



## STUDY TO KNOW THE INDICATIONS OF DIAGNOSTIC AND THERUPTIC LAPAROSCOPY IN OUR INSTITUTION

### General Surgery

|                                |                                                                                                        |
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### ABSTRACT

**BACKGROUND :** There are various abdominal conditions in which laparoscopy intended to know the exact diagnosis which cannot be made on the basis of investigations or if diagnosis has already been confirmed than still we are not able to cure the illness laparoscopically or we need to convert it to laparotomy . **METHOD :** This study was conducted in Kanti Devi Medical College and Research Centre Mathura from Nov 2019 – March 2020 . All available patients enrolled for study to know the fesibility of diagnostic and theruptic laparoscopy and reasons for laparotomy **RESULT :** Total 47 cases studied to know the results of the study and we found that diagnostic laparoscopy had advantageous in chronic and recurrent pain in abdomen , pain in right iliac fossa where investigations were inconclusive, penetrating abdominal trauma, subacute intestinal obstruction, appendicular perforation, cholelithiasis, pancreatiti, pseudocyst of pancreas, anomalous biliary and arterial anatomy. **CONCLUSION :** On the basis of the results of 47 patients we concluded that diagnostic laparoscopy is effective modality of investigation and given added advantage that theruptic laparoscopy can be done at the same setting and need to do laparotomy if there is less fesibility of laparoscopy

### KEYWORDS

Diagnostic Laparoscopy, Theruptic Laparoscopy, Pain in Abdomen, Acute Appendicitis, Inguinal Hernia

### INTRODUCTION :

Laparoscopy was practised in early 19 th century primarily as diagnostic tool for liver disease and peritoneum and biopsy and staging intraabdominal malignancies . Initially in 1901 George Killing a surgeon from Dreoden , Germany used the term celioscopy for creating pneumoperitoneum and visualize the intrabdominal space in dogs . Von ott in St. Petesberg , Russia in 1901, used the term ventroscopy . Jacobeus in Stockholm ,in 1910 , used the cystoscopy to inspect the abdominal cavity in human and coined the term laparoscopy . H. Jugen Nord 2008, vol68 (1)

With the emergence of newer diagnostic tool , USG, CECT , MRI , MRCP, PET-CT decreased its use for diagnosis only and laparoscopy emerged as diagnostic as well as theruptic tool in various abdominal conditions and early conversion is now going to be accepted . (2)

In modern era diagnostic laparoscopy done using 10mm or 5 mm telescope either through transumbilical or palmers point . DL can directly vizulize the abdominal visceral surface and parietal peritoneum through small incision thus confirm the diagnosis if inconclusive with imaging . It could identify the lesion < 1 cm and even take the biopsy for histopathological confirmation . (4,5 ) In-spite of that if there is possibility theruptic laparoscopy can be done at the same setting using small incisions thus reduced patient pain , hospital stay . If theruptic laparoscopy not possible than conversion to open has been accepted and it given cosmetically smaller incision . The aim of our study is to know the indications of diagnostic laparoscopy and fesibility of theruptic laparoscopy and need for conversion .

### METHOD :

It is prospective randomised case controlled study , done in Kanti Devi Medical College and Research Centre in Mathura from Nov -2019 – March 2020 on total 47 patients . LEFT ILIAC FOSSA PELVIC CAVITY AND GROIN REGION RIGHT ILIAC FOSSA These all these patients, entry into the abdominal cavity done either through, supraumbilical, infraumbilical or palmers point and pneumocreated. Abdominal cavity visualized with 10mm telescope. Inspectory finding were done sequentially as shown in fig (1)

### Inclusion Criterion

All patients admiited with pain in abdomen .  
Hemodynamically stable .

### Exclusion Criterion

Hemodynamically unstable patients in shock and currently with coagulopathy . Pregnant patients .

### RESULT:

In our study mean age of patients were 39.75+/-3.88 with 19 male and 28 female patients .

As shown in table 1 acute appendicitis was diagnosed in 17.02% ( n=8 /47) of cases and possibility of Single site and multiport was decided whether the appendix was visualized easily ( preileal , pelvic ) or difficulty in mobilization of appendix as in retrocaecal, paracecal and sealed perforations with the diagnostic laparoscopy.

In our study majority of cases 65.95% ( n=31/47 ) were biliary cases managed laparoscopically after imaging and we found that final diagnosis and theruptic procedure altered as we proceed laparoscopically. ( table 1,2 )

USG in all cases showed choletiasis but , intraoperatively 2 cases (4.24%) of empyma gall bladder , one case showed portal cavernoma whose diagnostic laparoscopy confirm easy calots and sussesful lap cholecystectomy was done with minimal intraoperative bleeding . 3 cases mimic carcinoma gallbladder out of which 2 cases converted to open and in one case intraop liver wedge resection was done (6). In one case carcinoma gallbladder was dignosed intraoperatively not to proceed laparoscopically but open radical cholecystectomy can be done successfully . In one case USG showed choletiasis with posterior acoustic shadow and normal size CBD ,intraoperatively Gall bladder was fibrosed and filled with multiple calculi and CBD was dilated to size of ~ 1.5 cm and filled with stones , thus lap choledochotomy , retrival of CBD stones and t tube was placed .

10.63% cases ( n= 5/47) of inguinal and ventral hernias , managed laparoscopically and intraperitoneal mesh was placed after reducing the contents .

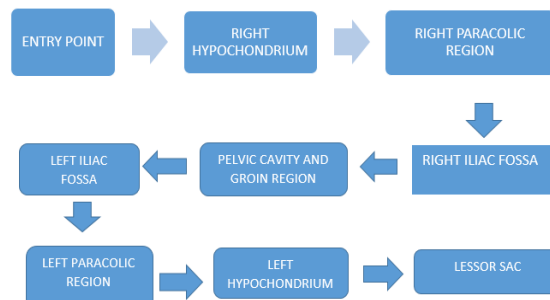


Fig (1)

**TABLE 1: SHOWING THE PERCENTAGE DIANOSIS OF PATIENTS IN WHICH DIAGNOSTIC AND THERUPTIC LAPAROSCOPY WAS DONE**

|     | DIAGNOSIS                                               | NUMBER | PERCENTAGE ( %) |
|-----|---------------------------------------------------------|--------|-----------------|
| 1.  | ABDOMINAL TUBER CULOSIS WITH INGUINAL HERNIA            | 1      | 2.12            |
| 2.  | INTRABDOMINAL ADHESION WITH INFLAMMATORY BOWEL DISORDER | 1      | 2.12            |
| 3.  | ACUTE APPENDICITIS WITH RIGHT OVARIAN CYST              | 2      | 4.25            |
| 4.  | ACUTE APPENDICITIS                                      | 4      | 8.51            |
| 5.  | ACUTE APPENDICITIS WITH SEALED PERFORATION              | 2      | 4.25            |
| 6.  | CHOLELITHIASIS                                          | 24     | 51.06           |
| 7.  | CHOLITHIASIS WITH MILD BILIARY PANCREATITIS             | 2      | 4.25            |
| 8.  | CHOLELITHIASIS WITH CHOLEDOCHOLITHIASIS                 | 1      | 2.12            |
| 9.  | CARCINOMA GALLBLADDER                                   | 1      | 2.12            |
| 10. | CHOLELITHIASIS WITH EMPYEMA                             | 2      | 4.25            |
| 11. | CHOLITHIASIS WITH PORTAL CAVERNOMA                      | 1      | 2.12            |
| 12. | INDIRECT INGUINAL HERNIA                                | 2      | 4.25            |
| 13. | INCARCERATED INGUINAL HERNIA                            | 1      | 2.12            |
| 14. | PORT SITE VENTRAL HERNIA HERNIA                         | 1      | 2.12            |
| 15. | PSEUDOCYST OF PANCREAS                                  | 1      | 2.12            |
| 16. | PENTRATING TRAUMA TO ABDOMEN WITH BOWEL INJURY          | 1      | 2.12            |
|     |                                                         | 47     |                 |

**TABLE 2 SHOWED THE PERCENTAGE OF PATIENTS IN WHICH DIAGNOSTIC LAPAROSCOPY WAS USEFUL**

|    | DIGNOSTIC (39)                              | CONVERTED TO OPEN /LAP PROCEDURE                                                                                                                                                                                                                        |
|----|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | PAIN IN ABDOMEN (4)                         | 1.LAP APPENDECTOMY WITH ADHESIOLYSIS WITH OVARIAN CYSTECTOMY (2)<br>2.DIAGNOSTIC LAP , LAP ASSISTED RESECTION ANASTOMOSIS FOR SAIO (1)<br>3. DIAGNOSTIC LAP , CONVERSION TO OPEN AND OPEN APPENDECTOMY REPAIR OF APPEDICULAR AND CAECAL PERFORATION (1) |
| 2. | PENETRATING TRAUMA (1)                      | DIAGNOSTIC LAP , LAP ASSISTED RESECTION ANASTOMOSIS                                                                                                                                                                                                     |
| 3. | PSEUDOCYST OF PANCREAS (1)                  | LAP ASSISTED CYSTOGASTROSTOMY                                                                                                                                                                                                                           |
| 4. | PORT SITE VENTRAL HERNIA (1)                | LAP TRANSABDOMINAL PREPERITONEAL ONLAY MESH HERNIOPLASTY                                                                                                                                                                                                |
| 5. | CHOLELITHIASIS WITH PORTAL CAVERNOMA (1)    | LAP CHOLECYSTECTOMY                                                                                                                                                                                                                                     |
| 6. | CHOLELITHIASIS WITH CHOLEDOCHOLITHIASIS (1) | LAP CHOLECUSTECTOMY + LAP CBD EXPLORATION + T TUBE PLACEMENT                                                                                                                                                                                            |

|     |                                                                                                                           |                                                                                                                                                           |
|-----|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.  | INCARCERATED INGUINAL HERNIA (1)                                                                                          | LAP RIGHT INGUINAL TAPP MESH HERNIOPLASTY                                                                                                                 |
| 8.  | MILIARY TUBERCLES IN PERITONEUM + INDIRECT INGUINAL HERNIA (1)                                                            | LAP TAPP                                                                                                                                                  |
| 9.  | LARGE REDUCIBLE INGUINAL HERNIA DIGNOSIS INCONCLUSIVE (1)                                                                 | DIGNOSTIC CONFIRMATION AND LAP TAPP                                                                                                                       |
| 10. | CARCINOMA GALLBLADDER (1)                                                                                                 | LAP CONVERTED TO OPEN RADICAL CHOLECYSTECTOMY                                                                                                             |
| 11. | ACUTE APPENDICITIS WITH SEALED PERFORATION (1)                                                                            | LAP APPENDECTOMY                                                                                                                                          |
| 12. | ACUTE APPENDICITIS (2)                                                                                                    | LAP NOTUS APPENDECTOMY                                                                                                                                    |
| 13. | S/P BLUNT TRAUMA ABDOMEN WITH ILEOSTOMY IN SITU (1)                                                                       | LAP ASSISTED ILEOSTOMY REVERSAL                                                                                                                           |
| 14. | ANOMALOUS BILARY ANATOMY (19)                                                                                             | 2 CYATIC ARTERY AND ONE CYSTIC DUCT (4)                                                                                                                   |
|     |                                                                                                                           | CYSTIC DUCT WIDE AND SHORT STONE IMPACTED AT HARTMANS POUCH (2)                                                                                           |
|     |                                                                                                                           | CYSTIC ARTERY SHORT (4)                                                                                                                                   |
|     |                                                                                                                           | CYSTIC ARTERY ANTERIOR TO CYSTIC DUCT (1)                                                                                                                 |
|     |                                                                                                                           | RIGHT HEPATIC ARTERY /MIDDLE HEPATIC ARTERY EXPOSED AND IDENTIFIED (2)                                                                                    |
|     |                                                                                                                           | ARTERY TO CYSTIC DUCT IDENTIFIED (6)                                                                                                                      |
| 15. | CHOLELITHIASIS MIMICKING CARCINOMA GALL BLADDER (4)<br><br>1.DIFFICULT CALOTS (1)<br>2. DENSELY ADHERENT TO LIVER BED (3) | 1. DIAGNOSTIC LAP CONVERTED TO OPEN (1)<br>2. LAP CHOLECYSTECTOMY CONVERTED TO OPEN (1)<br>3. LAP CHOLECYSTECTOMY WEDGE RESECTION OF LIVER PARENCHYMA (2) |

**DISCUSSION :**

The purpose of laparoscopy is to give minimal scar, decrease hospital stay, decrease pain and to make the final confirmative diagnosis . However laparoscopy has got its own limitations such as nonvisualization of deep parenchymal organ, retroperitoneal space , and inner surface of hollow organ . The usefulness of laparoscopy in Acute abdomen pain has been studied by various surgeons . ( 3 , 4 ) The history of diagnostic laparoscopy evolve since 19th century . In early study from 1975, sugarbaker etal showed that in more than 90 % of patients a diagnosis can be established by laparoscopy. Since than various meetings were done by European Society (EAES), (6) SAGES decided to focus new clinical guidelines for role of laparoscopy in abdominal emergencies . Guidelines were given for the laparoscopic management of perforated viscus, Acute cholecystitis, acute pancreatitis, acute appendicitis, small bowel obstruction due to adhesion, acute diverticulitis, Mesentric ischemia, Incarcerated hernia, Gynaecologic disorders, Nonspecific abdominal pain, Abdominal trauma .

In our study , laparoscopy was studied in Acute abdomen pain and acute trauma , hernias , appendicitis , biliary disorders , cholelithiasis , choledocholithiasis , mild biliary pancreatitis , to know the exact biliary and vascular anatomy of calots and difficulty scale in lap cholecystectomy can be confirmed that cannot be predicted with any sofasticated imaging technology ,

In our study, we defined acute abdomen pain , is pain that not resolved with even after 48 hr of conservative management and USG and CECT abdomen showed that adhesion , inflammatory , or neoplastic entity in small or large bowel and presence of peritoneal fluid in abdominal cavity. Than we planned for diagnostic laparoscopy and simultaneous theruptic benefits of laparoscopy could avoid unnecessary laparotomies. Even if there is difficulty in proceed laparoscopically we covert the procedure to laparotomy with small incision. In 4.25% ( n=2

) cases, we managed emergency pain in abdomen with diagnostic laparoscopy or Lap assisted resection Anastomosis .as shown in fig

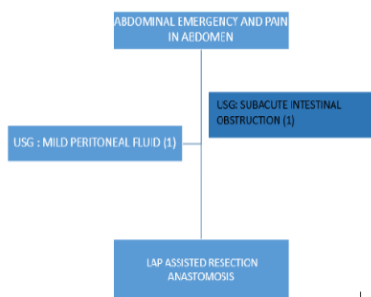


Fig (2)

In our study , we use diagnostic laparoscopy in acute trauma (7)cases where patient was hemodynamically stable so that we can diagnose the exact site of impact , so that size of incision became smaller . (fig 2)

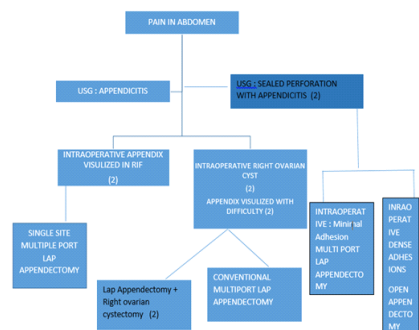


Fig (3)

In our study we use diagnostic laparoscopy to know the possibility of natural orifice transumbilical single sit multiple port lap appendectomy in which no scar occurred that was possible in 25% (n=2/8 cases of appendix ) cases of lap appendectomy fig (4,5)



Fig 4



Fig(5)

In our study , we use diagnostic laparoscopy case to confirm site and type of hernia and associated disorders and proceed with laparoscopic transabdominal preperitoneal placement of mesh .

In our study we found that that 20% of hernias( n=1/5 cases ) incarcerated inguinal hernia that were not reduced manually could be reduced laparoscopically when peritoneal flap was raised in TAPP and content was reduced , thus reducing the size of incision in irreducible incarcerated hernia . Exact size of hernia was confirmed laparoscopically and adequate coverage of mesh possible laparoscopically . (fig 6)

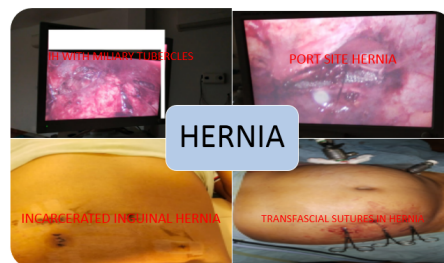


Fig (6)

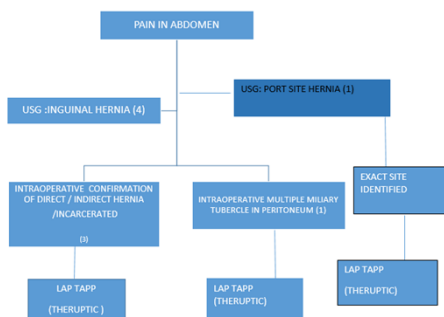


Fig (7)

In our study we found 3.22 % (n=1/31)case that diagnostic laparoscopy could visualize the small metastatic nodule in the liver in carcinoma of gallbladder in that could not visualized with CECT abdomen,thus laparoscopy could upstage or downstage the malignancy that was made preoperatively .(6)

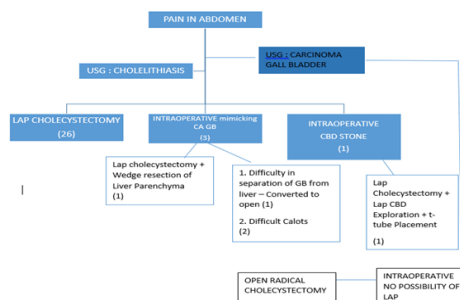


Fig (8)

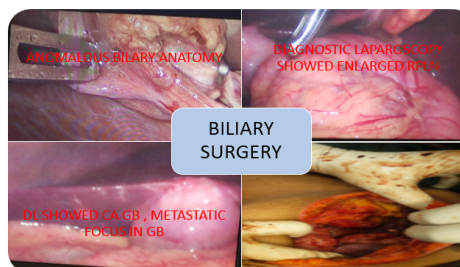


Fig (9)

In our study 10% (n= 3/30 cases )cholecystitis mimick carcinoma gallbladder so we could take the liver biopsy and lymph node biopsy simultaneously along with gallbladder specimen .(fig)

## CONCLUSION :

On the basis of the discussion we can conclude that diagnostic laparoscopy is useful in pain in abdomen where imaging could not made the diagnosis and therupctic benefits , in view of better

visualization and meticulous dissection under vision and conversion to open with cosmetically small size incision .

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