

# SURGICAL MANAGEMENT OF CARCINOMA CAECUM

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## ABSTRACT

**Objective:** To determine the magnitude of carcinoma caecum and its surgical management in the department of Surgery, Hayatabad Medical Complex Peshawar- Pakistan.

**Methodology:** This case series study was conducted at surgical Unit Hayatabad Medical Complex Peshawar from July 2006 to June 2009. A total of 32 patients of carcinoma of caecum were included that were admitted either through OPD as elective cases (22 patients) or in emergency (10 patients). In elective cases, diagnosis was made on colonoscopic biopsy while those who presented in emergency either with intestinal obstruction or with the suspicion of acute appendicitis, were diagnosed on the resected specimen histopathology.

**Results:** Out of 32, 25 patients (78%) were male and 7 (22%) female, with a male to female ratio of 3.6:1. Their mean age at the time of presentation was 65±2.8 years. Right hemicolectomy with side to side or end to end ileotransverse anastomosis was performed in 23 cases (71.89%). In 3 cases (9.37%) ileotransverse bypass without resection was carried out as the tumour was locally advanced. In 3 other cases (9.37%), only omental biopsy was taken as the carcinoma was so advanced that any curative or palliative resection was not possible. In emergency situation, right hemicolectomy with exteriorization of bowel ends was done in 3 cases (9.37%). Postoperative morbidity included wound infection 12.50%, faecal fistula 9.37% and intraabdominal collection 6.25%.

**Conclusion:** Majority of the patients were having operable disease, however late presentation is very common. Surgical intervention may prove to be a better option in such cases.

**Keywords:** Carcinoma of caecum, Large gut malignancy, Intestinal obstruction.

## INTRODUCTION

Carcinoma caecum/ascending colon accounts for up to 14% of colorectal tumours as reported from the developed countries<sup>1, 2</sup>. Carcinoma of caecum is more common in western countries but it is not a rare disease in our country<sup>3</sup>. It may present in variable ways e.g. occult bleeding per rectum, gross bleeding through rectum, unexplained anaemia, mass in right iliac fossa, acute appendicitis and even intestinal obstruction<sup>3</sup>. Rarely it may present as mega intussusception and rectal mass<sup>4</sup>. It usually metastasizes to regional lymph nodes and later on through blood stream<sup>5, 6</sup>. Haematogenous metastasis usually occurs by embolization of cancer cells from primary tumour via mesenteric and portal veins to liver which is the most common site of colorectal metastasis<sup>7-9</sup>. Other common sites

include lung and brain, however subcutaneous metastasis is a very rare presentation but do occur<sup>10, 11</sup>. Although right hemicolectomy for carcinoma caecum may be curative, but carcinoma involving this part of colon does not have a favourable prognosis and it is believed to be due to diagnostic delay<sup>12, 13</sup>.

The aim of this study is to review data pertaining to caecal carcinoma such as age, sex, clinical presentation, diagnosis and treatment of patients admitted to the department of surgery, Hayatabad Medical Complex Peshawar over a period of 3 years.

## METHODOLOGY

This was a case series study and extended over a period of three years from July 2006 to June 2009. In this study patients of all ages and

both sexes with the diagnosis of carcinoma of caecum, managed in the surgical department of HMC Peshawar were included. Patients with past history of colonic growth or recurrent growth were excluded from the study. Similarly patients with extra abdominal metastases like cervical lymphadenopathy and pulmonary metastases were also excluded. In elective cases diagnosis was made on colonoscopic biopsy while those presented in emergency either with intestinal obstruction or with the suspicion of acute appendicitis were diagnosed after receiving the histopathology report of the resected specimen.

Data regarding the history clinical signs, investigations, surgical treatment and the outcome of these patients were collected on a semi-structured proforma. Preoperatively patients admitted through OPD were shifted to liquid diet to prepare the gut while those admitted with intestinal obstruction, were managed on intravenous fluids, nasogastric suction and Foleys catheter to keep the intake and out put record and kleen enema to evacuate the distal faecal bulk more commonly in elective cases.

In elective patients, routine investigations like full blood count, blood urea/creatinine, blood sugar, blood grouping, ECG, X-ray chest and X-ray abdomen (erect and decubitus films) were performed to look for the signs of obstruction. Specific investigations included stool examination for occult blood, abdominal U/S, barium enema (in 22 patients admitted as elective cases) and colonoscopy with biopsy. Serum electrolytes and LFTs were done where needed. CT scan was done

in all elective cases to check the extent of spread of the disease. CEA was done in 22 cases (68.75%) who were admitted through OPD and was found raised. Patients presented in emergency either with intestinal obstruction or acute appendicitis, were routinely resuscitated and then investigated, followed by surgical intervention. Blood was arranged before surgery according to haemoglobin status. Right hemicolectomy with ileotransverse anastomosis was the preferred procedure over ileostomy or bypass, in all resectable cases.

In emergency situation, right hemicolectomy with exteriorization of bowel ends was done in patients with intestinal obstruction and haemodynamically unstable or with peritoneal contamination. Only omental biopsy was taken in cases where the growth was disseminated extensively in peritoneal cavity.

Patients were advised to come to OPD for follow up, initially monthly and then after every 3 months.

## RESULTS

In this study a total number of 32 cases of carcinoma caecum were collected. There were 25 (78%) males and 7 (22%) females with a male to female ratio of 3.6:1. The age range was 30-80 years with a maximum number having age between 61-70 years. The mean age of patient at the time of presentation was 65 years  $\pm$  2.8 SD (Table 1).

Table 2 shows the different modes of presentation of patients. Out of 32 patients 22

**Table 1: Age and gender of the sample (n =32)**

Age range	Male	Female	Total
30-39 years	02	00	02
40-49 years	03	01	04
50-59 years	04	01	05
60-69 years	14	04	18
70-79 years	02	00	02
80 years	00	01	01
<b>Total</b>	25 (78%)	07 (22%)	32 (100%)

**Table 2: Modes of presentation (n =32)**

Clinical features	No of cases	%age
Mass RIF	22	68.75
Intestinal obstruction	07	21.87
Acute appendicitis	03	9.38
<b>Total</b>	32	100%

(68.75%) cases had clinical presentation of a mass in right iliac fossa, 7 patients (21.87%) presented with intestinal obstruction while 3 patients (9.38%) had signs and symptoms suggestive of acute appendicitis.

Palpable mass in right iliac fossa or right lower abdomen was the predominant finding. Pain was the presenting symptom in 25 patients (78.13%) which was generalized in 17 patients (53.13%) and localized in right iliac fossa in 8 patients (25%). Twenty two patients (68.75%) had significant weight loss at the time of presentation, 15 patients (46.87%) had vomiting and 14 (43.75%) were constipated. Four patients (9.37%) were pyrexia.

Table 3 shows the abnormal pre operative investigations. Twenty eight (87.50%) patients had haemoglobin less than 10 gm. Blood urea was raised in 08 (25%) patients. Stool for occult blood was positive in 15 cases (46%). Plain X ray abdomen (erect posture) was carried out in all patients and revealed signs of intestinal obstruction in 7 patients (21.87%). Abdominal ultrasound showed abnormal findings in 17 (53.13%) out of 32 cases. Barium enema Colonoscopy were performed in 22 (68.75%) elective cases and

showed evidence of tumour in all cases. Biopsy specimen was taken for histopathology during colonoscopy.

Table 4 shows the different operative procedures performed. Right hemicolectomy with primary ileotransverse anastomosis was performed in 23 cases (71.89%), while in 3 patients (9.37%) who presented in emergency with intestinal obstruction, right hemicolectomy with exteriorization of bowel ends was done. In 3 patients (9.37%), the tumour was found to be advanced and fixed, therefore only ileotransverse bypass procedure was undertaken. In remaining 3 cases (9.37%) tumour was wide spread involving the peritoneal cavity and liver rendering any surgical procedure impossible. So an open omental biopsy was the only procedure which was undertaken and two out of these 3 patients expired postoperatively within 90 days of exploration.

Table 5 shows the morbidity of this study. Four patients (12.50%) developed wound sepsis postoperatively, which was managed by opening up the wound, draining the pus and regular wash of the wound with saline and antiseptic solution and dressings. Two patients (6.25%) developed faecal

**Table 3: Pre Operative Investigations (n = 32)**

Investigations	No. of Patients	Percentage
Haemoglobin (less than 10 gm%)	28	87.50%
Blood Urea	08	25%
Stool for occult blood	15	46%
X ray Abdomen (erect posture )	07	21.87%
Abdominal ultrasound	17	53.13%
CT scan (abdomen and pelvis)	21	65.63%
Barium enema	22	68.75%
Colonoscopy	22	68.75%

**Table 4: Operative Procedures (n = 32)**

Procedure	No. of Cases	%age
Rt hemicolectomy with ileotransverse anastomosis	23	71.89%
Rt hemicolectomy with exteriorization of bowel ends	03	09.37%
Ileotransversers bypass without resection	03	09.37%
Omental biopsy only	03	09.37%
<b>Total</b>	<b>32</b>	<b>100%</b>

**Table 5: Post operative complications (n =32)**

Complication	No. of cases	%age
Wound sepsis	04	12.50%
Faecal fistula	02	06.25%
Respiratory tract infection	02	06.25%
Jaundice	01	03.13%
Intra abdominal collection	02	06.25%
Wound dehiscence	01	03.13%
Septicemia	01	03.13%
<b>Total</b>	<b>13</b>	<b>40.64%</b>

**Table 6: Histopathology (n = 32)**

Histological features	No.of cases	Percentage
Adenocarcinoma	32	100%
• Well differentiated	23	71.87%
• Moderately differentiated	04	12.50%
• Poorly differentiated	05	15.63%
Lymph node status	25	78.13%

fistula due to anastomotic leakage which were reexplored and after peritoneal toilet, the two ends were exteriorized. Other complications included respiratory tract infection and intraabdominal collection in 2 cases each (06.25%). Patients with intraabdominal collection were reexplored and peritoneal wash was done. Postoperative jaundice, wound dehiscence and septicemia occurred in one patient each (03.13%). Tension sutures were applied to burst abdomen. Total hospital stay depended upon the patient condition. Postoperative stay ranged from 7-25 days. Hospital mortality was 03.13% (one case of septicemia which expired within 10 days post operatively, while 2 patients with advanced disease died within 3 months after exploration).

Table 6 shows the histopathology report. All (100%) patients were reported having adenocarcinoma. Out of 32, 23 (71.87%) patients had poorly differentiated, 04 (12.50%) had moderately differentiated and 05 (15.63%) had poorly differentiated adenocarcinoma. In 25 (78.13%) patients, the paracolic lymph nodes were reported to be involved.

## DISCUSSION

The true incidence and presentation of caecal carcinoma from Pakistan is infrequently

reported but our present study show comparable results with studies from Pakistan as well as international studies with some distinctive features<sup>3, 14, 15</sup>.

Carcinoma of caecum is a disease of old age but it can occur in young people also. Most of the patients in our study were between the age of 61-70 years, ranging from 30-80 years. These findings are comparable to different studies conducted by Gennero<sup>15</sup>, Sadozai AK<sup>14</sup> and Amin MA<sup>3</sup>. This age incidence is slightly earlier than maximum age incidence in developed countries. Maximum age incidence over there is about 70-80 years<sup>3</sup>. Similarly high incidence in old age in developed countries may be due to increased average life of population<sup>3</sup>. Young people are not immune to caecal cancer. The youngest patient in our study was 30 years male. A study reported by Khawaja from Lahore, the average age was 45 years and the youngest patient was 17 years old<sup>16</sup>. Caecal carcinoma is reported more commonly in females than in males<sup>17</sup> in a study which was explained by the fact that females suffer from biliary disease more than males and bile acids are thought to be carcinogenic and responsible for this occurrence.<sup>3</sup> But in our study the male to female ratio was 3.6:1 which is quiet opposite to the above study but is more consistent with the study of Gennero<sup>15</sup> and 3:1 by Sadozai AK<sup>14</sup> and Amin MA<sup>3</sup> in their studies.

In the present study of 32 patients, 22 patients (68.75%) presented with abdominal mass as compared to 13% by Gemmero,<sup>15</sup> 45% by Zaki M,<sup>18</sup> 50% by Sadozai AK<sup>14</sup> and Amin MA<sup>3</sup> each, indicating that it is the most frequent mode of presentation.

Though caecal tumours rarely produce obstructive symptoms due to its wide lumen and liquid contents, that leaves the carcinogenic component in diet to remain in contact with the caecal wall for a short period<sup>19</sup>. However 7 patients (21.87%) in our study presented with intestinal obstruction. This indicated the advanced stage of the tumour at the time of presentation. This figure is reported 20% each by Sadozai AK<sup>14</sup> and Amin MA<sup>3</sup>. Only 3 patients (9.38%) were febrile and presented as acute appendicitis which is a rare presentation of carcinoma of caecum. This figure is almost equal to 10% reported by Sadozai AK<sup>14</sup> and Amin MA<sup>3</sup>. Twenty two patients (68.75%) presented with significant weight loss and 28 patients (25%) had marked anaemia (Hb less than 10 gm %) showing the late presentation of patients as compared to Western experience but almost similar to local studies<sup>3, 14</sup>. This may explain the late presentation of these patients with abdominal mass or bowel obstruction. So any complication that develops in relation to early carcinoma can be a blessing for the patient as it draws the attention when curative resection is possible<sup>20</sup>.

Barium enema, colonoscopy and abdominal ultrasound are important and reliable investigations for the detection of caecal carcinoma<sup>21</sup>. However spiral hydro CT scan<sup>22</sup> and MRI<sup>23</sup> are helpful in assessing the extramural extension of tumour. In the present study, contrast radiology barium studies were performed in 22 patients (68.75%) and the diagnostic yield was 100% in these patients. Gennero reported positive results in 50 out of 54 patients<sup>15</sup> while Zaki M reported abnormal barium studies in 74 out of 92 cases of caecal carcinoma<sup>18</sup>. Sadozai AK<sup>14</sup> and Amin MA<sup>3</sup> reported positive results in 100% patients, confirming that double contrast enemas may be more helpful in detecting early lesions<sup>14</sup>. Colonoscopy was also performed in 22 patients (68.75%) admitted as elective cases and demonstrated tumour in all cases and specimens were taken for histopathology. Sadozai performed Colonoscopy in only 2 patients (5%) and reported tumour in both cases (100%)<sup>14</sup>. Where the endoscopic facilities are not available, contrast radiology (double contrast enema) remains the main stay of diagnosis in developing countries<sup>24</sup>.

As barium enema and cononoscopy are the gold standard for the diagnosis of colonic tumours

but both require bowel preparation and are sometimes intolerable for the patients, abdominal ultrasound is another excellent diagnostic modality with high sensitivity and moderate specificity in experienced hands<sup>25</sup>. Ultrasound detects the primary lesion, its size, extent and even secondaries in the liver and so helps to stage the tumour<sup>3</sup>. In our study abdominal ultrasound was performed in 22 patients and picked up tumour with 100% accuracy.

The management of colonic carcinoma requires a combined approach by Surgeon, oncologist and Gastroenterologist but surgery remains the main stay of treatment of carcinoma of caecum<sup>14,26</sup>, since the only cure / palliation for carcinoma of the caecum is enbloc resection. Therefore radical surgical excision is the procedure of choice<sup>27</sup>. Right hemicolectomy with primary ileocolic anastomosis is a safe procedure in good surgical hands and in patients having comparatively good health. In the current study curative resection i.e. right hemicolectomy with ileotransverse anastomosis was performed in 23 cases (71.89%) while in emergency situation palliative or primary resection and exteriorization of bowel ends was carried out in 3 patients (9.37%) due to locally advanced tumour. Three patients (9.37%) underwent palliative ileotransverse bypass surgery. In the remaining 3 patients (9.37%), only omental biopsy was possible due to metastasis in the liver and peritoneal cavity. All these operative findings are comparable to local and international studies<sup>3, 14, 15, 18</sup>.

The operative mortality can be reduced by proper selection of patients for various surgical procedures and it can even further be improved if patients are operated upon by experienced surgeons. Histology showed 16 cases (50%) in Duke's B, 9(28%) in Duke's C and 7 (22%) in Duke's D. No case was reported in Duke Stage A. These figures are similar to those reported in local studies<sup>3, 14</sup>. Hence 50% of our patients were in advanced stage Duke's D at the time of presentation, showing that there is a trend for late presentation, showing that there is a trend for late presentation. Moreover histopathology report showed that 100% of the patients had adenocarcinoma and the para colic lymph nodes were involved in 78.13% (25) cases. These figures are also comparable to different studies<sup>3, 14, 15</sup>.

In this study, 4 patients (12.50%) developed wound infection which was managed with opening the wound, draining pus, washing the wound and dressings. Two patients (6.25%) had faecal fistula due to anastomotic leakage and were reexplored. Two patients (6.25%) had small intra abdominal collections which were reexplored and peritoneal wash was done, one patient (3.13%) had

wound dehiscence, for which secondary tension sutures were applied. These figures are comparable to local studies carried out by Sadozai AK<sup>14</sup> and Amin MA<sup>3</sup>. The hospital mortality was 03.13% (one case who had developed septicemia due to anastomotic leak and died within 10 days of surgery), which is comparatively less than 10% reported by Sadozai AK<sup>14</sup> and Amin MA<sup>3</sup> each and 19% by Gennero<sup>15</sup>.

At the time of discharge, patients were advised to visit OPD regularly for follow up. Initially 31 patients attended the OPD for check up but 02 patients died within 90 days after surgery and 06 were lost during follow up. So their number reduced to 23 after 3 months. At 2 years follow up, 03 patients (11.54%) developed local recurrence and 05 patients (19.23%) were picked up with distant metastasis, mainly to liver. Fifteen patients (57.69%) were disease free after 2 years follow up. Gennero had reported overall 5 years survival rate of 32.7% in carcinoma of caecum<sup>15</sup>.

## CONCLUSION

Majority of the patients were having operable disease, however late presentation is very common. Surgical intervention may prove to be a better option as enbloc resection i.e. right hemicolectomy with ileotransverse anastomosis was done in majority of the cases of our sample.

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