

Assessing the Efficacy and Role of Diagnostic Laparoscopy in Subjects with Chronic Abdominal PainAmit Kumar¹, Brijesh Kumar Shukla², Vivek Maurya³¹MBBS MS, Associate Professor and Head, Department of General Surgery, Maharaja Suheldev Autonomous State Medical College, Bahraich, Uttar Pradesh²MBBS, MS, Assistant professor, Department of General Surgery, Maharaja Suheldev Autonomous State Medical College, Bahraich, Uttar Pradesh³MBBS, DNB, Assistant Professor, Department of General Surgery, Autonomous State Medical College, Shahjahnpur Uttar Pradesh

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Abstract:**Background:** Most demanding and challenging conditions to manage across the globe in subjects of all ages are chronic idiopathic pain syndromes. Various diagnostic advancements have been made, pain in these subjects still presents a challenge for all available diagnostic and management methods.**Objectives:** The present study was conducted to assess the efficacy and role of diagnostic laparoscopy in the identification of the etiology of chronic abdominal pain which is not diagnosed.**Methods:** In 120 subjects with chronic abdominal pain with unknown etiology or who were refractory to the treatment for more than 3 months. Diagnostic laparoscopy was done for all the subjects. The collected data were subjected to statistical evaluation and the results were formulated.**Results:** The present study showed that chronic abdominal pain was more prevalent in females compared to males with the most commonly involved site being the periumbilical region. The pain was most commonly seen at the peri-umbilical region with 43.33% (n=13) subjects reporting pain in this region followed by diffuse abdominal pain in 30% (n=36) study subjects, and lower and upper abdomen pain in 13.33% (n=4) subjects each. The duration of pain was 3-12 months in 3.33% (n=4) subject, 12-18 months in 43.33% (n=52) subjects, 18-36 months in 16.66% (n=) study subjects, and was more than 36 months in 36.66% (n=44) study subjects. The findings on laparoscopic examinations have shown that normal peritoneal cavity was seen in 20% (n=16) study subjects, Partial torsion ovarian cyst in 3.33% (n=4) and Koch's abdomen/tuberculosis in 16.66% (n=20), Chronic cholecystitis in 3.33% (n=4) study subjects, Endometriosis in 6.66% (n=8), postoperative adhesions in 16.66% (n=20) study subjects, and recurrent appendicitis was seen in 33.33% (n=40) study subjects.**Conclusion:** The present study concludes that chronic abdominal pain is most commonly caused by recurrent appendicitis where diagnostic laparoscopy is efficacious and safe for diagnosing and managing these subjects.**Keywords:** Abdominal Pain, Adhesions, Appendicitis, Laparoscopy, Laparotomy.

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Introduction

The most difficult pain to diagnose and manage is chronic abdominal pain showing its unrewarding nature for both treating physicians and affected subjects. Chronic abdominal pain is a difficult entity to diagnose. Chronic abdominal pain leads to disability and suffering to affected subjects both psychologically and physically. [1]

Chronic abdominal pain leads to poor quality of life. Previous literature data shows that in hospital populations and community subjects, chronic abdominal pain remains a pervasive problem. In most subjects, the diagnostic procedures were already conducted. In the previous literature data, chronic abdominal pain was not associated with any specific diagnosis or etiology after the diagnostic procedures in these

subjects. These pathologic searches usually involve procedures as lower and upper GI endoscopies, screening for undiagnosed carcinoma, and computerized tomography. [2]

Laparoscopy is a surgical procedure equal in invasiveness to exploratory laparotomy. Laparoscopy is not only a diagnostic procedure but also shows a better picture of the peritoneal cavity compared to exploratory laparotomy to the surgeon's expertise in the field. To attain a clear diagnosis from laparoscopy, correct and accurate technique, surgical expertise in the field, extensive clinical knowledge, and knowledge of pathologies seen in the abdomen. [3]

To provide accurate treatment and manage chronic abdominal pain, it is vital to diagnose subjects at an

early stage, which might help prevent unnecessary exposure to laparotomy. The rapid return to normalcy and recovery following diagnostic laparoscopy provides an extra advantage to the surgeon for adopting more laparoscopic techniques. [4] The present study showed that chronic abdominal pain was more prevalent in females compared to males with the most commonly involved site being the periumbilical region

Materials and Methods

The present clinical study showed that chronic abdominal pain was more prevalent in females compared to males with the most commonly involved site being the periumbilical region. The study was conducted after obtaining clearance from the concerned Ethical committee. The study population was comprised of the subjects visiting the Outpatient Department of General Surgery the Institute. The present study included a total of 30 subjects from both genders having chronic abdominal pain undiagnosed for more than 3 months.

After the final inclusion of the study subjects, detailed history was taken and examination was done for all the study subjects. This was followed by recording the demographics including investigations done, comorbid conditions, history of surgical intervention, vaginal discharge, fever, vomiting, abdominal pain site, and illness duration. After including the subjects, informed consent was taken from all the subjects in both written and verbal form. Intraoperative findings and intervention has done were also assessed. Intraoperative findings were recorded and were correlated with histopathology findings. Intraoperative and postoperative complications were assessed and pain relief was recorded.

The inclusion criteria for the study were subjects having chronic abdominal pain undiagnosed by X-ray, ultrasound, urine examination, blood counts,

clinical examination, history, and other examination., subjects from both genders, more than 15 years of age, chronic abdominal pain refractory to treatment, and subjects not willing to participate in the study. The exclusion criteria for the study were subjects having pain for less than 3 months, subjects of age less than 15 years, pregnant females, subjects having carcinoma, myocardial infarction, coagulation defects, subjects critically ill, medically unfit subjects, and females who delivered recently.

All laparoscopy was done under general anesthesia using the camera. During laparoscopy, the abdomen was inspected with visceral contents from the peritoneal surface, ovaries, fallopian tubes, uterus, retroperitoneal organs, terminal ileum, appendix, intestine, stomach, gall bladder, and liver.

During laparoscopy, adhesion of the anterior abdominal wall to bowel loops was also assessed. The surgical intervention was conducted based on intraoperative findings following indications ranging from suspicious lesion biopsy to appendectomy to adhesiolysis. Umbilical ports were then closed.

The collected data were subjected to the statistical evaluation using SPSS software version 21 (Chicago, IL, USA) and one-way ANOVA and t-test for results formulation. The data were expressed in percentage and number, and mean and standard deviation. The level of significance was kept at $p < 0.05$.

Results

The present clinical study showed that chronic abdominal pain was more prevalent in females compared to males with the most commonly involved site being the periumbilical region. The present study included a total of 120 subjects from both genders having chronic abdominal pain undiagnosed for more than 3 months. The demographic characteristics of the study subjects are listed in Table 1.

Table 1: Demographic characteristics of the study subjects

S. No	Characteristics	Percentage (%)	Number (n)
1.	Mean Age	36.4±6.22	
2.	Age Range		
a)	16-30	36.66	44
b)	31-40	46.66	56
c)	41-50	13.33	16
d)	51-60	3.33	4
3.	Gender		
a)	Males	33.33	40
b)	Females	66.66	80

It was seen that the mean age of the study subjects was 36.4±6.22 years with the majority of the subjects within the age range of 31-40 years with 46.66% (n=56) subjects followed by 36.66% (n=44) subjects within the age range of 16-30 years, 13.33% (n=16) subjects from age of 41-50 years, and 3.33% (n=4) subject from age of 51-60 years. There were

33.33% (n=40) males and 66.66% (n=80) males in the present study.

On assessing the pain characteristics, it was seen that pain was most commonly seen at the peri-umbilical region with 43.33% (n=52) subjects reporting pain in this region followed by diffuse abdominal pain in 30% (n=36) study subjects, and lower and upper

abdomen pain in 13.33% (n=16) subjects each. The duration of pain was 3-12 months in 3.33% (n=4) subject, 12-18 months in 43.33% (n=52) subjects,

18-36 months in 16.66% (n=20) study subjects, and was more than 36 months in 36.66% (n=44) study subjects as depicted in table 2.

Table 2: Pain characteristics in the study subjects

S. No	Pain Characteristics	Percentage (%)	Number (n)
1.	Pain Site		
a)	Diffuse abdominal	30	36
b)	Peri-umbilical	43.33	52
c)	Lower abdomen	13.33	16
d)	Upper abdomen	13.33	16
2.	Pain Duration (months)		
a)	3-12	3.33	4
b)	12-18	43.33	52
c)	18-36	16.66	20
d)	>36	36.66	44

The findings on laparoscopic examinations have shown that normal peritoneal cavity was seen in 20% (n=16) study subjects, Partial torsion ovarian cyst in 3.33% (n=4) and Koch's abdomen/tuberculosis in 16.66% (n=20), Chronic cholecystitis in

3.33% (n=4) study subjects, Endometriosis in 6.66% (n=8), postoperative adhesions in 16.66% (n=20) study subjects, and recurrent appendicitis was seen in 33.33% (n=40) study subjects as shown in Table 3.

Table 3: Findings on the laparoscopic intervention in the study subjects

S. No	Findings	Percentage (%)	Number (n)
1.	Normal	20.0	24
2.	Koch's abdomen/Tuberculosis	16.66	20
3.	Partial torsion ovarian cyst	3.33	4
4.	Endometriosis	6.66	8
5.	Chronic Cholecystitis	3.33	4
6.	Postoperative adhesions	16.66	20
7.	Chronic appendicitis 33.33%	33.33	40

Discussion

The present clinical study showed that chronic abdominal pain was more prevalent in females compared to males with the most commonly involved site being the periumbilical region. The present study included a total of 120 subjects from both genders having chronic abdominal pain undiagnosed for more than 3 months. It was seen that the mean age of the study subjects was 36.4±6.22 years with the majority of the subjects within the age range of 31-40 years with 46.66% (n=56) subjects followed by 36.66% (n=44) subjects within the age range of 16-30 years, 13.33% (n=16) subjects from age of 41-50 years, and 3.33% (n=4) subject from age of 51-60 years. There were 33.33% (n=40) males and 66.66% (n=80) females in the present study. These results were consistent with the findings of Dunker MS et al [5] in 2004 and Shayani V et al [6] in 2002 where authors have assessed subjects with comparable demographic characteristics as in the present study.

On assessing the pain characteristics, it was seen that pain was most commonly seen at the peri-umbilical region with 43.33% (n=52) subjects reporting pain in this region followed by diffuse abdominal pain in 30% (n=9) study subjects, and lower and upper abdomen pain in 13.33% (n=16) subjects each. The

duration of pain was 3-12 months in 3.33% (n=4) subject, 12-18 months in 43.33% (n=52) subjects, 18-36 months in 16.66% (n=20) study subjects, and was more than 36 months in 36.66% (n=44) study subjects. These results were in agreement with the studies of Kumar KA et al [7] in 2013 and Gouda M El-labban et al [8] in 2010 where similar pain characteristics as in the present study were described by the authors.

The findings on laparoscopic examinations have shown that normal peritoneal cavity was seen in 20% (n=16) study subjects, Partial torsion ovarian cyst in 3.33% (n=4) and Koch's abdomen/tuberculosis in 16.66% (n=20), Chronic cholecystitis in 3.33% (n=4) study subjects, Endometriosis in 6.66% (n=8), postoperative adhesions in 16.66% (n=20) study subjects, and recurrent appendicitis was seen in 33.33% (n=40) study subjects.

These results were comparable to the results by the studies of Raymond P [9] in 2003 and Thanapongsethron W et al [10] in 2005 where authors have presented a comparable prevalence of chronic abdominal pain etiologies as in the present study.

Conclusion

Within its limitations, the present study concludes that laparoscopy is an efficacious, quick, and safe diagnostic modality with high accuracy for managing the subjects with undiagnosed chronic abdominal pain in subjects who were refractory to the treatment and where conventional modalities have failed to diagnose the chronic abdominal pain. However, the present study had a few limitations including small sample size, cross-section nature, and geographical area biases. Hence, more longitudinal studies with a larger sample size and longer monitoring period will help to reach a definitive conclusion.

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