

Original research article

## **An investigation of the incidence of abdominal cancers presenting as acute abdomen in emergency department of the tertiary care center**

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### **Abstract**

**Aim:** The aim of the present study to determine the incidence of abdominal malignancies presenting as acute abdomen in an emergency department.

**Methods:** This was a prospective observational study conducted in the Department of General Surgery, Anugrah Narayan Magadh Medical College & Hospital, Gaya Bihar, India for 1 year. 80 patients with acute abdominal emergencies were included in the study. Patients or their caretakers were interviewed in the casualty wing, after obtaining proper informed consent. Details were collected regarding the onset, type, duration and other details pertaining to the pain, details regarding abdominal distension, bleeding per rectum (PR), provisional diagnosis of treating surgeon, as well as follow up histopathology report (HPR) and final diagnosis.

**Results:** out of 440, 280 were males and 160 were females. Of these 80 (18.18%) patients had malignancy. Out of the 280 males, 17.5% were diagnosed to have malignancy, compared to 19.37% in females. 73.75% of the patients detected with malignancy were above 50 years. Carcinoma colon was the most common malignancy (53.75%) in this study, with carcinoma stomach and Carcinoma rectum being the second most common. The most common presentation of malignancy was obstruction (73.75%) followed by perforation (22.5%). Patients who ended up having malignancy, were found to be suffering from low grade pain for longer durations than non-malignant cases. Most of them had previous episodes of abdominal pain, colicky being the most common type of pain pattern. Abdominal distension, bleeding PR and constipation were found to be more associated with malignancy, probably because colon malignancies were the predominant ones.

**Conclusion:** In the era were the incidence and early detection of abdominal malignancies are on a rise, a significant portion of these cases present with acute abdominal symptoms and the morbidity associated with such a presentation is of importance. Early detection of the disease by screening is the solution for this.

**Keywords:** Acute abdomen, Emergency laparotomy, Malignancy

### **Introduction**

Acute abdomen is a condition that demands urgent attention and treatment. The acute abdomen may be caused by an infection, inflammation, vascular occlusion, or obstruction. The patient will usually present with sudden onset of abdominal pain with associated nausea or vomiting. Most patients with an acute abdomen appear ill.

The approach to a patient with an acute abdomen should include a thorough history and physical exam. The location of pain is critical as it may signal a localized process. However, in patients with free air, it may present with diffuse abdominal pain. Auscultation may reveal absent bowel sounds and palpation may reveal rebound tenderness and guarding, suggestive of peritonitis. The causes of an acute abdomen include appendicitis, perforated peptic ulcer, acute pancreatitis, ruptured sigmoid diverticulum, ovarian torsion, volvulus, ruptured aortic aneurysm, lacerated spleen or liver, and ischemic bowel.<sup>1-3</sup>

Common causes of an acute abdomen include acute appendicitis, cholecystitis, pancreatitis, and diverticulitis. Acute peritonitis is a cause of acute abdomen and can result from rupture of a hollow viscus or as a complication of inflammatory bowel disease or malignancy. Vascular events causing an acute abdomen include mesenteric ischemia and ruptured abdominal aortic aneurysm. Obstetric and gynaecologic causes include ruptured ectopic pregnancy and ovarian torsion. Urologic conditions including ureteral colic and pyelonephritis can also present as acute abdominal pain. Many authors include small bowel obstruction as a cause of acute abdomen. Newborns can present with necrotizing enterocolitis. Midgut volvulus present 40% of the time in the first week of life, 50% in the first month and 75% in the first year. Intussusception usually occurs at ages nine to 24 months. The most common cause of an acute pediatric abdomen is appendicitis.<sup>4</sup>

Despite substantial improvement in the diagnostic approach to AAP, many diagnostic pitfalls still remain, which can be associated with a substantial number of misdiagnoses and/or avoidable surgery.<sup>5-7</sup> The differential diagnosis of AAP in the adult population is rather broad, including appendicitis, inflammatory bowel disease, peptic ulcer, urinary stones, in hepatobiliary diseases (e.g., biliary colic, cholecystitis, and pancreatitis), referred pain due to pneumonia as well as several other “mimics” of extra-abdominal origin.<sup>8-10</sup> In young women, gynecologic disorders (e.g., ectopic inflammatory disease) pregnancy, endometriosis, and pelvic in are additional conditions which should be considered in the differential diagnosis.<sup>11</sup> Since the underlying cause for AAP can entails many different medical specialties such as gynecology, surgery, internal medicine, and urology, expert assessment is an essential requisite for the proper management and care of these patients. Malignancies originating from intra-abdominal organs are often considered to be associated with abdominal pain and a good proportion of these patients are diagnosed and/or managed in Emergency department. Acute complications arising in abdominal malignancies represent a unique subset of patients presenting to the emergency department. Management of these complications depend primarily on the extent of the underlying malignancy and the other viscera. These oncological emergencies are potentially life threatening and can result in rapid deterioration of the clinical cant morbidity and course and are associated with significant mortality. Malignant tumour, invade surrounding viscera and metastasize to distant sites and can result in obstruction of hollow viscera , vessels and ducts, haemorrhage, thrombosis, infiltration of solid organs, all of which can present as acute abdomen.

### **Material and methods**

This was a prospective observational study conducted in Anugrah Narayan Magadh Medical College & Hospital, Gaya, Bihar, India for 1 year, after taking the approval of the protocol review committee and institutional ethics committee.

### **Inclusion criteria**

80 patients with acute abdominal emergencies were included in the study.

### **Exclusion criteria**

Those who were not willing to give consent and those who were diagnosed with malignancy earlier were excluded from the study.

## Methodology

Patients and their caretakers were interviewed in the casualty wing, after obtaining proper informed consent. Details were collected regarding the onset, type, duration and other details pertaining to the pain, details regarding abdominal distension, bleeding per rectum (PR), provisional diagnosis of treating surgeon, as well as follow up histopathology report (HPR) and final diagnosis. Percentages, mean, and quartile deviation were used to explain the baseline and clinical characteristics of study subjects.

## Results

A total of 440 patients were included in this study. Of these, 280 were males and 160 were females. Of these 80 (18.18%) patients had malignancy. Out of the 280 males, 17.5% were diagnosed to have malignancy, compared to 19.37% in females. 73.75% of the patients detected with malignancy were above 50 years. The age wise distribution of the malignancy is depicted in Table 1.

**Table 1: Age wise distribution.**

Age (in years)	Malignancy	%
<b>Below 30</b>	3	3.75
<b>30-40</b>	4	5
<b>40-50</b>	14	17.5
<b>50-60</b>	18	22.5
<b>60-70</b>	18	22.5
<b>Above 70</b>	23	28.75
<b>Total</b>	80	100

**Table 2: Gender distribution**

Gender	Male	Female	Total
Malignancy	49(17.5)	31(19.37)	80
No Malignancy	231(82.5)	129(80.63)	360
Total	280	160	440

Carcinoma colon was the most common malignancy (53.75%) in this study, with carcinoma stomach and Carcinoma rectum being the second most common. The Anatomical origin of malignancy is depicted in Table 3

**Table 3: Distribution of site involved**

Final diagnosis	Malignancy	%
<b>CA appendix</b>	3	3.75
<b>CA colon</b>	43	53.75
<b>CA recto sigmoid</b>	10	12.5
<b>CA rectum</b>	6	7.5
<b>CA small bowel</b>	4	5
<b>CA stomach</b>	10	12.5
<b>Cholangio CA</b>	2	2.5
<b>Neuroendocrine TR small bowel</b>	2	2.5
<b>Total</b>	80	100

**Table 4: Distribution of presenting symptoms (n=80)**

Variables	GI malignancy positive	
	Number	%
<b>History of earlier pain</b>	27	33.75
<b>Abdominal tenderness</b>	55	68.75
<b>Rebound tenderness</b>	51	63.75
<b>Distension</b>		
<2 days	9	11.25
2-7 days	51	63.75
>7 days	20	25
<b>Vomiting</b>	15	18.75
<b>Constipation</b>	59	73.75
<b>Bowel sounds</b>	6	7.5
<b>Bleeding PR</b>	25	31.25
<b>Loa</b>	23	28.75
<b>Low</b>	50	62.5
<b>Diarrhoea</b>	22	27.5

The most common presentation of malignancy was obstruction (73.75%) followed by perforation (22.5%). Patients who ended up having malignancy, were found to be suffering from low grade pain for longer durations than non-malignant cases. Most of them had previous episodes of abdominal pain, colicky being the most common type of pain pattern. Abdominal distension, bleeding PR and constipation were found to be more associated with malignancy, probably because colon malignancies were the predominant ones. Most of the carcinoma cases had loss of appetite and loss of weight. The presenting symptoms are depicted in Table 4.

### Discussion

Abdominal pain is one of the most important and challenging symptoms that brings a patient to the physician for evaluation. Abdominal pain represents a spectrum of diseases ranging from the most benign and self-limited to surgical emergencies.<sup>12,13</sup> Abdominal pain is one of the most common presentations to the emergency department. Studies from high income countries suggest that abdominal pain presentation at the ED has an incidence of 7–10%.<sup>14</sup>

The incidence of malignancy among patients presenting to emergency department with acute abdominal emergency requiring laparotomy in our study was about 18.18%. In a study conducted by Muriche et al, about 20% of the malignancies had emergency presentation.<sup>15</sup> In our study incidence of malignancy with emergency presentation among females is 19.37% and among male is 17.5%.

Of the 80 malignancy patients only 7 patients were below the age of 40 years. Incidence of acute presentations of G.I. malignancy, especially colorectal carcinoma, was highest among the elderly age group. 73.75% of the patients detected with malignancy were above 50 years. This is in accordance with the study conducted by Waldron et al in 1986, where 58% of malignancies occurred in patients of more than 70 years age group compared to 43% in patients less than 70 years age group.<sup>16</sup>

Obstruction was the most common presentation of malignancy in our study constituting about 73.75% probably because carcinoma colon was the most common histopathological diagnosis. According to the article published in the journal surgical clinics of North America, primary colorectal cancer causes 53% of acute large bowel obstruction requiring surgery.<sup>17</sup>

Perforation was the 2<sup>nd</sup> most common presentation for malignancy in our study (22.5%). Among 80 malignancy detected, 10 were carcinoma stomach patients, all of whom presented

with perforation. Gastric carcinoma contributed to 15% of all gastroduodenal perforations. This is in agreement with the study conducted by Roviello et al in 2006 in Italy.<sup>18</sup>

Among the acute presentations of carcinoma colon, intestinal obstruction is the most common one and for CA stomach, perforation is the most common presentation. Out of 53 cases of colorectal carcinoma in this study, only 6 cases presented with perforation and rest of the cases presented with intestinal obstruction. This is in agreement with the study conducted in 2017, Kilpauk Medical College, Chennai by Vijaya kumar et al.<sup>19</sup> Their study showed 92% obstruction and 8% perforation in colon malignancy and 100% perforation in gastric malignancy. Small bowel tumours contributed to 5% of malignancies, i.e. 4 cases among 80 malignancies. All of them presented with acute intestinal obstruction, similar to the study in Kilpauk which showed 100% presentation by obstruction in small bowel tumours.<sup>19</sup>

In this study 3 cases of carcinoma appendix was detected. Two cases presented as appendicular abscess and the other as intestinal obstruction. Among 15 cases of appendicular abscess, 2 turned out to be malignant. Out of the 3 gall bladder perforations 1 turned out to be cholangiocarcinoma. 2 cases of malignant neuroendocrine tumour of small bowel was detected in a case of intestinal obstruction. Non gastrointestinal malignancies may also present with gastrointestinal symptoms. In this study there were 3 such cases. 2 is a case CA ovary and the other is CA adrenal.

### Conclusion

In the era were the incidence and early detection of abdominal malignancies are on a rise, a significant portion of these cases present with acute abdominal symptoms and the morbidity associated with such a presentation is of importance. Early detection of the disease by screening is the solution for this.

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