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Role of Laparoscopy in the Management of Abdominal Malignancy

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Abstract: ***Laparoscopy is a technique in which peritoneal cavity & abdominal contents are examined using endoscope inserted through the abdominal wall with metal sleeves. Laparoscopy now a day became a part of technical armamentarium of surgical oncology. Present study is done to confirm its role in the management of abdominal malignancies. Aims and Objectives: To diagnose undetected malignancy, to confirm the stage of the disease, to plan treatment strategy and to avoid unnecessary laparotomy. Material and Methods: Cases were selected from patients attending OPD of Krishna Hospital, Karad from June 2012 to May 2014 after meeting the exclusion and inclusion criterias. Result: There was female preponderance and median age was 48 years with a range of 12 to 65 years in present study. In two cases, diagnostic laparoscopy failed to reach to diagnosis. In one case, diagnosis after laparoscopy and biopsy revealed unexpected diagnosis. Conversion to laparotomy needed in 14 cases. In one case, there was port site recurrence. Conclusion: Laparoscopy is found to be extremely useful in the management of abdominal malignancies in both diagnostic and therapeutic way. Its use in well targated and properly selected patients is beneficial.***

Keywords: Laparoscopy, Laparotomy, Abdominal malignancy, Port.

1. Introduction

Laparoscopy is a technique in which peritoneal cavity & abdominal contents are examined using endoscope inserted through the abdominal wall with metal sleeves. Before development of radiological imaging & laparoscopy, laparotomy was only means to visualize abdominal & pelvic viscera.

In early 1900, George Kelling & Hans Jacobeus successfully used endoscopes to diagnose diverse intraabdominal pathologies. In 1901 Kelling for the first time performed laparoscopy in a dog. Eight years later Jacobeus reported the first laparoscopy & thoracoscopy in humans.

The introduction of laparoscopy in surgical oncology was late & acceptance was guarded. Its use for diagnosis & staging was defined quite early, but its role in definitive management was not proven. Also its role in definitive management was questioned as oncosurgeons feeling was whether it can match adequacy of dissection of open surgery essential in malignancies. Unlike in general surgery, in oncosurgery, less the disease, more radical is operation and vice versa.

Late in last decade oncosurgeons started giving trial of laparoscopy for definitive oncosurgical management. Thereafter laparoscopy became a part of technical armamentarium of surgical oncology. It is proved to be useful in management of many malignancies definitively & other studies are going on to prove its utility. Present study is done to confirm its role in the management of abdominal malignancies- both diagnostic & therapeutic.

2. Aims and Objectives

To know whether laparoscopy can be used-
1) To diagnose undetected malignancy
2) To confirm the stage of the disease
3) To know the change in stage of the disease following radiological investigations
4) To detect parietal & visceral metastases
5) To plan treatment strategy
6) For definitive treatment strategy
7) To avoid unnecessary laparotomy

3. Material and Methods

3.1 Source of Data

Cases were selected from patients attending OPD of Krishna Hospital, Karad from June 2012 to May 2014.

3.2 Patient selection criteria-

Age: all age groups
Sex: both sex
Patients presenting with lump in abdomen and/or pain in abdomen & other abdominal ailments with clinical examination suggestive of abdominal malignancy. Patients were subjected to appropriate hematological and radiological investigations.

3.3 Patient exclusion criteria-

Major cardiac & respiratory insufficiency
Stage IV malignancy
Coagulation defects/bleeding diathesis
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3.4 Equipments-

Laparoscope, CCD camera, Light source, Video monitor, CO_2 insufflator, Trocars & Cannulas, Various hand instruments.

3.5 Procedure

In all patients, routine investigations like CBC, coagulation profile, Liver function tests, Kidney function tests, ECG & other relevant radiological investigations were obtained. Endoscopy,where feasible & applicable was done. Informed risk consent was taken from patient & relatives after explaining the procedure, the risk, the complications, possibility of conversion to open procedure, curtailing the procedure because of finding of inoperable disease or shifting to less radical or palliative procedure.

Ryle's tube was put on previous night. Foley's catheter was put in O.T. on operation table. General anesthesia was used for all the procedures. After painting & draping, 10mm cannula was placed in umbilical/subumbilical position through umbilical tube and pneumoperitoneum created. In case of large lump, Verres needle was put in epigastric region & pneumoperitoneum created. Other ports were placed as per the requirement of the procedure under vision. After through peritoneoscopy, decision was taken to proceed or to curtail or change the treatment planned initially.

3.6 Post Operative Management

All patients were kept nil by mouth for at least 6 hrs. after diagnostic laparoscopy. After definitive procedure, patient was kept nil by mouth as per the need of procedure. Patients were monitored with BP, TPR charting. Analgesics were instituted as per need. After discharge patients were asked to follow up in OPD regularly.

4. Observations and Results

1. Sex Distribution-

In the present study, there is female preponderance. Number of female patients treated is 38(63.33%) and number of male patients treated is 22(33.67%).

2. Age Distribution-

- In our study, the median age is 48 years with a range of 12 to 65 years.
- Number of diagnostic procedures performed are 28(46.66%). Number of staging laparoscopies and lap assisted procedures performed are 20(33.33%). Therapeutic procedures performed are 12(20%).
- Laparoscopically assisted procedures performed were nephrectomy, hemicolectomies and diversion colostomies.
- Therapeutic procedures performed were laparoscopic abdominoperineal resection and radical adrenalectomy.
- In two cases, diagnostic laparoscopy failed to reach to diagnosis(7.14%).
- In one case, diagnosis after laparoscopy and biopsy revealed unexpected diagnosis. When as per clinical examination and radiological examination, diagnosis was carcinoma of gall bladder, laparoscopic tissue sampling and subsequent histopathological examination revealed hepatocellular carcinoma. Here unnecessary laparotomy was avoided.
- In 12 cases, diagnostic laparoscopy was done on suspicion of advanced abdominal malignancy as per clinical evidence and obscure radiological findings. All patients presented with chronic pain in abdomen, loss of appetite and loss of significant weight. They had vague findings on sonography and CT scan study making it impossible to pinpoint a diagnosis. All of them were considered to have either advanced abdominal malignancy or abdominal tuberculosis. Laparoscopic tissue sampling and subsequent histopathology revealed metastases from Adenocarcinoma of unknown primary site.
- After staging laparoscopy, decision to abandon the planned surgical procedure leading to avoidance of fruitless laparotomy occurred in 16 cases(44.44%).
- Conversion to laparotomy needed in 14 cases(23.33%). Main reason for conversion was instrument failure or change in planned surgical procedure not amenable laparoscopically due to technical inadequacies.
- 26 patients had curable disease and underwent definitive procedure either laparoscopically or open surgical procedure.(43.33%)
- No serious complication occurred in the series presented. The most common complications for both laparoscopic and open surgical procedures were ileus and wound infection.
- In one case, there was port site recurrence after 2 months of follow up. Patient was operated for acute cholecystitis by laparoscopic cholecystectomy. On histopathology, gall bladder malignancy was revealed. Patient presented with painless mass on anterior abdominal wall at 5mm port scar in right flank. FNAC revealed metastasis from epithelial malignancy. Wide local excision was done for it. At that time she had radiological evidence of metastatic disease. Patient recovered well. Margins of resected mass were free of tumour histologically.

5. Discussion

Not many years ago, exploratory laparotomy was the only means to get rid of abdominal malignancy. That also found to be useless in some cases due to extensive adhesions or metastases making definitive procedure and ultimate cure impossible, putting patient under extra burden of convalescence of laparotomy. Even with the advent of imaging technology, this problem was not completely rectified.

With the availability of laparoscopy and its targated use in the diagnosis and staging of abdominal malignancies, many of unnecessary laparotomies are avoided and surgical decisions changed. This changed the overall scenario in the management of abdominal malignancies and caused widespread acceptance among surgeons.

The growing experience with therapeutic use of laparoscopy for non malignant conditions resulted development of skills among surgeons to use it therapeutically for malignancies. In

a study by J Ebstein Varela et al [1], on comparison of laparoscopic versus open Gastrectomy for gastric cancer, it was noticed that many surgeons performing high volume of gastric surgery for morbid obesity could transfer their skills to total Gastrectomy for gastric cancer.

The laparoscopy is found to have immunological advantage over open surgery for abdominal malignancies. Present study was undertaken to evaluate and verify the current indications. 60 patients are subjected to diagnostic/staging or therapeutic procedure.

1) **Age Distribution**
   - In the present study, median age is 48 years with a range of 12 to 65 years. Maximum patients are in the age group of 20 to 50 years.
   - J E Varela et al [1] reported mean age of 64 years and 62 years for laparoscopic and open total Gastrectomy for gastric cancer. C D Mann et al [2] reported median age of 60 years with range of 30 to 82 years.

2) **Sex Distribution**
   - In the present study, females outnumbered male patients(38 females versus 22males). In most series, there is male preponderance. C D Mann and associates[2] included 126 male and 74 female patients in their study. J E varela et al [1] reported 82% and 62% male patients in laparoscopic and open surgery group respectively.
   - In a study by Shrenk and Wayand[3] , laparoscopic diagnosis was possible in 66 of 72 patients(91.7%) and laparotomy avoided in 53 patients(26.4%).
   - Therapeutic approach was modified in 21% cases in a study by Gulla and associates[4]after diagnostic laparoscopy for various gastrointestinal malignancies.
   - In the study presented, 26 patients(43.33%) had curable disease and underwent definitive surgical procedure, either laparoscopic or open.
   - In a study by Schrenk and Wayand [3] , diagnosis after laparoscopy was not possible in 6 of 72 cases(8.3%).
   - In a study by Velanovich V [5], 8 patients had false negative results after staging laparoscopy.
   - In the present study, diagnosis was not possible in 2 cases(7.14%). Of the 12 patients who underwent exploration, after staging laparoscopy, 1 patient had locally advanced malignancy of hepatic flexure.
   - No study has reported unexpected diagnosis after diagnostic laparoscopy which we came across. A patient with radiological and clinical evidence of gall bladder cancer was found to have advanced hepatocellular carcinoma after laparoscopic biopsy and subsequent histopathology.
   - The complications reported in a review by Reza M M et al [6] on laparoscopic colorectal surgery were insignificant and included ileus and wound infection mainly.
   - One reoperation for bleeding in both laparoscopic and open surgery group and one versus three wound infection in laparoscopic and open surgery group respectively notced in a study by J E Varela et al [1].
   - In an international survey by Paolucci et al [7] on tumor seeding following laparoscopy, 70 of 409 patients had port site recurrence with median follow up of 180 days.
   - T D Jackson [8] et al reported tumor recurrence at port site in two cases in COST trial in laparoscopy group versus one recurrence in open group. Lacy and associates found one port site recurrence in 219 patients of abdominal malignancies treated laparoscopically.
   - Stewart G D[9] et al reported very low rate of port site recurrence after laparoscopy for urological malignancies.
   - In the present study, there was no major life threatening complication intraoperatively. Wound site infection is the only major complication we faced postoperatively and that also occurred mainly in open surgery group. There was port site recurrence in one case after laparoscopic surgery for acute cholecystitis which turned out to be adenocarcinoma of gall bladder on histopathology.

6. Conclusion

Laparoscopy is found to be extremely useful in the management of abdominal malignancies in both diagnostic and therapeutic way. Many of nontherapeutic laparotomies are avoided and planning of the most appropriate incision is possible. Its use in well targated and properly selected patients is beneficial.

7. Future Scope of this Study

Laparoscopic management of intra abdominal malignancies is among one of the recent advances. At present other facilities like robotic surgeries coming up for the management of abdominal conditions. Now the upcoming years will be the years for minimal access surgery and thus this article gives a platform for the future studies in the field of minimal access surgeries for intra abdominal malignancies.

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