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The Efficacy of Laparoscopy in the Diagnosis and Management of Chronic Abdominal Pain

KEYWORDS

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ABSTRACT *Diagnostic laparoscopy has become an integral part of general surgical procedures with the recent advancements in laparoscopic technology. Since surgeons are more oriented in viewing and dissection of different intra-abdominal areas and are proficient in the definitive management of complications in the procedures, diagnostic laparoscopy may be better off in the hands of surgeons. Laparoscopy has proved to be an important tool in final minimally invasive exploration for selected medical patients with chronic abdominal disorders, the diagnosis of which remains uncertain despite employing the requisite laboratory and non-invasive imaging investigations. This retrospective study was done to evaluate the accuracy of elective diagnostic laparoscopy in patients with chronic abdominal disorders and its impact on the management of these patients.*

Materials and Methods *: Thirty two patients with chronic abdominal pain were included in this prospective descriptive cross-sectional study. The pain in all patients was of unclear etiology despite all the investigative procedures. All patients were subjected to laparoscopic evaluation for their conditions. The findings and outcomes of the laparoscopy were recorded and analyzed.*

Results *: The most common site of pain was the periumbilical region (43%). A definitive diagnosis was made in 30 patients while two patients has no obvious pathology. Reccurent appendictits were the most common laparoscopic findings (62.5%)followed by post operative adhesions (12.5%), , gall bladder pathology (6.25%), tuboovarian (6.25%) and abdominal TB (3.1%). Two patients were no obvious pathology was found prophylactic appendiccetomy was done. Postoperatively, painrelief was achieved in 28 patients (87.5%) after six months.*

Conclusion *: Laparoscopy is an effective diagnostic and therapeutic modality in the management of patients with chronic abdominal pain.*

Fig: Recurrent appendicitis showing adhesions to adjacent structures suggesting chronic inflammation.

Fig: One of the patients CECT report showing unconclusive report. Diagnosed laparoscopy showed Recurrent appendicitis.

Introduction:

Chronic abdominal pain is a common disorder both in general practice and in hospitals. Although patients with this type of pain may have undergone numerous diagnostic workups, including surgery, their pain remains a challenge to all known diagnostic and treatment methods. After all, more than 40% of the patients presenting with chronic abdominal pain had no specific etiological diagnosis at the end of their diagnostic workup. [1],[2],[3],[4] Chronic abdominal pain is associated with poor quality of life [5] and significant levels of depressive symptoms. [6] Much is known about the prevalence, societal burden, and suffering associated with chronic abdominal pain. [1] Many common organic and functional diseases can cause it. The most common organic conditions include intestinal adhesions, [7],[8] biliary causes, [9],[10] and appendicular causes, [11] while functional conditions include irritable bowel disease, [12] functional dyspepsia, [13] and various motility disorders. [14] Abdominal wall pain is also common and frequently mistaken for visceral pain. [15],[16] After ruling out common diseases by careful investigations, many patients are still undiagnosed and represent a major diagnostic challenge to the surgeon. [17] With the introduction of laparoscopic surgery, a new tool has been added to our knowledge. The use of this new technology in the diagnosis and management of chronic abdominal pain has been tried in previous studies. [18],[19],[20] Laparoscopy can identify abnormal findings and improve the outcome in a majority of patients with chronic abdominal pain, as it allows surgeons to see and treat many abdominal con-

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ditions that cannot be diagnosed otherwise. [4],[19] It is a safe and effective tool and can establish the etiology and allows for appropriate interventions in such cases. [21] Abdominal adhesions are the most likely findings, especially in patients with a past history of abdominal operations. [22] Other findings such as appendiceal pathology, hepatobiliary causes, and endometriosis can be discovered and dealt with. [18] However, the role of laparoscopy in chronic abdominal pain is still debated by some authors who deny its value in adhesiolysis and consider it controversial and not evidence-based, and therefore, do not recommend it as a treatment for adhesions in patients with chronic abdominal pain. [23],[24] In the present study we aim to evaluate the use of the laparoscope in the diagnosis and management of patients with chronic abdominal pain.

Materials and Methods

Between August 2014 and March 2016, a total number of 32 consecutive patients with chronic abdominal pain were enrolled in this prospective descriptive cross-sectional study. They were recruited from the Outpatient Clinic of the Surgery Department,Bowring and lady Curzon hospital,Bangalore. After approval of our Ethics Committee, all the patients underwent laparoscopic surgery for evaluation and management of their chronic abdominal pain. We defined chronic abdominal pain as a continuous or intermittent abdominal pain with daily intake of analgesics, and a duration of at least six months. [25],[26]

In all the patients, the pain was of unclear etiology, despite physical, laboratory, and radiographic evaluation. The patients who presented with acute abdominal pain were excluded from the study. Also patients with known abdominal malignancy, patients being treated by psychiatrists, patients under the age of 18 years,patients with large ventral hernia and pregnant lady were excluded.

All of the studied patients were subjected to a complete preoperative evaluation through a medical history and an abdominal examination to find out if there were any organic diseases of the alimentary tract or the abdomen. Special concern was given to any past history of abdominal operations. Associated symptomatology, such as vomiting, fever or abdominal distention, were noted and recorded. Routine preoperative laboratory investigations including coagulation profile and complete blood count were performed.Abdominal ultrasounds,computed tomographies, (CT),upper gastrointestinal endoscopies had been done in all patients which were included in our study.

Operative technique

The procedure was entirely performed with the patient under general anesthesia. If there was a previous upper midline incision or massive intra-abdominal adhesions were suspected, the Veress needle was passed through the abdominal wall in an area with no scars, most often in the left upper quadrant of the abdomen, a few centimeters below the costal margin. After establishment of the pneumoperitoneum, a reduced port technique was used(Three Port technique) (10-mm optic via umbilical trocar and two 5-mm lateral trocars). The whole abdominal cavity was inspected carefully starting from the liver, gallbladder, anterior surface of the stomach and spleen. With fine smooth graspers, these structures could be touched safely and elevated for further inspection. The small bowel was examined using these atraumatic graspers. It was inspected thoroughly from the ligament of Treitz to the ileocaecal valve, keeping in mind the fact that the loops with the large bit had to be grasped as much as possible to avoid the pinpoint fixation of the bowel with its perforation risk. The colon including the appendix was inspected in the same manner as the small bowel. Finally, the gynecological organs and peritoneal surfaces were inspected. If adhesions were seen between the intestinal loops and the abdominal wall or between the abdominal organs, they were dissected with a scissors in a vast majority of patients. Electrocautery was used mainly for hemostasis and as a dissection technique in few cases. The dissection was made close to the abdominal wall to avoid injury to the bowel loops.

Postoperative evaluation

After the laparoscopy, postoperative hospital stay was recorded. Standard Tramadol 50 mg was used for postoperative pain relief. All the patients were re-evaluated after two months, six months. The pain in the late postoperative period was classified into: worse, unchanged, less pain, and disappearance of pain. Less pain and disappearance of pain were referred to as positive outcomes, while unchanged and worse pains were referred to as negative outcomes.

Statistical analysis

Gathered data were processed using the SPSS version 15 (SPSS Inc., Chicago, IL, USA). A Student *t* test was used to test the significance of difference for quantitative variables, while Chi Square and Fisher's exact tests were used to test the significance of difference for qualitative variables. A probability value (*P*-value) < 0.05 was considered statistically significant.

Results

The studied patients were in the age group ranging from 22 - 68 years, with a mean age of 36 years. More than half of the patients studied were females (68.75%). The mean duration of pain was eight months with the range of duration from three to fifteen months. The most common site of pain was the periumbilical region (43.75%) followed by the right lower abdominal quadrant (25%). Twenty patients were using either non-steroidal drugs or pain killers to relieve the pain, and six patients were using proton pump inhibitors. Four patients had undergone at least one previous surgical abdominal procedure. All patients characteristics are in table.

Characters	Value
Age(Years) Mean Range	36(22-68)
Male	10
Female	22
BMI	28.1
Duration Of Pain(mean)	8 months
Site of pain:	14
Periumbilical	4
Righ upper quadrant	8
Right lower quadrant	3
Left upper quadrant	3
Left lower quadrant	

The average length of the operative time was 40.7 minutes with the range from 30 to 120 minutes. There were no cases converted to open procedures. Out the 32 patients with chronic abdominal pain, a definitive diagnosis

Volume : 6 | Issue : 8 | August 2016 | ISSN - 2249-555X | IF : 3.919 | IC Value : 74.50

was established in 30 patients (93.75%), while no identifiable cause could be reached in two patients (6.25%).

The most common laparoscopic findings were recurrent appendicitis (62.5%). Other findings included adhesions (12.5%), gall bladder pathology (6.25%), Tubo Ovarian mass(6.25%) and abdominal Tb(3.1). All patients with adhesions had undergone previous abdominal surgery. Twenty patients showed appendiceal pathology; 12 of them showed adhesions from the appendix to the adjacent structures and the other two showed thickened appendix and one of them showed meckels diverticultis in CECT but was found to be Chronic appendicitis. Histopathological Examination found all of them to be Chronic appenditis.

Laparoscopic management included appendectomy (20), adhesiolysis(4), cholecystectomy (3),Abdominal TB (1), Tubo Ovarian mass(2).

Fig: Haemorrhagic Ovarian Cyst found in one of the patient which was not reported in CECT.

Postoperative hospital stay ranged from two to seven days with a mean of 3.6 days. No postoperative complications had been reported nor wound infection.

During the time of follow up, all patients were re-evaluated for pain. After two months, positive outcome (less pain or disappearance of pain) was achieved in 26 patients (81.25%) and 28 patients (87.5%) after six months.

Discussion:

Chronic idiopathic pain syndromes are among the most challenging and demanding conditions to treat across the whole age spectrum. Potentially it can be unrewarding for both the patients and the medical team. [27] Studies conducted with large community samples or hospital populations imply chronic abdominal pain is a pervasive problem. Abdominal pain was the third most common pain complaint of individuals enrolled in a large health maintenance organisation. [28]

All patients included in the study had chronic abdominal pain, and they were subjected to laparoscopic evaluation after exclusion of all organic causes of the pain by radiographic and laboratory tests.

A majority of patients were found to have Chronic appendicitis with adhesions to surrounding structures. However, a significant number were found to have a variety of other conditions to which their pain could be attributed, while a less number were found to have no clear pathology, during laparoscopy. The overall outcome in this series was positive; most of the patients found significant relief from their chronic pain, postoperatively. The use of laparoscopy in patients with ill-defined chronic abdominal pain remains controversial.[19] While we and others [4],[18],[26] have found that most patients with chronic abdominal pain had intra-abdominal adhesions and they responded well to laparoscopic adhesiolysis, Ikard [23] has questioned whether laparoscopic adhesiolysis was beneficial and has suggested that it may not be safe. He stated that adhesions do not cause pain unless they are obstructing and in such cases; the laparoscopic approach cannot provide adequate exposure to the abdomen and may be dangerous.

Whether laparoscopic adhesiolysis is preferable to laparotomy or not is a matter of debate. Some authors [19] believe that adhesions can be elusive to even the most sophisticated imaging studies, while others [29] state that the laparoscopic approach for adhesiolysis is safe, feasible, and offers the advantages of decreased length of stay, faster return to full activity, and decreased morbidity. This debate is also evident in the experimental studies, where Luciano *et al*.[30] have found laparoscopic adhesiolysis effective and associated it with a lesser extent of adhesion recurrence, while Prushik *et al*. [31] have found that open adhesiolysis is more beneficial in minimising adhesion reformation.

Similar to the study donr by Salky and Edye, [18] we have found a high incidence of chronic appendicitis in this study. We found that in a selected patient group, laparoscopic evaluation of chronic abdominal pain is usually associated with a positive outcome (81%) in terms of less or no pain, after two months of laparoscopy, 87.5% of the patients, after six months respectively. However, the role of laparoscopy from the therapeutic point of view is still ignored by some authors, especially its role in adhesiolysis. [23],[24]

In conclusion, laparoscopy has an effective diagnostic role in evaluating patients with chronic abdominal pain, in whom conventional methods of investigations have failed to elicit a certain cause without any significant complication and less operative time. Being minimally invasive, laparoscopy has solved the problem of delay in the definite diagnosis and has led to considerable reduction in the number of negative exploratory laparotomies. It has also significantly reduced the number of investigation that these patients are subjected to, days of hospital stay, which leads to substantial reduction in the cost of the treatment.The therapeutic value of laparoscopy is also accepted and appreciated.

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Volume : 6 | Issue : 8 | August 2016 | ISSN - 2249-555X | IF : 3.919 | IC Value : 74.50

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