is either a peptic ulcer lesion/or Mellory Weiss tear. A biopsy is always taken if it is a malignant or suspected malignant lesion. In case of malena or bright red blood around rectum, It is wise to perform a sigmoidoscopy to rule out source in distal 25 cm of colon if no blood is found in aspirate in nasogastric tube. If lesion is found in small or large bowel an occlusion therapy may be considered. Colonoscopy may be considered if the rate of

bleeding allows cleansing of the colon for adequate inspection. CT scan of abdomen and pelvis allows de-termination of intra/ retroperitoneal haemorrhage. The next most important procedure to be adopted is to determine and correct all coagulopathic problems by per-forming platelet count, prothrombin time, partial thromboplastin time, bleeding time and other coagulation factor assessment. Consider platelet transfusion, Vit K, fresh frozen plasma or factor concentrates as appropriate. Sometimes H2 receptor blockers or sucralfate are helpful. When all these interventional procedures are failed, the surgical intervention comes into picture in the form of suture ligation of bleeding sites or intestinal resections. In the early experience with cyclophosphamide used as a antineoplastic agent or used in bone marrow transplant the incidence of hemorrhagic cystitis was as high as 40% to 68%. This toxicity is caused by the excretion of toxic metabolite like Acroline. There are no clinical predictors to indicate which patient will experience this type of complication.. Over hydration to dilute urinary acrolein is the key to prevent such complication associated with cyclophosphamide<sup>[17]</sup>. MESNA is an effective uroprotector that does not interfere with the chemotherapeutic efficacy of cyclophosphamide<sup>[5]</sup>. One or both the ureter in a cancer patient may be obstructed due, to either direct involvement, compression by a retroperitoneal tumor, encasement by a retroperitoneal or pelvic lymph node or rarely by direct metastases to the ureter. It may be also secondary to retroperitoneal fibrosis following surgery, chemotherapy or pelvic radiation<sup>[6]</sup>. Our 2 cases needed double J stenting. The occurrence of a new pleural effusion in a cancer patient merits complete investigation by the oncologist. The degree of symptoms attending such effusions is variable. Sometimes they present with severe degree of dyspnoea requiring emergency thoraco centesis or intercostals drainage if the fluid is sanguineous. Symptomatic relief of fluid removal is usually short-lived with-out other adjuvant measures. Many patients require sclerotherapy after space obliteration by large bore thoracostomy tube. Initial removal of effusion allows the visceral pleura to

come into contact with chest wall parietal pleura and thereby obliterates by continuous underwater seal suction drainage, the space occupied by the effusion. A sclerosing agent like. antibiotic, antineoplastic, or radioactive can then be delivered intrapleurally to produce mesothelial fibrosis and obliterate small pleural blood vessels rather than producing specific antineoplastic effect.

### INFERENCE

In this Regional Cancer Centre, Cuttack which is located at south eastern part of India where illiteracy and poverty prevails is no less immune to any oncosurgical emergency. Gastric outlet and total gastric obstruction mascurades bowel obstruction and airway obstruction. Although the Medical oncologist, Radiation oncologist and palliative care nurse play a major role in palliation which is only achieved slowly. The contribution of surgical oncologist in immediate palliation is most accepted by the patients giving a smile on their face and so also the relatives. The surgical oncologist should come forward for this palliative work in a great way as does the counterparts in oncology care.

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**Conflict of Interest** -IEC approval-There is no **conflict of interest**. Approval has been obtained from the Institutional Ethics Committee of AHRCC for conducting this retrospective study.

**Foot Note-** Subrat Samantara and Bharat Bhusan Satapathy has got equal contributions as second author

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