ASSESSMENT OF THE ASSOCIATION BETWEEN CLINICAL EXAMINATION AND INVESTIGATIONS WITH OUTCOME IN CASES OF ABDOMINAL MALIGNANCY

ABSTRACT:

Introduction : Abdominal malignancy is a serious problem in the western world which is presently rising in India due to change in lifestyle. The etiopathogenesis are hereditary, environmental and lifestyle factors. The signs and symptoms vary depending upon the type and stage of cancer. Routine investigations, tumor markers, radiology, endoscopy and biopsy examine patients. There have been advances in chemotherapy, radiotherapy, and palliation but still surgery is curative.

Methods : This is a prospective observational study including all cases of abdominal malignancy presenting to Surgery OPD. The sample size is 46 patients. **Results :** Mean age of presentation is 54.63 years. Preoperative abnormal parameters such as CEA, CA 19-9, preoperative biopsy, lymph nodal metastasis on CT and liver metastasis on CT were correlated with outcome which were found to be significant. Operative findings such as site, area, spread outside serosa, lymph nodal metastasis, and liver metastasis were correlated with same in the radio-pathological findings and were found to be significant. Outcome was assessed. Reasons for delay in presentation, diagnosis and treatment were assessed.

Conclusion: Maximum number of patients were in the age group of 41-60 years. There was a definite difference in outcome with reference to preoperative abnormal parameters. There was comparative variation of operative and radio-pathological findings. Study subjects death were due to malignancy as most of them presented to the hospital at advanced stages of malignancy and others dropped out of chemotherapy or radiotherapy and those who took proper treatment had good outcome.

Keywords: Carcinoma, Malignancy, Abdominal, Clinical, Investigation, Outcome

Introduction:

Abdominal malignancy is a serious problem in the western world which is presently rising in India due to change in lifestyle. It is a general term that encompasses cancers of various organs in the area between the diaphragm and the groin, that is, stomach, liver, gallbladder, pancreas, small intestine, large intestine (caecum, colon, rectum and anal canal) and urological system.[1]

As per the GLOBOCAN 2018 data, incidence wise, colorectal cancer, gastric cancer and liver cancer ranks third, fifth and sixth, respectively after Lung, female breast cancer and prostate cancer. Gall bladder, pancreas and small intestine cancers are less common.[1]

The etiopathogenesis of abdominal malignancies are hereditary conditions, environmental factors, lifestyle factors (unhealthy diet, diet containing high-sodium, high-fat and less fibre, refrigerated food, consumption of processed, red meat, tobacco smoking, alcohol

consumption, obesity), diabetes Mellitus, infections (HBV, HCV, EBV, H. pylori) and benign chronic inflammatory conditions affecting the abdominal viscera.[2,3,4]

The signs and symptoms of abdominal malignancy vary depending upon the type and stage of cancer. The patients may be asymptomatic in the initial stages of the cancer, but with progression, may experience symptoms such as dyspepsia, abdominal or mid-back pain, nausea, vomiting, change in bowel habits, loss of appetite, significant weight loss, jaundice, itchy skin fatigue and fever. The signs in the patients may be anemia, obstructive jaundice, hematemesis and rectal bleeding.[2, 3, 5]

Abdominal clinical examination gives clues for the diagnosis of malignancy.[6] The abdominal examination is done as inspection, palpation, percussion, and auscultation.[7]

After this the routine investigations (CBC, LFT, KFT) are done. Patients are further investigated by radiology, biopsy, tumor markers and endoscopy. Among the imaging methods, Transabdominal ultrasonography (USG) is a non-invasive and first line investigation.[8]

CT scan is the investigation of choice preoperatively for diagnosing abdominal malignancies. It is less expensive than the other imaging modalities such as MRI and less invasive than endoscopic procedures.[9]

Upper gastrointestinal endoscopies are considered as the gold standard for the management of gastric cancers. It is useful in screening symptomatic patients.[10] Colonoscopy has become increasingly popular for screening.[11]

The pathology reporting can be supported by tumor markers such as carcinoembryonic antigen (CEA) and cancer-related antigen 19-9 (CA 19-9) used in abdominal malignancies. These tumour markers are used in staging and follow-up of patients.[12]

The diagnosis and management approach is dependent upon a good relation between the clinical examination and investigations.[13] During the last decades though there have been advances in chemotherapy, radiotherapy and palliation; surgery is the curative one.[14]

Abdominal malignancies carry a high fatality rate because of delayed presentation. Colorectal cancer, gastric cancer and liver cancer ranks 2nd, 3rd and 4th leading causes of mortality related to cancers.[1]

Rationale:

This study was done to study the clinical and epidemiological factors which will give information regarding early symptoms & signs helping in early diagnosis. To find preoperative abnormal parameters affecting the ultimate outcome. To correlate the radiological evaluation and not operative findings to decide the appropriate treatment. To analyze and evaluate cause of delay.

OBJECTIVES:

- To evaluate clinical and epidemiological parameters in cases of abdominal malignancy.
- To relate preoperative abnormal parameters with ultimate outcome in cases of abdominal malignancy.

- To relate actual operative findings with radio-pathological findings.
- To assess the outcome of treatment in abdominal malignancy.
- To determine cause of delay in initiating specific therapeutic procedures.

MATERIALS AND METHODS:

The current study was conducted in the Department of surgery at rural tertiary health care center – Acharya Vinoba Bhave Rural Hospital, Sawangi (Meghe), Wardha, India. Study design is prospective observational study. Study population is those attending Department of Surgery OPD and admitted to AVBRH hospital. The duration of study is 2 years (From September 2018 to August 2020)

Inclusion criteria:

All the patients coming to AVBRH for the treatment of abdominal malignancies.

Exclusion criteria:

Gynecological cancers

Urological cancers

Non-abdominal malignancies.

Sample Size: 46 patients

Methodology: This was a prospective observational study carried out from September 2018 to August 2020. This study was conducted after obtaining the written informed consent of the patients. All the patients who were diagnosed as a case of abdominal malignancy were included in the study.

Detailed history of the patient was taken including age and sex and chief complaints. A standardized sequence of clinical examination was chosen inspection, palpation, percussion and auscultation. Each step of abdominal examination carries its importance in ruling out a plethora of differentials.

After detailed history and clinical examination, patients were subjected to routine blood investigations, tumour markers, Ultrasonography, Endoscopy/colonoscopy with guided biopsy and computed tomography.

After diagnosis of abdominal malignancy tumour was either surgically operated or palliative treatment that includes palliative surgery, palliative chemotherapy and palliative radiotherapy were given. These findings were noted and were followed up for a period of 6 months.

OBSERVATIONS AND RESULTS:

In the present study it was observed that mean age of presentation was 54.63 ± 10.8years, Both median and mode were 55 years. Out of 46 patients, there were 30 patients (maximum) in the 41-60 years age patient. The age range was between 35 - 87 years (Graph 1).

Graph 1: Distribution of study subjects according to age (in years)

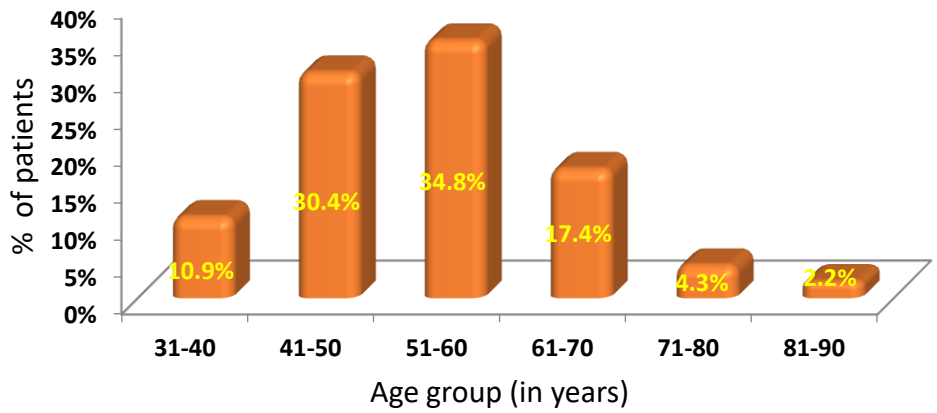


Table 1 : Association of preoperative abnormal parameters with outcome

PREOPERATIVE PARAMETERS	GOOD OUTCOME	POOR OUTCOME OR DEATH	TOTAL	P VALUE	TEST
CEA (n=36)				0.041	Fisher exact
Normal	10	4	14		
Abnormal	6	16	22		
CA 19-9 (n=9)					
Normal	0	1	1		
Abnormal	0	8	8		
PREOPERATIVE BIOPSY (n=36)				0.019	Chi square
Well differentiated	11	5	16		
Moderately differentiated	0	5	5		
Poorly differentiated	3	1	4		
Signet ring cell type	1	4	5		
Infiltrative	1	4	5		

CT WITH LYMPH NODAL METASTASIS (n=46)				0.041	Chi square
Absent	10	7	17		
Present	7	22	29		
CT WITH LIVER METASTASIS (n=46)				0.002	Fisher exact
Absent	14	10	24		
Present	3	19	22		

Table 2 : Association of operative and radiological findings (site, length, (lymph node metastasis, spread outside serosa, ascites, liver metastasis, metastasis to other structures).

OPERATIVE FINDINGS	**RADIOLOGICAL**	**FINDINGS**	**TOTAL**	**P VALUE**	**TEST USED**
	Stomach	Not stomach		0.002	Fisher exact
Stomach	2	0	2		
Not stomach	0	28	28		
	Gall bladder	Not Gall bladder		0.033	Fisher exact
Gall bladder	1	0	1		
Not gall bladder	0	29	29		
	GIST	Not GIST		0.033	Fisher exact
GIST	1	0	1		
Not GIST	0	29	29		
	Proximal colon	Not proximal colon		0.000	Fisher exact
Proximal colon	5	2	7		
Not proximal colon	0	23	23		
	Descending colon	Not Descending colon		0.002	Fisher exact
Descending colon	2	0	2		
Not Descending colon	0	28	28		

	Sigmoid colon	Not Sigmoid colon		0.000	Fisher exact
Sigmoid colon	8	2	10		
Not Sigmoid colon	1	19	20		
	Rectosigmoid	Not rectosigmoid		0.004	Fisher exact
Rectosigmoid	5	1	6		
Not rectosigmoid	4	20	24		
	Rectum	Not rectum		0.011	Fisher exact
Rectum	7	4	12		
Not rectum	2	14	18		
	Anal canal	Not anal canal			
Anal canal	2	1	3	0.006	Fisher exact
Not anal canal	0	27	27		

LENGTH	**MEAN (SD)**	**P VALUE**	**TEST**
Radiological findings	69.16(30.63)	0.87350	T test
Operative findings	70.37(30.81)		

OPERATIVE FINDINGS	**RADIOLOGICAL FINDINGS**				
	ABSENT	**PRESENT**	**TOTAL**	**P VALUE**	**TEST USED**
LYMPH NODE METASTASIS				0.006	Fisher exact
Absent	9	2	11		
Present	5	14	19		
SPREAD OUTSIDE SEROSA				0.000	Fisher exact
Absent	19	1	20		
Present	3	7	10		

ASCITES				0.018	Fisher exact
Absent	23	1	24		
Present	3	3	6		
LIVER METASTASIS				0.044	Fisher exact
Absent	16	4	20		
Present	4	6	10		
METASTASIS TO OTHER STRUCTURES				0.000	Fisher exact
Absent	22	0	22		
Present	1	7	8		

Table 3 : Association of operative and pathological findings (site, length X breadth, proximal and distal margin, lymph nodal metastasis, spread outside serosa, metastasis to other structures)

OPERATIVE FINDINGS	**PATHOLOGICAL**	**FINDINGS**	**TOTAL**	**P VALUE**	**TEST USED**
	Stomach	Not stomach		0.002	Fisher exact
Stomach	2	0	2		
Not stomach	0	26	26		
	Gall bladder	Not gall bladder		0.035	Fisher exact
Gall bladder	1	0	1		
Not gall bladder	0	27	27		
	GIST	Not GIST		0.035	Fisher exact
GIST	1	0	1		
Not GIST	0	27	27		
	Proximal colon	Not Proximal colon		0.000	Fisher exact
Proximal colon	6	1	7		
Not Proximal colon	0	21	21		

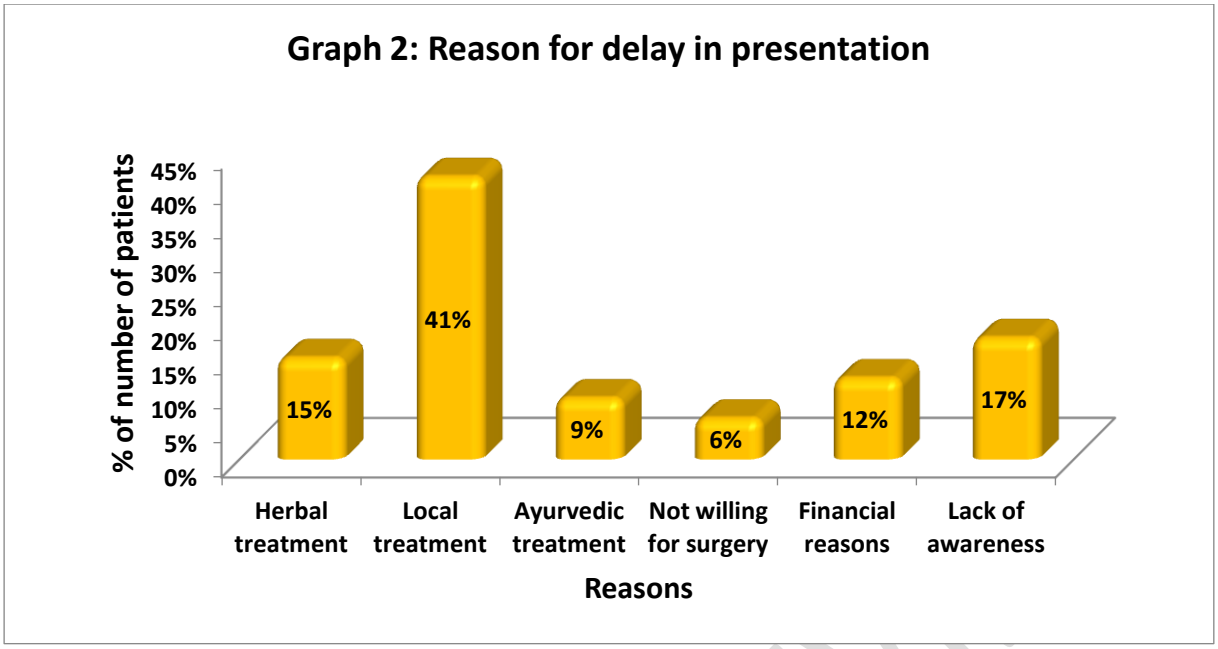
	Descending colon	Not Descending colon		0.002	Fisher exact
Descending colon	2	0	2		
Not Descending colon	0	26	26		
	Sigmoid colon	Not Sigmoid colon		0.000	Fisher exact
Sigmoid colon	9	0	9		
Not Sigmoid colon	0	19	19		
	Rectosigmoid	Not rectosigmoid		0.000	Fisher exact
Rectosigmoid	5	0	5		
Not rectosigmoid	0	23	23		
	Rectum	Not rectum		0.000	Fisher exact
Rectum	9	1	10		
Not rectum	0	18	18		
	Anal canal	Not anal canal		0.000	Fisher exact
Anal canal	3	0	3		
Not anal canal	0	25	25		

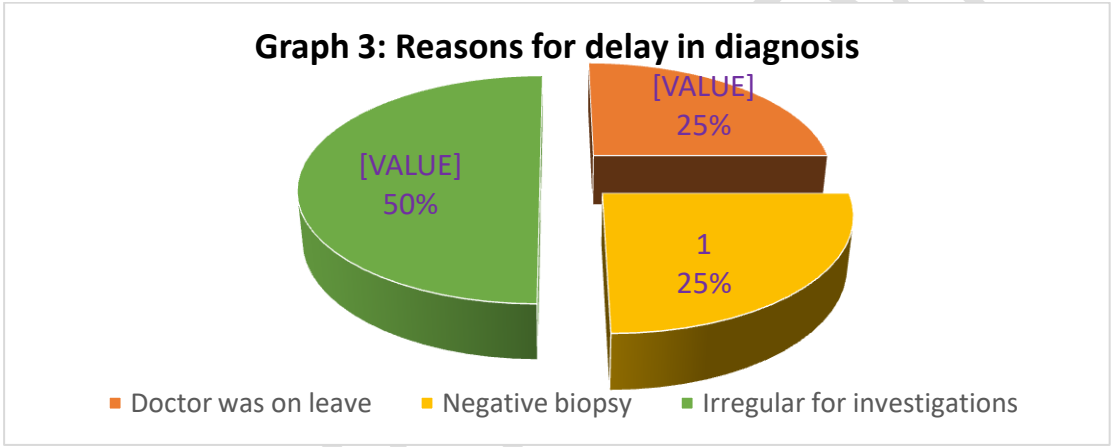
FINDINGS	**MEAN (SD)**	**P VALUE**	**TEST USED**
LENGTH X BREADTH		0.786	T test
Operative findings	3140.74(2733.02)		
Pathological findings	3348.63(2863.86)		
PROXIMAL MARGIN		0.621	T test
Operative findings	96.4(50.23)		
Pathological findings	89(54.94)		
DISTAL MARGIN		0.789	T test
Operative findings	54.4(36.97)		
Pathological findings	51.54(37.40)		

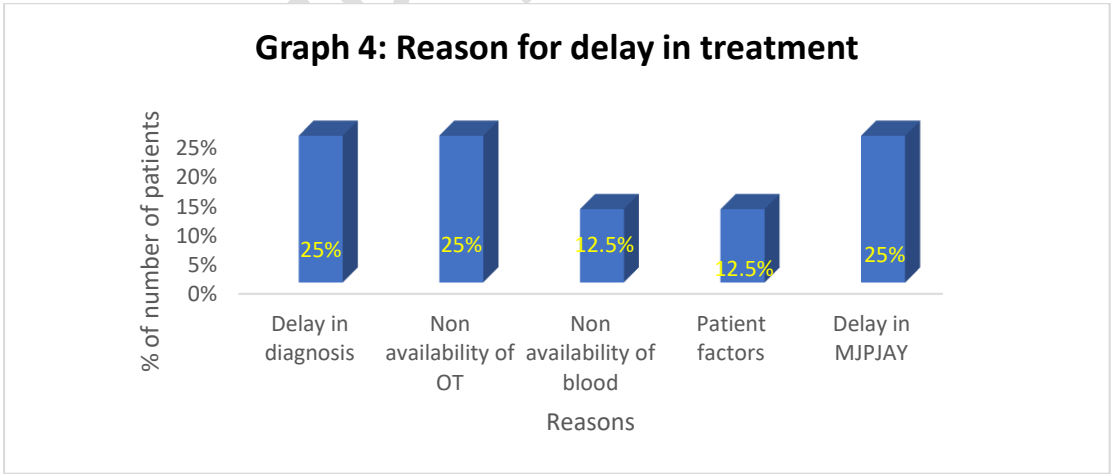
OPERATIVE FINDINGS	PATHOLOGICAL FINDINGS				
	ABSENT	PRESENT	TOTAL	P VALUE	TEST USED
LYMPH NODAL METASTASIS				0.040	Fisher exact
Absent	10	1	11		
Present	8	9	17		
SPREAD OUTSIDE SEROSA				0.041	Fisher exact
Absent	17	1	18		
Present	6	4	10		
METASTASIS TO OTHER STRUCTURES				0.003	Fisher exact
Absent	23	0	23		
Present	2	3	5		

Table 4: Distribution of outcome of patients

OUTCOME	NUMBER OF PATIENTS (n=46)	PERCENTAGE
Good	17	37%
Poor due to local recurrence	2	4%
Poor due to metastasis	0	0%
Death due to malignancy	25	55%
Death due to other reasons	2	4%







DISCUSSION:

It was well known that incidence of cancer increase with age of people. Arun Kumar Barad et al in their study of 158 patients of gastric cancer age range were 28 to 91 years. More number of patients were in age group of more than 60 years.[15] Kanthan et al in their study of

10910 cases of carcinoma gall bladder the average age was 72 years.[16] Zhang et al in their study on 1433 pancreatic cancer patients observed that median age was 60 (23–90) years.[17] Mucciarini et al in their study of 124 patients of Gastrointestinal stromal tumours observed that 69 years of age was the median and the age range was 30-90 years.[18] Dodiyi et al in their study of 70 patients of colorectal cancer observed that their age range was 23 to 82 and the mean age was 48.5± 3.7 years. The peak age affected was the 41-50 age range with 20(28.6%) patients.[19] Habeebu et al in their study observed that out of 106 cases of abdominal malignancies the mean age was 55.9 ± 13 years and the age range was 30-82 years. More patients were in the 50-59 years age group.[20]

The result of this study is in agreement with Arun Kumar Barad et al, Zhang et al, Dodiyi et al and Habeebu et al . On the other hand, Gall bladder cancer is not consistent with mean age of Kanthan et al and GIST is not identical with Mucciarini et al as they have insufficient number of cases.

RELATIONSHIP OF PREOPERATIVE ABNORMAL PARAMETERS WITH OUTCOME.

Gastric cancer:

H.J. Park et al in their study of 207 patients of gastric cancer, CEA levels were associated with poorer outcomes and death.[21] Zhu et al in their study of 932 patients of gastric cancer observed that well differentiated tumour in 61 patients, moderately differentiated in 112 patients, poorly differentiated in 365 patients and signet ring cell in 29 patients.[22] Okamoto et al in their study of 200 patients of gastric cancer, lymph node metastasis was present in 61 patients. Survival rates in those without lymph node involvement was 93.1%.[23] Bausys et al in their study of 218 patients of gastric cancer and survival rate was 83.3% and 54.2% in those without and with lymph node metastasis respectively.[24] Li et al in their study of 4221 gastric cancers, survival in patients with liver metastasis was 6 months.[25] This study is consistent with H.J. Park et al, Okamoto et al, Bausys et al and Li et al. On the other hand, the result of this study is not in agreement with Zhu et al because biological behaviour is different in our region.

Gall bladder cancer:

Sachan et al in their study of 176 patients observed that survival time of patients with normal CEA (49 months) was higher than that of patients with elevated CEA (26 months).[26] Shirai et al in their study of 135 patients of gall bladder cancer, 76 had pN0 disease survival rate of of 80%, 24 had pN1 disease with survival rate of 57%, and 35 had pN2 disease with survival rate of 23%. Therefore, presence of lymph node metastasis was associated with decreased survival rate .[27] You et al in their study of 173 patients observed that survival time for liver metastasis was 6.2 months, was lesser than that of patients with no liver metastasis.[28] This study is not consistent with Sachan et al as survival time was same in both elevated and in those within normal range CA 19-9 levels because all patients present in advanced stages. This study is in agreement with Shirai et al because patients with lymph nodal metastasis had poor outcome and You et al because patients with liver metastasis had poor outcome.

Pancreatic cancer:

Ballehaninna et al in their study of pancreatic cancer patients with normal CA 19-9 levels had a survival time of 32-36 months and those with raised CA 19-9 had a survival of 12-15 months.[29] Fesinmeyer et al in their study of 35276 of pancreatic cancer showed that tumours with endocrine histology had survival 27 months and that of adenocarcinoma had survival of 4 months.[30] This study cannot be similar with Fesinmeyer et al because of small number of cases who underwent preoperative biopsy. Hoshikawa et al in their study included 238 pancreatic cancer patients, the survival time in patients without lymph nodal metastasis was 32.6 months and in patients with lymph nodal metastasis was 24.8 months.[31] This study is disagree with Hoshikawa et al because in this study patients with/without lymph nodal metastasis had poor outcome and survival time is lesser because more patients present in advanced stages in my study. Klein et al in their study of 44 pancreatic cancer patients, survival time of patients with liver metastasis was 228 days and that in patients without liver metastasis was 437 days.[32] The result of this study is similar with Ballehaninna et al, Zhang et al and Klein et al because patients with elevated CA19-9 levels had poor outcome and patients with liver metastasis have lesser survival but the survival time is less than above study because more patients present in advanced stages in this study.

Colorectal cancer:

Tong et al in their study of 517 patients of colorectal cancer, in patients with normal CEA levels survival was 70.5% and in those with elevated CEA levels survival rate was 60.6%.[33] Wu et al in their study of 445198 patients of colorectal cancer, the survival in those with well differentiated histology was 69.4%, moderately differentiated histology was 60.7%, poorly differentiated histology was 44.4% and signet ring cell histology was 44.7%.[34] Pyo et al in their study of 266 of colorectal cancer patients observed that lymph nodal metastasis was associated with poor outcome than that of patients without lymph nodal metastasis.[35] Helling et al in their study of 121 patients of colorectal cancer, 75 patients had liver metastases. Survival in those with liver metastasis was 8 months and was 12 months in patients without liver metastasis.[36] This study is identical to that reported with Tong et al, Wu et al and Pyo et al. This study is in agreement with Helling et al but the survival time in this study is less than the above study because most of the patient in my study in advanced stage.

ASSOCIATION OF OPERATIVE AND RADIOLOGICAL FINDINGS

Kim et al conducted a study of 95 cases of gastric cancer. Intraoperatively 45 out of 86 cases had lymph node metastasis only 12 were identified correctly and 5 were false positive on CT. Intraoperatively 10 patients had enlarged celiac lymph nodes and 2 patients were identified correctly & 3 patients were false positives. CT has underdiagnosed lymph node metastasis. Intraoperatively 4 patients showed liver metastsis, 2 showed mesocolon involvement and 11 showed peritoneal metastasis and none, 2 patients and none were identified on CT respectively. CT has underdiagnosed liver metastasis and metastasis to other structures.[37] This study disagreed with Kim et al because of small number of cases are operated. Sensitivity of CT in my study is 100% in detecting lymph node metastasis and 50% in detecting liver metastasis and 100% in detecting metastasis to other structures . Vidya Jha et al in their study of 20 patients of gall bladder cancer identified intraoperatively, 11 (55%) patients showed thickening of gallbladder wall, 2 (10%) patients showed mucosal ulceration,

7(35%) patients did not show any features suggestive of malignancy.[38] Agreement of this study with Vidya Jha et al cannot be identical as only small number of cases are operated.

Elbarbary et al in their study of 44 colorectal malignancy patients observed that on CT scan lymph node metastasis in 31 (70%) patients were correctly identified and 13 (30%) were incorrectly assessed. Sensitivity of CT in detecting lymph node metastasis was 69% and specificity was 76%.[41] They also observed that 41 (93%) patients showed liver metastasis, CT scans evaluated 41 scans (93%) correctly. Sensitivity of preoperative CT for liver metastases was 89% and specificity was 96%.[41] They also observed that Lung metastasis were found in 2 patients which were identified correctly on CT. Sensitivity of CT was 100%[39] This study is consistent with Elbabary et al in terms of lymph node metastasis with a sensitivity of 78% and specificity of 71%. Sensitivity of CT for detecting liver metastasis is 82% and specificity is 56%. Sensitivity of CT in detecting metastasis to other structures is 100% . Singla et al in their study of 31 patients of colorectal cancer, Sensitivity of CT was 83.3% and specificity of CT was 92%, for T1 and T2 lesions. Sensitivity of CT was 88.2% and specificity of CT was 93.8%, for T3 lesions. Sensitivity of CT was 100% and specificity of CT was 100% for T4 lesions.[40] This study is in agreement with Singla et al in terms of sensitivity of spread outside serosa. Sensitivity of CT for detecting lymph node metastasis 94% and specificity is 75%.

ASSOCIATION OF OPERATIVE AND PATHOLOGICAL FINDINGS

Lee et al in their study of 67 study patients of gastric cancer, 55 patients underwent surgery. Intraoperatively in all 55 lymph nodes were enlarged and removed. On histopathologic examination, 20 (36.4%) had lymph nodal metastasis. Specifiicty is 36%.[42] On surgical and histopathologic examination, spread outside serosa was seen in 21(38.2%) patients. Sensitivity is 100%. On surgical and histopathologic examination, 8 patients had solid organ metastasis and 18 patients had peritoneal metastasis. 5 patients had metastasis in both.[41] This study is not similar with Lee et al because of smaller number of cases operated gastric cancers and correlating in terms of spread outside serosa and solid organ metastasis.

Jha et al in their study of 20 patients of gall bladder carcinoma observed that intraoperatively there was thickening of gallbladder wall in 11(55%) patients and mucosal ulceration in 2(10%) patients. 7(35%) patients did not show any features suggestive of malignancy. 14 patients had gall stones. On histopathological examination, all patients had features of adenocarcinoma. Lymphovascular invasion was observed in 14 patients. Perineural invasion was seen in 2 patients. Tumour cells were seen infiltrating the lamina propria in 3 patients (pT1b), muscularis propria in 15 patients (pT1b) and serosa in 2 patients (pT2).[38]

Singla et al in their study of 31 colorectal malignancy patients observed that spread outside serosa was properly diagnosed in 23 cases out of 24 cases.[40] Bembenak et al in their study of 268 colorectal malignancy patients 82 had lymph nodal metastasis intraoperatively 44 of these were identified correctly on histopathology.[42] This study is not consistent with Jha et al study because of small number of cases being operated and correlating with Singla et al and Bembenak et al.

OUTCOME IN ABDOMINAL MALIGNANCIES

Survival time of gastric cancer patients was 10 months. Basaran et al, in their study of 228 gastric cancer patients, survival time was 18.0 months.[43] Survival time of gall bladder cancer patients was 3 months. Mazer et al of study of 571 patients of suspected GBC, survival time was 5.8 months.[44] Survival time of pancreatic cancer patients 3 months. Zhang et al in their study of 1433 pancreatic patients observed that the survival time was 10.6 months.[17] Survival rate of colorectal cancer patients is 48.4%. Bardakhchyan et al in their study of 602 colorectal malignancy patients observed that survival rate was 68.5% in patients with stage I-II cancer and 48.4% in patients with stage III cancer and 17% in patients with stage IV cancers. Combined survival rate is 51.8%.[45] The result of this study disagree with Basaran et al, Mazer et al, Zhang et al and Bardakhchyan et al. because patients in this study presented in advanced stages to the hospital.

REASONS FOR DELAY IN PRESENTATION, DIAGNOSIS AND TREATMENT:

Vivek Tiwari et al in their study concluded that the patient's factors are the major causes of delay as compared to hospital factors. Common reasons for patient delay were lack of awareness about signs and symptoms of malignancy, consulting unqualified or local practitioners or taking no consultation, use of alternative medications, poor socio-economic conditions and lack of a proper referral to tertiary health care centre.[46] A K Dwivedi et al in their study observed the causes for delay in presentation 54.6% patients due to lack of awareness, 12.4% patients due to Economic problems, 3.5% patients due to Fear of cancer, 4.5% patients distance problems, 8.7% due to family problems, 30% of the patients made more than two medical contacts for confirming the diagnosis.[47] Hospital factors as cause of delay include in 27.5% patients inappropriate diagnosis, 50% patients were advised symptomatic treatment before establishment of diagnosis, 7% of the patients were assured that the disease is not a matter of serious concern, 60% of the patients contacted small clinics/primary health centres.[48] Mohammed et al in their study observed the diagnosis of malignancy was delayed at different levels. The patients were not able to identify symptoms of malignancy. Primary care physicians fail to identify patients with suspicious malignancy symptoms. They may not investigate them appropriately or refer them to a tertiary health care centre on time. Patients with suspicious malignancy may not reach the secondary care on time, or they may be reach the wrong specialty.[49] This study is in agreement with Vivek Tiwari et al, A K Dwivedi et al and Mohammed et al. [50-52] Few other related studies were reported[53-57].

CONCLUSION

Abdominal malignancies are a common problem in the western world which is on a rise in India due to changes in lifestyle. This study was conducted in AVBRH, a rural based hospital which caters to rural population where priority of health against living is less, infrastructure support is compromised and thus ultimate outcome is associated with high financial burden and poor outcome. The study was used to study the accuracy of each of the investigation in predicting the outcome and delay due to patient and hospital factors.

Mean age of presentation was 54.63 ± 10.8 years with maximum number of patients in the age group of 41-60 years. Considering the preoperative abnormal parameters, elevated CEA

and CA19-9 levels are associated with poor outcome as compare to those with normal levels. In case of preoperative biopsy findings undifferentiated cancers have a poor outcome as compared to well differentiated cancers. If lymph nodal or liver metastasis are present on CT at the time of diagnosis it is associated with poor outcome. Thus, there is a definite difference in outcome with reference to preoperative abnormal parameters.

Relating the operative and radiological findings: there is significant change in terms of diagnosis of site identified by both, but length identified by both is not significant and different. Lymph nodal metastasis, spread outside serosa, ascites, liver metastasis and metastasis to other structures in both are comparative.

Relating the operative and post-operative histopathological findings: there is significant change in terms of site identified by both findings, but length, breadth, proximal margin and distal margin identified by both is not significant. Lymph nodal metastasis, spread outside serosa, and metastasis to other structures in both are significant.

At 1 year follow up 55% of the study subjects died due to malignancy as most of them presented to the hospital at advanced stages of malignancy and others dropped out of chemotherapy or radiotherapy and 37% had good outcome as they took proper treatment. Most of the patients presented in advanced stages to the hospital because of taking local treatment (41%) or moving from one doctor to other. This is because there is lack of awareness (17%), belief in herbal (15%) and ayurvedic (9%) treatment, poor financial resources (12%), and fear for surgery(6%). The proper treatment is delayed or denied leading to poor overall outcome.

Delay in diagnosis is again mainly due to poor compliance of patient being irregular for investigations due to personal reasons and other reasons are non-availability of particular doctor, repeated negative biopsy reports. Delay in treatment is mainly due to delay in diagnosis, as biopsies were inadequate tissue, delay in insurance policy, non-availability of blood or patient's personal reason. Dropout from chemotherapy was mainly due to side effects and financial reasons. Dropout from radiotherapy is due to travelling issues as radiotherapy was not available at our setup.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Consent

This study was conducted after obtaining the written informed consent of the patients.

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