DIAGNOSTIC LAPAROSCOPY AND ITS ROLE IN PATIENTS WITH CHRONIC ABDOMINAL PAIN - A STUDY FROM A TERTIARY HOSPITAL

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ABSTRACT

Introduction: Chronic abdominal pain is quite frequently seen in the general surgery department. The complaint may be abdominal pain on and off for a few weeks to a few months. Therefore, good history and clinical examination is very important in patients presenting with chronic abdominal pain. Laparoscopic surgery allows the peritoneal cavity to be visualized without large surgical incisions. This allows surgeons to arrive at a diagnosis fairly quickly and thus allows prompt intervention. Aim: This study aimed to determine the role of laparoscopy as a tool for diagnosing and treating patients presenting to the surgical department with complaints of chronic abdominal pain. Methods: This study was conducted at SRM Medical College Hospital and Research Centre, Kattankulathur, Tamil Nadu, India. The study was done from March 2016 to February 2020 for four years. Complete blood count, x-ray chest and abdomen, USG and CECT abdomen were done. After these investigations, the patients underwent diagnostic laparoscopy. 105 patients were studied. SPSS package 20.0 was used for statistical analysis, and ethical clearance was also obtained. Results: Our study found that chronic abdominal pain most commonly was found in patients between 41 to 50 years of age (33.33%), and women (70.47%) were more commonly affected than men. Other than the complaint of chronic abdominal pain (100%), vomiting (33.33%) was the next most common complaint in our patients. 57 patients (54.28%) complained of abdominal pain along with other associated symptoms on and off for 3-6 months, which was the most common duration of symptoms for the patients in our study. The most common intraoperative finding in our patients was the presence of appendicitis (42.85%). The most common operative procedure performed for patients in our study was laparoscopic appendicectomy for 45 patients (42.85%). This was followed by laparoscopic adhesiolysis, done for 30 patients (28.57%).

KEYWORDS Laparoscopic surgery, Chronic abdominal pain, Peritoneal cavity, Intervention
allowed surgeons to arrive at a diagnosis fairly quickly and thus, allow for prompt intervention.[2]

Aim

This study aimed to determine the role of laparoscopy as a tool for diagnosing and treating patients presenting to the surgical department with a complaint of chronic abdominal pain.

Methods

For four years, this study was done at SRM Medical College Hospital and Research Centre, Kattankulathur, Tamil Nadu, India, from March 2016 to February 2020. Complete blood count, x-ray chest and abdomen, USG and CECT abdomen were done. After these investigations, the patients underwent diagnostic laparoscopy. 105 patients were studied. SPSS package 20.0 was used for statistical analysis, and ethical clearance was also obtained.

Results

Results obtained were tabulated. Our study found that chronic abdominal pain was most commonly found in patients between 41 to 50 years of age (33.33%), and women (70.47%) were more commonly affected than men. Other than the complaint of chronic abdominal pain (100%), vomiting (33.33%) was the next most common complaint in our patients. 57 patients (54.28%) complained of abdominal pain along with other associated symptoms on and off for 3-6 months, which was the most common duration of symptoms for the patients in our study. The most common intraoperative finding in our patients was the presence of appendicitis (42.85%). The most common operative procedure performed for patients in our study was laparoscopic appendicectomy for 45 patients (42.85%). This was followed by laparoscopic adhesiolysis for 30 patients (28.57%). The patients with pelvic inflammatory disease (PID) were treated conservatively.

Discussion

Patients with chronic abdominal pain have quite a bit of difficulty in going about their daily work. Therefore, they consult the general surgeon for further evaluation and management. Imaging studies such as ultrasound of the abdomen and CECT abdomen are very useful and may be done prior to planning for a diagnostic laparoscopy. Diagnostic laparoscopy helps prevent a delay in arriving at a definitive diagnosis and also helps to reduce the hospital stay of the patient. Onders et al. [3] and Karl Miller et al. [4] showed that diagnostic laparoscopy helped to reach a diagnosis in 85.7% and 89.8% of patients, respectively. The laparoscopy procedure is beneficial as it provides a detailed and clear view of the intraabdominal organs, and biopsies may also be taken when required for further evaluation. In our study, omental and peritoneal biopsies were taken for 12 patients (11.42%), and these were sent for histopathological examination (HPE). In India, tuberculosis (TB) is seen in many patients. So, the diagnosis of intraabdominal tuberculosis must always be kept in mind while evaluating a patient with chronic abdominal pain. In these cases, omental and peritoneal biopsies are very important and must be taken at the time of diagnostic laparoscopy. In the study done by Arya et al., intestinal and peritoneal tuberculosis were the common findings. This was assumed to be due to the relatively high incidence of tuberculosis in the Indian population.[5] This study showed 12 patients (11.42%) to have intra abdominal tuberculosis, and in all these 12 patients, omental and peritoneal biopsies were taken. The presence of any intraabdominal fluid must also be looked for, and if present, this fluid may be sent for culture and sensitivity and acid-fast bacilli (AFB). Rai et al. showed that 92% of their patients had abdominal tuberculosis.[6] Krishnan et al. showed in their study how abdominal tuberculosis could be diagnosed early with the help of laparoscopy.[7] Patients with appendicitis may complain of chronic right-sided lower abdominal pain, and for these patients, diagnostic laparoscopy with appendicectomy will almost certainly help to relieve their pain. In the study done by Fayez et al., resolution of symptoms was found in 92% of patients following appendicectomy, and in all 92%, the appendix had an abnormal histologic finding.[8] While collecting history from the patient, history of any abdominal surgery must be asked for, as any history of previous abdominal surgery may give rise to adhesions which may cause chronic abdominal pain. In these patients, adhesiolysis helps to relieve the pain. Resolution of abdominal pain following laparoscopic adhesiolysis was demonstrated in the studies done by Dunker et al. [9] and Shayani et al. [10]. Chronic cholecystitis may also give rise to abdominal pain. Cholecystitis may be initially controlled with antibiotics, and surgery may be done later. However, repeated bouts of pain over the right hypochondrium may indicate that the pain is probably due to chronic cholecystitis. After initial imaging studies, a diagnostic laparoscopy may prove the diagnosis, and cholecystectomy may also be performed. Following cholecystectomy, the abdominal pain may most definitely subside. In women, ovarian cysts may give rise to chronic abdominal pain, and in these situations, aUSG or a CT abdomen may help provide a diagnosis. The cyst may be seen on laparoscopy, and drilling of the ovarian cyst may be done. 3 patients (2.85%) underwent laparoscopic ovarian drilling in our study. Karvande et al. showed how diagnostic and therapeutic laparoscopy significantly helped patients with chronic abdominal pain.[11] Also, the studies were done by Paajanen et al. [12], and Raymond et al. [13] showed how laparoscopy helped alleviate the symptoms in patients presenting with chronic abdominal pain.
### Table 1 Age of patients with chronic abdominal pain n=105

| Age (in years) | Number of patients | %    |
|----------------|--------------------|------|
| 20-30          | 15                 | 14.28%|
| 31-40          | 31                 | 29.52%|
| 41-50          | 35                 | 33.33%|
| 51-60          | 12                 | 11.42%|
| 61-70          | 7                  | 6.66% |
| 71-80          | 5                  | 4.76% |

### Table 2 Gender of patients with chronic abdominal pain n=105

| Gender    | Number of patients | %    |
|-----------|--------------------|------|
| Male      | 31                 | 29.52%|
| Female    | 74                 | 70.47%|

### Table 3 Various Symptoms of the patients

| Symptoms                  | Number of patients | %    |
|---------------------------|--------------------|------|
| Chronic abdominal pain    | 105                | 100% |
| Vomiting                  | 35                 | 33.33%|
| Diarrhoea                 | 20                 | 19.04%|
| Fever                     | 24                 | 22.85%|

### Table 4 Duration of symptoms n=105

| Duration                  | Number of patients | %    |
|---------------------------|--------------------|------|
| Upto 3 Months             | 40                 | 38.09%|
| 3-6 Months                | 57                 | 54.28%|
| More than 6 months        | 8                  | 7.61% |

### Table 5 Intraoperative findings of patients presenting with chronic abdominal pain n=105

| Intraoperative Finding    | Number of patients | %    |
|---------------------------|--------------------|------|
| Appendicitis              | 45                 | 42.85%|
| Adhesions                 | 30                 | 28.57%|
| Chronic cholecystitis     | 8                  | 7.61% |
| Abdominal Tuberculosis (TB)| 12                | 11.42%|
| Ovarian Cyst              | 3                  | 2.85% |
| Pelvic Inflammatory Disease (PID)| 7      | 6.66% |
**Table 6** Procedures performed

| Procedure                        | Number of patients | %     |
|----------------------------------|--------------------|-------|
| Laparoscopic appendicectomy      | 45                 | 42.85%|
| Laparoscopic adhesiolysis        | 30                 | 28.57%|
| Laparoscopic cholecystectomy     | 8                  | 7.61% |
| Ovarian cyst drilling            | 3                  | 2.85% |
| Omental and Peritoneal biopsy    | 12                 | 11.42%|

**Table 7** Comparison of the mean age group with other studies

| Study                               | Mean age group |
|-------------------------------------|----------------|
| Chaphekar et al. [14]               | 34 Years       |
| Bhatia et al. [15]                  | 28.6 Years     |
| Karvande et al. [11]                | 31.7 Years     |
| Sinha et al. [16]                   | 34.64 Years    |
| Thanaponsathron et al. [17]         | 27.5 years     |
| Our Study                           | 43.04 Years    |

**Table 8** Comparison of the mean duration of abdominal pain of patients in our study with other studies

| Study                               | Duration       |
|-------------------------------------|----------------|
| Karvande et al. [11]                | 9.2 months     |
| Sinha et al. [16]                   | 8.1 months     |
| Rao et al. [18]                     | 8 months       |
| Sayed et al. [19]                   | 8.6 months     |
| Our Study                           | 4.02 months    |

**Table 9** Comparing previous abdominal surgeries done in our study and other studies

| Study                               | %   |
|-------------------------------------|-----|
| Karvande et al. [11]                | 40% |
| Sayed et al. [19]                   | 54.5%|
| Baria et al [20]                    | 22% |
| Our Study                           | 28.57%|

**Table 10** Comparison of laparoscopic adhesiolysis done for patients in our study with other studies

| Study                               | %   |
|-------------------------------------|-----|
| Shayani et al. [10]                 | 77.8%|
| Dunker et al [9]                    | 50%  |
| Our Study                           | 28.57%|
Conclusion

Patients generally present to the surgical department with chronic abdominal pain since it tends to affect their day to day activities. Our study shows how laparoscopy is an extremely effective tool in managing patients presenting with chronic abdominal pain. Diagnostic laparoscopy also has the added advantage that it is minimally invasive, safe, and effective. It must also be noted that diagnostic, as well as therapeutic procedures can be performed at the same time. It has also significantly reduced the number of investigations that a patient is subjected to, reducing the patient’s stay in the hospital. This, in turn, helps in the substantial reduction in the cost of the treatment.

Declarations

Ethics approval and consent to participate
All consents have been taken.

Consent for publication
Informed consent has been taken.

Competing interests
The authors declare that they have no competing interests.

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