



Role of Diagnostic Laparoscopy for Assessing Operability in Gastrointestinal Malignancies

KEYWORDS

Diagnostic laparoscopy(DL), Gastrointestinal malignancies

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ABSTRACT One of the most common malignancies affecting human being worldwide are Gastrointestinal malignancies. But most of them found to be unresectable on exploratory laparotomy. Diagnostic laparoscopy considered and suggested as the most sensitive procedure for detecting metastasis and assessing operability in this categories of patients. Though spectra of investigations procedures and available to diagnose, detect and stage various gastrointestinal malignancies, Diagnostic laparoscopy have a unique place in the array of different modalities of investigations. The main role of Diagnostic laparoscopy over other imaging methods is in identifying the peritoneal and various surface lesions of different organs inside the peritoneal cavity and provision for biopsy under direct vision. Diagnostic Laparoscopy was performed in 50 patients (100%). Diagnostic Laparoscopy could accomplish proper staging in 48 cases (96%) i.e. the sensitivity of DL is 0.96 and specificity of test being 1. Unnecessary and futile laparotomies were avoided in 20 patients (40%). Only 2 patient (4%) had to subjected to laparotomy following DL and found to be unresectable. Morbidity & mortality are found to be very low in patients undergoing only Diagnostic laparoscopy. DL was associated with decreased morbidity & pain, faster recovery & quicker initiation of adjuvant therapies.

Introduction:-

One of the most common malignancies affecting human being worldwide are Gastrointestinal malignancies. But most of them found to be unresectable on exploratory laparotomy. Diagnostic laparoscopy considered and suggested as the most sensitive procedure for detecting metastasis and assessing operability in this categories of patients. Though spectra of investigations procedures and available to diagnose, detect and stage various gastrointestinal malignancies, Diagnostic laparoscopy have a unique place in the array of different modalities of investigations. The main role of Diagnostic laparoscopy over other imaging methods is in identifying the peritoneal and various surface lesions of different organs inside the peritoneal cavity and provision for biopsy under direct vision.

diagnostic laparoscopy finding may change the further management procedure to a conservative and limited procedure line of management and help in avoiding unnecessary laparotomies which are non-therapeutical and physiological burdern to the patients .

Laparoscopy is to the trained surgeon affords a better view of the entire peritoneal cavity than exploratory laparotomies. To achieve a high rate of positive diagnosis from laparoscopy requires correct technique, thorough background of surgical procedures, strong clinical knowledge and sound awareness of abdominal pathology.

Purpose:-

1. Role of diagnostic laparoscopy for assessing operability of gastrointestinal malignancies.
2. To assess the ability of Diagnostic Lparoscopy in avoiding unnecessary laparotomy.

Materials and Methods:-

This study contains 50 patients, 33 males and 17 females. The cases for the study were taken from patient admitted to M.K.C.G. Medical College & Hospital, Berhampur ,Odisha , Department of General Surgery during the study period from september 2013 to November 2015.

INCLUSION CRITERIA:-

1. Patient age >18 year
2. Histopathologically proved or clinically & radiologically suspected malignancies requiring laparotomy.
3. patients with peritoneal seedings and hepatic metastasis not detected on others method of imaging modalities.

EXCLUSION CRITERIA:-

1. Non resectability on imaging modalities like CT Scan
2. Patient having other than gastrointestinal malignancies .
3. Patient unfit for anaesthesia.

Investigations:

All patients with gastrointestinal malignancies following investigations done as required :

Haematological – Hb%, DC, TLC.

Biochemical – RBS/FBS, Serum Urea & creatinine, S- electrolytes, LFT

Radiological – X-ray abdomen and chest, ultrasound abdomen and pelvis, Upper and lower GI endoscopy with CT scan as per requirement.

Finally Diagnostic Laparoscopy done.

Results and Discussion:-

During 2 years of study period from September 2013 to November 2015 in total of 50 new cases of gastrointestinal malignancies Diagnostic laparoscopy done after thorough clinical, radiological & histological investigations.

Table-1

AGE AND SEX DISTRIBUTION

Age groups in year	Male	Female	Total	Percentage
21-30	1	2	3	6%
31-40	2	2	4	8%

41-50	4	7	11	22%
51-60	9	5	14	28%
61-70	7	11	18	36%
Total	23	27	50	100%

The maximum no of cases was 61-70 age group followed by 51-60 and then by 41-50 age group. Mean age for group being 53years. There were 23 Male(46%) & 27 Female (54%)patients in the study which is comparable.

The youngest male patient was of 21 years & female was 26 years. The oldest male & female were 70 years. The mean age of male: female were 53.4 : 52.6 respectively. Our Patients ranged from 21- 70 years with mean age being 53 years. Maximum patients in our study were in age group 61-70 followed by 51- 60 and 41- 50 years.

Gastrointestinal malignancies increasing with age. It is similar to that seen in other studies. **Ozmen MM et al**¹ study comprised patients ranging from 26 – 72 years (mean 54.5) with 26 males and 22 females. **Chandramohan K. Nair et al**²study comprised 41 patients ranging from 20 to 75 year

(mean 50 years) with 22 males and 19 females. **Sreeharsa MV et al**³study comprises 30cases ranging from 21 to 70 years (mean age 53 years) with 13 male and 17 female patients Age group studied was found to be in accordance to other studies.

CASE DISTRIBUTION ACCORDING TO SITE OF TUMOR

Stomach malignancies constituted 27 (54%) cases , Colorectal 15(30%), Gall bladder 5(10%) and rest 3(6%)cases by pancreas malignancies our study. **Muntean V et al**⁴ study comprised 119 cases with Stomach tumours were 45 (37.8%), 20 (16.8%)cases colon and only 4 cases of biliary tract tumours. **Sreeharsa MV et al**³study found out of 30 cases 15(50%) cases are stomach,13(43%) colorectal and 2 (7%) are gall bladder tumours.

LYMPH NODE STATUS ON DL

In 31 cases(62%) were N1 lymph nodes and 18 cases (36%) N2 level lymph nodes. Only 1(2%) case had N0 lymph node status (colorectal malignancy). In our study lymph nodal metastases found in 49 out of 50 patients. Only N3 status prevent curative resection . In such cases palliative resection is possible, so lymph node status does not have much impact in changing management & preventing exploratory laparotomies. **Sreeharsa MV et al**³study found lymph node in 29 out of 30 cases. In their case too lymph nodes does not prevent curative resection unless extensive(N3) involvement.

LIVER METASTASES

Only 15 cases(30.0%) had liver metastasis. **Ozmen MM et al**¹study showed liver metastases in 18

(33.3%) cases. **Sreeharsa MV et al**³study reveals liver metastasis in 6(20%) cases out of 30 patients.

PERITONEAL NODULES

Totally out of 50 cases, 7 cases (14%) had peritoneal nodules. 4 cases from stomach and 2 from colorectal & 1 case from gall bladder malignancy. **Muntean Vet al**⁴ study revealed peritoneal seeding in 32 (32.3%) cases & in 1 case of colon malignancy out of 20cases. **Sreeharsa MV et al**³study found 8(26.7%) cases of peritoneal metastas.

OMENTAL , MESENTERIC & PELVIC NODULES

Omental nodules were found in 18 cases in our study. 9

cases of stomach, 4 colorectal, 3 gall bladder and 2 pancreas. Mesenteric & Pelvic reported in only 14 & 6 cases respectively in our study. Pelvic nodules were seen in 3 cases of colorectal and 3 cases of stomach malignancy. 1 case of stomach tumour had Secondaries on bilateral ovaries. **Sreeharsa MV et al**³study found 11 cases of omental nodes, 2 cases of mesenteric & 3 cases of pelvic nodules out of 30 cases in their study. So it is almost compatible to our study.

TABLE-2 RESECTABILITY IN ACCORDANCE TO LAPAROSCOPIC SITE OF TUMOUR

Re-sectability	Laparoscopic Sites											Total	
	Fundus	Body	Pre Pyloric area	Caecum	Transverse colon	Splenic flexure	Sigmoid colon	Upper rectum	Middle rectum	Lower rectum	pancreas		Gall bladder
Re-sectability	2	8	5	2	1	1	4	3	2	1	1	0	30
Un-resectability	1	10	1	0	0	0	0	0	0	1	2	5	20
Total	3	18	6	2	1	1	4	3	2	2	3	5	50

Tumours were subdivided according to laparoscopic sites.

27 cases of stomach malignancy – 18(Body),6(prepyloric) & 3(fundus) were present. Totally 12 unresectable cases of stomach malignancy(10 in Body, 1 in prepyloric area & 1 in fundus) & 2 Resectable cases of tumour in the fundus undergone partial gastrectomy.

Total 15 cases of colorectal malignancy(7 Rectum,1 transverse colon, 2 in Caecum,4 in sigmoid colon and 1 case in splenic flexure)of which 1 case of colorectal malignancy was unresectable in lower rectum.

TABLE-3 LAPAROTOMY STAGING ACCORDING TO LAPAROSCOPIC SITE OF TUMOUR

Laparotomy Staging	Laparoscopic Sites											Total
	Fundus	Body	Pre Pyloric area	Caecum	Transverse colon	Splenic flexure	Sigmoid colon	Upper rectum	Middle rectum	Lower rectum	pancreas	
Re-sectability	2	7	5	2	1	1	4	3	2	0	1	28
Un-resectability	1	10	1	0	0	0	0	0	0	1	2	15
Not assessable	0	1	0	0	0	0	0	0	0	1	0	2
Total	3	18	6	2	1	1	4	3	2	2	3	45

Done only in 45 cases excluding unresectable Gall bladder malignancy for laparotomy. Out of which 1 body and 1 lower rectal mass could not be assessable for resection which was appears to be resectable in diagnostic laparoscopy. So, undergone for palliative procedure.

Only 28 resectable cases on laparotomy out of 30 cases

appears to be resectable on diagnostic laparoscopy and 15 cases were found to be unresectable on laparotomy in equivalent with diagnostic laparoscopy.

On Diagnostic laparoscopy, in our study 30 cases deemed resectable & 20(40%) unresectable. These patients were prevented from unnecessary exploratory laparotomy. **Muntean V et al⁴** in his study had 36 (36.4%) patients avoided unnecessary laparotomies. **Hemming AW et al⁵** in their study feel that laparoscopic staging in intra-abdominal malignancies is of value & will prevent up to 36% of futile laparotomy, **Sreeharsa MV et al³** study found 43.3% (13 cases) were prevented from unnecessary laparotomy.

40% prevented from unnecessary laparotomy which was higher than most of other studies probably as the patients in our study group are not very well educated and present in the later stage of disease. Most of the patient found to be unresectable did not had severe obstructive symptoms and thus present later in the disease stage. Further 12 cases of stomach malignancies to be unresectable out of total 20 cases(60%) as Tumour in body of stomach present in later stages of disease as patient does not develop prominent obstructive symptoms seen in fundic or prepyloric tumours. 1 cases of pre-pyloric tumour & 1 fundic tumour were found to be unresectable. **Muntean V et al⁴** found 26 cases of stomach cancers unresectable on Staging laparoscopy out of total 45 cases(57.77%). **Asencio F et al⁶** found laparotomy was abandoned in 41% of patients after laparoscopic staging.

In our study 15 cases of colorectal malignancies out of which Only 1(6.66%) case of lower rectal tumour was found to be unresectable on Staging Laparoscopy. **Muntean V et al⁴** found that 4 cases(20%) to be unresectable. **Grobmyer SR et al⁷** in their study on Diagnostic laparoscopy prior to planned hepatic resection for colorectal metastases prevented nontherapeutic celiotomy in 10% of patients. In our study only Laparoscopy was used for imaging liver metastases from colorectal malignancies and no use of LUS was made resulting in lower detection of hepatic metastases. Only 5 cases of extrabiliary tumour were present in our study which were both found to be unresectable on Staging Laparoscopy and thus avoided unnecessary laparotomy.

Total 30 cases were found to be resectable on Staging Laparoscopy out of which 28(93.33%) cases underwent definitive procedure. 2 case (6.66%) was found to be unresectable on laparotomy which was not found on Staging Laparoscopy due to infiltration into the pancreas. One case of unresectable colorectal tumour underwent colostomy & other 13 unresectable cases underwent palliative procedure. 8 cases underwent only laparoscopic biopsy.

Totally 13 cases underwent Palliative procedure, 1 patient underwent colostomy and rest of 8 unresectable case undergone only laparoscopic biopsy for tissue diagnosis. Thus 20(40%) cases out of 50 were prevented from undergoing unnecessary exploratory laparotomy.

COMPLICATIONS OF DL:-

2(4%)cases had minor complication of wound sepsis and no major complication or mortality.

RESULTS:-

- Diagnostic Laparoscopy was performed in 50 patients (100%).
- Diagnostic Laparoscopy could accomplish proper

staging in 48 cases (96%) i.e. the sensitivity of DL is 0.96 and specificity of test being 1.

- Unnecessary and futile laparotomies were avoided in 20 patients (40%).
- Only 2 patient (4%) had to subjected to laparotomy following DL and found to be unresectable.
- Morbidity & mortality are found to be very low in patients undergoing only Diagnostic laparoscopy.
- DL was associated with decreased morbidity & pain, faster recovery & quicker initiation of adjuvant therapies.

CONCLUSION:-

Diagnostic laparoscopy holds a unique place in the array of modalities though various procedure available to diagnose and stage gastrointestinal malignancies. Diagnostic laparoscopy scores over other imagology in identifying peritoneal and surface lesions within the peritoneal cavity and for taking biopsy under direct vision such as trucut biopsy, cup forceps biopsy & Cytological washing.

laparoscopic ultrasound of minimally invasive surgery to identify occult metastasis in liver, peritoneum and solid organs which are difficult to visualize. Even smaller than 1cm can be identify, biopsy and ablated. A short DL just before planned surgical procedure is found to be safe & very effective.

Diagnostic Laparoscopy found to be more useful in assessing operability in gastric & extra hepatic biliary tumour & also provides additional information regarding extent of the disease intra-abdominally which changes the course of management and had a significant impact on decisions regarding the treatment plan in patients. It helps in more careful planning of palliative & resectional procedure in advanced malignancies. It added benefit of performing biopsy & having histological confirmation from sites of dissemination.

Diagnostic Laparoscopy prevent patients from unnecessary laparotomies and associated with decreased morbidity & faster recovery and earlier time to start adjuvant treat. Diagnostic laparoscopy should be a routine tool for all surgeons performing surgeries on gastrointestinal malignancies.

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