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## Role of diagnostic laparoscopy in chronic abdominal pain

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### Abstract

**Aim:** To understand what diagnostic laparoscopy is. Describes how laparoscopy helps to find out what the problem is. Explains what complications can occur with the procedure.

**Material and Method:** This project by its very nature involves the use of haematological, biochemical, pathological and microbiological investigations, radiological investigations including ultrasonography, CT and MRI; and also expert surgical management including laparoscopy, which are available in our institute. Also this institute has its own well equipped operation theatre, surgical ICU and ventilators an informed consent was taken. Close relation with patients were required in this study along with follow up of the patient for further management.

**Result:** Colonic adhesions and Meckel's diverticulum contributed 1 case each i.e. 9.09%. In this study, abdominal Koch's was common in 41 to 50 years of age group while adhesive intestinal obstruction was common in 21-30 age group. Meckel's diverticulum and appendicitis were common in 21-30 years of age group while retroperitoneal lymphadenopathy was common in 41-50 years. Scar adhesions were in age group of 31-40, 41-50 and more than 50 years. Hepatic omentum band was in age group of 31-40 years while Ladd's bands was present only in age group of 11-20.

**Conclusion:** It should be reserved for those situations after noninvasive method fail to make a diagnosis. DL has many advantages of shorter hospital stay, early recovery and good cosmesis. Laparoscopy should be performed as an early investigative procedure in these patients because "Diagnosis should precede treatment whenever possible" as quoted by Hutchison's Clinical methods.

**Keywords:** Chronic Abdominal Pain, Laparoscopy

### Introduction

Chronic Abdominal pain (CAP) is a common complaint of patients seeking a primary care physician, it is a leading reason for referral to a gastroenterologist and the 4th frequent chronic pain syndrome in the general population, it represent about 13% of all surgical admissions [1,2].

Exploratory laparotomy has several disadvantages apart from chances of negative laparotomy. It has an abdominal incision which makes the patients less ambulatory due to pain, also it causes respiratory discomfort. It increases chances of wound infection, paralytic ileus [3]. As a solution to these problems diagnostic laparoscopy has become very much popular now a daDiagnostic laparoscopy is an important tool in final minimally invasive exploration for patients with chronic abdominal disorders, the diagnosis of which remains uncertain despite employing the requisite laboratory and noninvasive imaging investigations [4].

Diagnostic laparoscopy can be used to evaluate several types of liver diseases including discrete masses, diffuse diseases, unexplained portal hypertension, abdominal tuberculosis, congenital anomalies, non-palpable testis, various types of malignancies etc. Diagnostic laparoscopy is absolutely contraindicated in coagulation defects, bleeding disorders, major cardiac and respiratory disorders [5].

This study helps us to understand what diagnostic laparoscopy is. Describes how laparoscopy helps to find out what the problem is. Explains what complications can occur with the procedure

### Material and Method

The study is intended in Krishna Institute of Medical Sciences University, Karad to survey

and diagnose undiagnosed cases of chronic abdominal pain by laparoscopy in surgical wards. During the period of 2 and ½ years from May 2009 to May 2011 50 cases were studied. Soon after admission the data is recorded according to the proforma. Chief complaints of majority of patients were pain in abdomen lasting for months, on and off vomiting, fever and distension. Detail history was taken followed by general and physical examination.

This project by its very nature involves the use of haematological, biochemical, pathological and microbiological investigations, radiological investigations including ultrasonography, CT and MRI; and also expert surgical management including laparoscopy, which are available in our institute. Also this institute has its own well equipped operation theatre, surgical ICU and ventilators an informed consent was taken. Close relation with patients were required in this study along with follow up of the patient for further management.

In all patients routine investigations like hemoglobin, total count, differential count, erythrocyte sedimentation rate, bleeding time, clotting time, blood sugar, blood urea, serum creatinine, sodium, potassium, urine routine and microscopy, chest X ray, electrocardiogram and ultrasonography was done. Liver function tests, blood grouping and prothrombin time was done in selected cases. CT and MRI was done in selected cases. Physicians and gynecologists opinion was taken if needed.

The abdomen and parts were shaved. All patients were kept nil orally after 10 pm the previous night, enema and rectal suppositories were given where required. All patients were put under antibiotic cover and Ryle's tube and urinary catheter was inserted.

All patients were operated under general anesthesia.

After taking due consent of patients they were posted for diagnostic laparoscopy. Monitor, light source, insufflators were placed on the right side of the patient facing the operating surgeon. Patient was placed in supine position. Painting was done with betadine and spirit and then draping was done.

Creation of pneumoperitoneum was done with the help of carbon dioxide insufflators of automatic type with Veress needle or Hason's cannula. Usually pressure was kept between 8 to 12 mm Hg. After pneumoperitoneum, first infraumbilical 10mm port was introduced in all cases. The peritoneal cavity was visualized with the help of laparoscope. Additional ports were introduced depending on need of exploration and manipulation of abdominal organs under vision. Both primary and secondary ports were removed under vision. Gas allowed to blow out completely. Port sites were then closed with sutures.

All patients were kept nil orally for 24 hours at times and if required for 48 hours. Patients were monitored with pulse, blood pressure and temperature charting. Injectable antibiotics and analgesics were used accordingly. Ryle's tube and urinary catheter were removed depending upon the condition. Most of our patients who were treated laparoscopically were discharged in 4 days. The patients who had to undergo laparotomy were discharged in 10 days depending upon the condition. Appropriate treatment was started once the diagnosis was established. All patients after discharge were followed up in OPD after 1 week and if required were asked to follow accordingly.

## Results

The records of the 50 patients who were referred for elective diagnostic laparoscopy to the department of general surgery at Krishna Institute of Medical Sciences University Hospital,

Karad were reviewed prospectively for demography, clinical presentation, laboratory tests, imaging investigations, indications and findings in diagnostic laparoscopy as well as biopsy results. The accuracy and the impact of the procedure on the outcome were evaluated.

The maximum number of patients were of 31 to 40 years (15 of 50 patients i.e. 30%). Least number of patients were from age group of more than 50 years (3 of 50 patients i.e. 6%). Age group of 21 to 30 and 41 to 50 constituted 14 cases each (28%), 11 to 20 years had 4 cases (8%) and none from below 10 years.

**Table 1:** Incidence of various pathologies in chronic abdomen

Pathology	No. of cases	Percentages (%)
Abdominal Koch's	12	29.26 %
Adhesive intestinal obstruction	11	26.82 %
Meckel's Diverticulum	6	14.63 %
Retroperitoneal lymphadenopathy	3	7.31 %
Appendicitis	4	9.75 %
Scar adhesions	3	7.31 %
Hepatic omento band	1	2.43 %
Ladd's band	1	2.43 %
Total	41	100 %

Number of female patients of chronic abdomen were more than that of male patients, due to increased number of open surgeries in females. In this study, it is clear that the most common cause of chronic abdomen was abdominal Koch's i.e. 12 of 50 cases (29.26%), followed by adhesive intestinal obstruction due to adhesions i.e. 11 (26.82%), followed by Meckel's diverticulum i.e. 6 (14.63%), followed by appendicitis i.e. 4 cases (9.75%), followed by retroperitoneal lymphadenopathy and scar adhesions accounting for 3 cases each (7.31%), followed by hepatic omento bands and lastly congenital anomaly Ladd's band for a single case (2.43%) each. Nine patients had no obvious pathology.

Most common cause of intestinal obstruction in our study is abdominal Koch's, 5 out of 11 cases of obstruction i.e. 45.45% and scar adhesions and bowel adhesions accounted for 2 cases i.e. 18.18%. Colonic adhesions and Meckel's diverticulum contributed 1 case each i.e. 9.09%.

In this study, abdominal Koch's was common in 41 to 50 years of age group while adhesive intestinal obstruction was common in 21-30 age group. Meckel's diverticulum and appendicitis were common in 21-30 years of age group while retroperitoneal lymphadenopathy was common in 41-50 years. Scar adhesions were in age group of 31-40, 41-50 and more than 50 years. Hepatic omentum band was in age group of 31-40 years while Ladd's bands was present only in age group of 11-20.

## Discussion

Though first laparoscopy in dog was done in 1901 by George Kelling and in humans in 1910 by Jacobeus, surgeons have been slowly adopting laparoscopy as a diagnostic modality [6].

The growing experience with therapeutic laparoscopy has resulted in development of diagnostic laparoscopy. In cases of diagnostic uncertainty or ambiguities in radiological tests laparoscopy may exclude or confirm a pathological finding or diagnosis. It can also help a surgeon to plan appropriate

treatment modality and also avoid unnecessary Laparotomies. In our study for role of diagnostic laparoscopy in chronic abdominal pain which included 50 cases of chronic abdomen who presented to Krishna Hospital, Karad for management. They were posted for diagnostic laparoscopy after the necessary investigations.

All patients were explained in detail regarding the advantages and disadvantages of the procedure and the difficulties that may make the surgeon to go for conversion into laparotomy any time during the procedure. Routine investigations in all patients and specific investigations in selective patients were done [7].

In all our cases we used an infraumbilical incision to insert the laparoscope. The incidence of injury to major blood vessels throughout the procedure in our series was nil even though some authors do mention about this. In our study, patients included were of all ages. We grouped them as 0-10 years, 11-20 years, 21-30 years, 31-40 years, 41-50 years and more than 50 years. We found that maximum patients of chronic abdomen were from age group of 31-40 years i.e 15 out of 50 cases (30%). Next to follow was age group of 21-30 years and 41-50 years with 14 cases each (28%). Age group 11-20 years had 4 cases (8%), more than 50 years had 3 cases (6%) and none were reported from 0-10 years. Among 50 patients of chronic abdomen, 26 were females (52%) and 24 were males (48%). More number of females is due to the number of abdominal operations they underwent due to caesarean sections and hysterectomy.

We did not include gynaecological cases in our study. Abdominal Koch's was the most frequent cause in our study i.e. 12 out of 41 cases (29.26%). Of these 8 (66.66%) were males and 4 (33.33%) were females. Age groups having abdominal Koch's commonly were more than 41-50 years i.e 7 cases. The second common cause of chronic abdominal pain was adhesive intestinal obstruction with 11 cases (26.82%), maximum were from age group of 21 - 30 years i.e 6 cases. The third common cause in our study [8].

Was Meckel's diverticulum with 6 cases (14.63%) with maximum from 21 to 30 years i.e. 3 cases. Appendicitis had 4 cases (9.75%), while scar adhesions and retroperitoneal lymphadenopathy accounted 3 cases (7.31%) each and, hepatic omentum bands and Ladd's band had 1 case (2.43%) each. Nine patients had no obvious pathology [9].

In our study we did laparoscopic exploration for 12 patients of which 5 of them had small bowel adhesions, 4 had peritoneal and visceral tubercles, 2 of them had peritonitis with mesenteric lymphadenopathy and 1 presented with mass in right lower abdomen. Of them adhesions were released carefully laparoscopically without injuring the bowel, suction irrigation was done in peritonitis and biopsy was obtained from intestinal tubercles and sent for histopathology for confirmation of diagnosis. In one case of adhesions there was accidental injury to the small bowel, which was later on converted to laparotomy with primary suturing [10]. The patient presenting with mass in the right iliac fossa was explored laparoscopically and later on converted to open laparotomy and the mass was sent for histopathology. The patients were under antibiotic cover post operatively. Ryle's tube was removed on the 3<sup>rd</sup> day in all patients and they were discharged accordingly depending on the condition and started on anti-tubercular drugs once diagnosis was confirmed [11, 12].

In our study laparoscopic adhesiolysis was done in 11 patients (26.82%) presenting with chronic abdominal pain.

The main causes of adhesions in these patients were abdominal Koch's 5 cases (45.45%), scar adhesions and bowel adhesions had 2 cases (18.18%) each and colonic adhesions and Meckel's diverticulum had 1 case (9.09%) each. From treatment point of view, adhesiolysis was done laparoscopically. In one case there was accidental injury to the small bowel while adhesiolysis which was later on converted to laparotomy and resection anastomosis was done.

In our study diagnostic laparoscopy was performed in 41 patients out of which, 3 patients (7.31%) had retroperitoneal lymphadenopathy. Tissue biopsy and lymph node excision was done wherever possible and the sample was sent for histopathology. The diagnosis was reactive lymphadenitis in 2 and Hodgkins lymphoma in one. They were treated accordingly [13-15].

### Conclusion

In conclusion, diagnostic laparoscopy is a safe, feasible and accurate tool for management of patients with chronic abdomen. It allows the doctor to directly look at the organs of abdomen in order to diagnose the problem. It is useful in patients in whom the diagnosis and the extent of the disease are equivocal. Even negative laparotomies can be avoided using DL. Therapeutic laparoscopy can be accomplished in a majority of patients where laparotomies are not possible due to some reason. It can also help in laparoscopy assisted surgeries thereby avoiding laparotomies and its complications. Where laparotomies are indicated DL can decide the site of incision. It should be reserved for those situations after non invasive method fail to make a diagnosis. DL has many advantages of shorter hospital stay, early recovery and good cosmesis. Laparoscopy should be performed as an early investigative procedure in these patients because "Diagnosis should precede treatment whenever possible" as quoted by Hutchison's Clinical methods.

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