

**Original article:**

## **The Role of Diagnostic Laparoscopy in Undiagnosed Abdominal Problems**

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### **ABSTRACT**

There are many acute as well as chronic abdominal conditions where in spite of all available diagnostic tools, a correct diagnosis and detail of existing abdominal pathologies remain uncertain. Diagnostic laparoscopy allows direct visualization of intra-abdominal organs. In the study, the age range was 11-72 years with a mean age of 47.7years. Maximum number of patients were in the peak middle age. The most common findings was adhesions in 24 cases i.e 40%, chronic fibrotic appendix in 30%, 4 cases with gall bladder mass i.e 6.66%, and tuberculosis was present in 13.33%. Adominal adhesions being the commonest cause of chronic pain abdomen with female preponderance. Tubercular abdomen being common in young adults and middle aged persons, while malignant abdomen, masses were found commonly in elderly. the maximum incidence of acute calculus cholecystitis was found in the age group of 41-50 year (22.82%). The Right Iliac Fossa was tender in 53.33% of patients followed by hypogastrium 40% and right hypochondrium in 6.66%. The most common associated symptom had been vomiting i.e 66.66%. 31.66% of patients had a history of previous abdominal surgery in the form of sterilization (15%) with LSCS in 9% which is second on the list. Diagnostic Laparoscopy had been 100% successful in arriving to the final diagnosis of chronic abdominal pain. It served as a curative tool in 42 cases out of 60 (70%). Laparoscopic adhesiolysis was the most commonly performed procedure in 40% of the cases. Thus, the present study had been able to reach to a final conclusion about the cause of chronic pain abdomen by visual impression and histopathological confirmation of surgical diseases.

### **INTRODUCTION**

Diagnostic laparoscopy is a minimally invasive surgical procedure that allows the visual examination of intra abdominal organs in order to detect a pathology.

Diagnostic laparoscopy was first introduced in 1901, when the German surgeon George Kelling<sup>2</sup>, performed a Peritoneoscopy in a dog that was called "celioscopy". A Swedish internist named H.C. Jacobaeus<sup>3</sup> is credited with performing the first diagnostic laparoscopy in humans in 1910 and is also credited with coining the term laparoscopy and thoracoscopy.

The term 'laparoscopy' has been derived from a Greek word 'lapara' which means 'body wall' or 'flank' and 'skopein' which means 'to examine'. The terms 'laparoscopy' and 'peritoneoscopy' are interchangeable, however, peritoneoscopy is the preferred term as the purpose is to examine the contents of peritoneal cavity and not the abdominal wall. Udwardia, 1997<sup>4</sup>.

Despite new radiological techniques or scans like ultrasound and even CT Scan & MRI for that matter, the diagnosis of acute abdomen can be difficult at times. Ultrasound and CT Scan are so far the most accurate methods of diagnosing an abdominal

pathology but even these may often be unreliable (as in cases of chronic appendicitis, adhesions, bands etc.) and are not always at surgeon's disposal. History and clinical examination are helpful but at times pose a diagnostic dilemma. Diagnostic laparoscopy is more accurate, panoramic, safe and less invasive than an exploratory laparotomy in a vast majority of cases. It can provide almost the same information as exploratory laparotomy but with far less discomfort, cosmetic compromise, operative risk and expense to the patient. Robinson and Smith, 1976<sup>5</sup>.

Diagnostic laparoscopy has been in the armamentarium of the surgeon for many years as a useful technique for evaluating pelvic pathology and it is now one of the most frequently performed laparoscopic procedures. It has been embraced by the surgeon for the diagnosis of a wide range of abdominal diseases that also helps in the application of laparoscopic techniques for the treatment of many of these diseases and has accelerated the use of laparoscopy as a diagnostic tool. Laparoscopy is an invasive procedure, though minimally invasive when non-invasive technology for diagnosis has reached such sophistication, laparoscopy has to prove its value, both in terms of positive diagnosis and also in terms of safety. Laparoscopy must always be a sequel to careful examination and its greatest value is in judicious conjunction with other diagnostic aids. In the real sense, laparoscopy is the most effective technique for closing the gap between clinical evaluation and surgical exploration. Seigler, 1971<sup>6</sup>.

#### **MATERIALS AND METHODS**

This study will be carried out from 1<sup>st</sup> January 2016 – 30<sup>th</sup> June 2017 (18 months), a period of one and a half year at the Surgery In/ Out Patient Department of the National Institute of Medical Science and Research, Jaipur. All abdominal conditions having

uncertain diagnosis even with the help of available biochemical and radio imaging techniques will form the subject of this recess work. Also, condition where malignant disease will be suspected and conditions liable to be cured by surgical intervention will also be included.

#### **EXCLUSION CRITERIA**

- Patients undergoing some definitive elective abdominal procedure.
- Uncorrectable coagulopathy and pregnancy.
- Severe cardio-pulmonary unrest and uncontrolled high blood pressure.
- Severe/ decompensated cardiopulmonary failure
- Bacterial peritonitis,
- Abdominal wall infection
- Large ventral hernia
- Diaphragmatic hernia
- Patient unfit for general anesthesia

A systemic examination of the abdomen is to be performed as in laparotomy, in the following order:

Left lobe of the liver, around the falciform ligament to the right lobe of liver, gallbladder and hiatus, the stomach, the caecum and the appendix, the ileocaecal junction and the terminal ileum, the Meckel's diverticulum, the colon round the sigmoid colon, pelvis, the full length of the fallopian tubes, round ligament, anterior cul de sac, uterus and the adnexae.

The abdominal cavity is inspected for fluids, a sample is taken if free fluid is present for laboratory tests for culture & sensitivity, peritoneal lavage & adhesiolysis may need to be performed to improve visualization. Appropriate biopsies, cytology, cultures and intraoperative ultrasound may be carried out.

If no pathology is to be treated with surgical intervention, then completion of the diagnostic laparoscopy shall be done, and after removal of instruments and gas, the ports are closed. If a pathologic finding needs surgical intervention (e.g. Abdominal adhesions, appendicitis or adnexal pathology) then it shall be dealt during laparoscopy. If laparoscopic management is not possible due to any reason, conversion to laparotomy shall be done to tackle the pathology.

## RESULTS

In this study of 60 patients presenting with acute or chronic, abdominal pain, at the Surgery In / Out Patient Department of National Institute of Medical Sciences and Researches, Jaipur. They were randomly selected based on the inclusion and the exclusion criteria. The analysis of present study has got the following inference:

The most common findings was adhesions in 24 cases i.e 40%, chronic fibrotic appendix in 30%, 4 cases with gall bladder mass i.e 6.66%, and tuberculosis was present in 13.33%. Abdominal adhesions being commonest cause of chronic pain abdomen has female preponderance. Tubercular abdomen being common in young adults and middle aged persons, while in malignant abdomen, masses were found commonly in elderly people. The age range of the study group was 11 to 72 years with a mean age of 47.7 years. Maximum number of patients was in the peak middle age. The right iliac fossa was tender in 53.33% of the patients followed by hypogastrium 40% in and hypochondrium (right) in 6.66%. The most common associated symptom with chronic pain abdomen had been vomiting in 66.66%. 31.66% of patients had a history of previous abdominal surgery in the form of sterilization (15%), LSCS in 9%, Appendicectomy in 3.33%,

Cholecystectomy in 1.66%. Tenderness was present in 81.66% of cases. Guarding and rigidity were present in 3.33% of the cases. In lab investigations, anemia was present in 30% of cases, elevated WBC's with high neutrophils in 3%. Minimal free fluid in peritoneal cavity was detected on sonography in most of the cases of chronic pain abdomen i.e 41.66%. Contrast Enhanced Computed Tomography(CECT) had been able to locate malignant masses in cases of chronic pain abdomen. In the present study, diagnostic laparoscopy had been 100% successful in arriving to the final diagnosis of chronic pain abdomen. The diagnostic laparoscopy in the present work had been successful as a curative tool in 42 cases out of 60 (70%). Laparoscopic adhesiolysis was the most commonly performed procedure in 40% of the cases followed by laparoscopic appendicectomy in 18cases i.e 30%. It is interesting to note that laparoscopic appendicectomy was performed concurrently with other procedures too in some of the cases. A subsequent laparotomy was avoided in 54 (90%) patients while in 6 (10%) patients, the procedure had to be converted to a formal laparotomy. No complications, major or minor occurred during the procedure or thereafter, other than one post-operative laryngospasm which was subsequently managed.

## CONCLUSION

Chronic pain abdomen is a common surgical ailment. Many times, it is difficult to pinpoint the diagnosis, despite of various advanced investigations. Diagnostic laparoscopy has recently been a new armamentarium to the surgeon. This gives the chance to directly inspect the abdominal cavity and it's various organs at the same time, thus allows to take tissue for histo-pathological examination, many a

times this provides curable tool to the patient. This also helps to corroborate in the other investigations.

It is concluded that laparoscopy has a significant diagnostic and therapeutic role in abdominal pain, both acute and chronic. The findings and diagnoses not apparent on clinical examination and routine lab

and radiological investigations like ultrasound etc., are effectively diagnosed on laparoscopy, with a definitive added advantage to administer a therapeutic procedure if required and possible.

**Conflict of Interest:** The authors declare no conflict of interests.

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