

Role of Diagnostic Laparoscopy in Chronic Abdominal Pain

Zaffar K Sayed¹, Radha A Verma², Kumar Premjeet Madhukar³, Amogh R Vaishampayan³, Mugdha S Kowli¹, Chirag Vaja¹

¹Resident, Department of General Surgery, K. J. Somaiya Hospital and Research Centre, Somaiya Ayurvihar, Eastern Express Highway, Sion, Mumbai, Maharashtra, India, ²Professor and Head of Unit, Department of General Surgery, K. J. Somaiya Hospital and Research Centre, Somaiya Ayurvihar, Eastern Express Highway, Sion, Mumbai, Maharashtra, India, ³Lecturer, Department of General Surgery, K. J. Somaiya Hospital and Research Centre, Somaiya Ayurvihar, Eastern Express Highway, Sion, Mumbai, Maharashtra, India

Abstract

Background: Diagnostic laparoscopy has got a considerable impact in managing patients with chronic abdominal pain, with efficacy of >80% in various studies. In our study, also it was possible to achieve definitive diagnosis in 49 (89.1%) patients. It led to initiation of appropriate treatment in this difficult patient group and pain response in terms of positive outcome (relief/reduction of pain after diagnostic laparoscopy) was seen in 92.2% of the patients.

Patients and Methods: Our study included 55 patients with a history suggestive of chronic abdominal pain of 3 months or more duration with unremarkable clinical examination, basic investigations within normal limits, and unyielding imaging studies. Outcome measured included the overall efficacy of diagnostic laparoscopy in finding a cause of chronic abdominal pain; diagnosis made and response to pain after 3 months of procedure.

Results: In our study, we achieved definitive diagnosis in 49 (89.1%) patients. It led to initiation of appropriate treatment in this difficult patient group and pain response in terms of positive outcome (relief/reduction of pain after diagnostic laparoscopy) was seen in 92.2% of patients.

Conclusion: Diagnostic laparoscopy is a better, relatively cost-effective, and efficient method of establishing the diagnosis in patients with chronic abdominal pain.

Key words: Chronic abdominal pain, Diagnostic laparoscopy, Pain relief

INTRODUCTION

Chronic abdominal pain is one of the common presentations, in general, surgical practices. In spite being subjected to myriad of tests, almost 40% of patients remain undiagnosed at the end of it.^{1,4} Abdominal pain of longer duration is associated with poor quality of life⁵ and significant levels of depressive symptoms.⁶ The most common organic conditions include intestinal adhesions,^{7,8} especially in patients with a past history of abdominal operations, abdominal tuberculosis,⁹ appendicular pathology, biliary

causes, mesenteric lymphadenopathy (could also be due to infectious causes of bowel such as colitis, gastroenteritis or enteric fever apart from tuberculosis), and hernia; while functional conditions include irritable bowel disease, functional dyspepsia, and various motility disorders. Abdominal wall pain is also common and frequently mistaken for visceral pain.^{10,11} Despite investigations such as ultrasonography, computed tomography scan, etc., it is difficult to reach to an accurate diagnosis and represent a major diagnostic challenge to the surgeon.¹²

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 earlier by the various author.^{13,14} 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 conditions that cannot be diagnosed

Access this article online



www.ijss-sn.com

Month of Submission : 05-2015
Month of Peer Review : 06-2015
Month of Acceptance : 07-2015
Month of Publishing : 07-2015

Corresponding Author: Dr. Mugdha S Kowli, Flat No. 1003-04, 10th Floor, Salvation Apartments C.H.Sc., Plot No. 857-B, N.M. Kale Marg, Dadar (West), Mumbai - 400 028, Maharashtra, India. Phone: 9833445156. E-mail: mugdha.kowli@gmail.com

otherwise.^{4,15} It is a safe and effective tool, which can establish the cause and allows for appropriate interventions in such cases.¹⁶ 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.^{17,18} Laparoscopic surgery has modified the management of many surgical diseases.¹⁹ Diagnostic laparoscopy is now accepted as the preferred primary approach to many disease processes.²⁰

The purpose of this study was to examine and analyze the data collected from a group of patients with chronic abdominal pain to support diagnostic laparoscopy as a primary intervention in similar patients.

Aim

The aim of this study was to assess the utility of performing diagnostic and therapeutic laparoscopy in patients with chronic abdominal pain.

Objectives

- To study the outcome of diagnostic laparoscopy in terms of pain response on follow-up after 3 months of the procedure.
- To find out the efficacy of diagnostic laparoscopy in patients with chronic abdominal pain.

PATIENTS AND METHODS

This study is a descriptive cross-sectional study, which included 55 consecutive patients over a period of 3 years (January 2011 to December 2013) presenting with a history of abdominal pain for 3 or more months. After detailed history from patients and thorough clinical examination, the findings were recorded in the proforma. Basic investigations were done for the patient. Based on the clinical examinations and imaging studies patients were subjected to diagnostic laparoscopy and the necessary surgical methods were employed as per the etiology after taking informed valid written consent. This study also included patients who were admitted to the hospital with a history of chronic abdominal pain for more than 3 months duration with the unremarkable clinical examination, laboratory and imaging studies, and underwent diagnostic laparoscopy. Patients were followed up at regular intervals post-discharge and then 3 months after the procedure. Subjective assessment of pain was done by asking the patients, what occurred to their pain, relief, reduced or no change. The findings and outcomes of laparoscopy were recorded and analyzed. Outcome measured included the overall efficacy of diagnostic laparoscopy in finding a

cause of chronic abdominal pain, diagnosis made, post-operative complications, response to pain after 3 months of procedure.

RESULTS

The efficacies of various studies reported in the literature in arriving at a diagnosis are >80% giving an indication that diagnostic laparoscopy has got a considerable impact on managing patients with chronic abdominal pain. In our study, also it was possible to achieve definitive diagnosis in 49 (89.1%) patients. It led to initiation of appropriate treatment in this difficult patient group and pain response in terms of positive outcome (relief/reduction of pain after diagnostic laparoscopy) was seen in 92.2% of the patients (while calculating the pain response (relief/reduction/persistent) out of 55, 51 patients were considered because 2 patients were lost to follow-up and 2 patients expired before follow-up).

In our study, the incidence of chronic abdominal pain was 83.6% in the age group from 13-40. The analysis of pain response in patients shows that the association between age group and pain response is not statistically significant. Our study also showed that chronic abdominal pain is a common problem among the female population with incidence being 85.5%. Patients presented with varied duration of pain ranging from minimum of 4 months in 7 patients (12.7%) to 24 months in 1 patient (1.8%) with mean duration of pain being 8.6 ± 4.2 months. The most common location of pain in the abdomen in our study was right lower quadrant seen in 19 patients (34.5%) followed by diffuse pain in 14 patients (25.5%). The most frequent operative findings were adhesions noted in 43.6% of the patients in our study, and no abnormality was detected in 9.1% of cases (Table 1). The history of previous abdominal surgery was present in 30 patients (54.5%) and not surprisingly, in 21 out of 30 patients, i.e., (70%) adhesions were found. It was observed in our study that most patients with abdominal pain with intra-abdominal adhesions respond well to laparoscopic adhesiolysis. Thus, the most common diagnosis in our study was adhesions due to previous abdominal surgery. The second most common cause of the chronic abdominal pain was abdominal tuberculosis diagnosed in 12 (21.8%) patients. Such high incidence of abdominal tuberculosis during diagnostic laparoscopy is an indirect evidence of it being common in developing a country like India. In our study, 49 (89.1%) patients had pathological findings identified at the time of laparoscopy.

Diagnostic laparoscopy was extended, and therapeutic interventions were carried out based on the findings

obtained on diagnostic laparoscopy to achieve a cure. Various therapeutic interventions that were carried out to achieve cure included Adhesiolysis (43.6%), Appendectomy (14.5%), Cholecystectomy (1.8%), Cyst aspiration (1.8%), Laparoscopic transabdominal pre-peritoneal hernia repair (1.8%). Thus, in overall 63.5% patients, therapeutic interventions were carried out in our study. Therapeutic interventions were carried out in 33 patients (64.7%) out of 51 and 31 patients (93.9%) gave history of positive response with 2 patients having persistent pain at the time of follow-up after 3 months (Table 2).

Relief of pain was noted in 41 patients (80.4%), 6 patients (11.8%) had reduced pain after diagnostic laparoscopy with overall positive response to pain in 85.4% of patients in our study (Table 3).

In our study, five patients had a negative diagnostic laparoscopy and free fluid was found in pelvis of one

patient, which was aspirated and sent for analysis. However, the fluid analysis was normal and hence in all six patients (10.9%) were observed to have no cause/pathology attributable to their chronic abdominal pain, and they were labeled as Idiopathic chronic abdominal pain. However, four out of these six patients (66.6%) responded positively after diagnostic laparoscopy.

DISCUSSION

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.^{17,18} Diagnostic laparoscopy makes it possible for the surgeon to visualize surface anatomy of intra-abdominal organs with greater details better than any other imaging modality. However, laparoscopy has got its own limitations such as non-visualization of deep parenchymal organs, processes of retroperitoneal space and the inner surface of hollow organs, and not allowing the surgeon to palpate the organs.²¹ Idiopathic chronic abdominal pains are among the most challenging and demanding conditions to treat across the whole age spectrum. Potentially it can be unrewarding for both patients and the medical team. Studies conducted with large community samples or hospital populations imply chronic abdominal pain is a pervasive problem. Abdominal pain was the third most common complaints of individuals enrolled in a large health maintenance organization.²¹ All patients included in this study had chronic abdominal pain, they were subjected to laparoscopic evaluation after exclusion of all organic causes of the pain by detailed history, complete clinical examination, laboratory tests, radiographic evaluations, and upper gastrointestinal or

Table 1: Showing distribution of operative findings on diagnostic laparoscopy

Operative findings	No. of patients	Percentage
Abdominal tuberculosis	8	14.5
Adhesions due to congenital bands	2	3.6
Free fluid	1	1.8
Inflammatory adhesions	1	1.8
Inflamed appendix	8	14.5
Post-op adhesions	21	38.2
Left indirect inguinal hernia	1	1.8
Mesenteric lymphadenopathy	3	5.4
Mesenteric lymphadenopathy+free fluid	3	5.4
Right ovarian cyst	1	1.8
Thickened gall bladder wall+dense adhesions	1	1.8
No abnormality detected	5	9.1
Total	55	100.0

Table 2: Showing final diagnosis, efficacy achieved and positive outcome

Diagnosis	Operative findings	Treatment	No. of patients (%) n=51	Positive outcome
Abdominal tuberculosis	Abdominal tuberculosis Mesenteric lymphadenopathy Mesenteric lymphadenopathy+free fluid	ATT	12 (23.5)	10 (83.3)
Adhesions	Adhesions due to congenital bands Inflammatory adhesions Post-op adhesions	Adhesiolysis	24 (47.0)	22 (91.6)
Recurrent appendicitis	Inflamed appendix	Appendectomy	8 (15.6)	6 (75.0)
Left indirect inguinal hernia	Left indirect inguinal hernia	Trans-abdominal pre-peritoneal hernia repair	1 (1.9)	1 (100.0)
Colitis/gastroenteritis/enteric fever	Mesenteric lymphadenopathy Mesenteric lymphadenopathy+free fluid	Conservative	2 (3.9)	2 (100.0)
Right ovarian cyst	Right ovarian cyst	Cyst aspiration	1 (1.9)	1 (100.0)
Acalculous cholecystitis	Thickened gall bladder wall+dense adhesions	Cholecystectomy	1 (1.9)	1 (100.0)
Idiopathic chronic abdominal pain	No abnormality detected Free fluid	Conservative	6 (11.7)	4 (66.6)

lower gastrointestinal endoscopy were applicable. The study confirmed that in this difficult patient group, laparoscopy could safely identify abnormal findings and can improve the outcome in a majority of cases. The subjective benefit of laparoscopy for both the operating surgeons and for the patients is the definitive answers that no serious pathology is found intra-abdominally. Therefore, the placebo effect of laparoscopy may explain at least partly the patient's pain relief.²²

These studies prove beyond doubts that diagnostic laparoscopy can be considered as an option in patients with chronic abdominal pain (Table 4). Based on the findings of above studies it is also clear that early diagnostic laparoscopy can prevent the delay in the arrival at a definite diagnosis and institution of appropriate treatment. The efficacies of these studies were >80% giving an indication that diagnostic laparoscopy has got a considerable impact in managing this difficult group of patients. The overall positive outcome seen in the above-mentioned studies after diagnostic laparoscopy compare favorably with the results obtained by us. Hence, it can be concluded that it 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. The therapeutic value of diagnostic laparoscopy is also accepted, well-appreciated, and it cannot be underestimated. 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 these patients are subjected to, days of hospital stay, which leads to substantial reduction

in the cost of the treatment. Diagnostic laparoscopy also solves the problem of dissatisfaction of both the surgeon and the patient which is one of the main issues in the management of these patients.

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. The therapeutic value of diagnostic laparoscopy is also accepted, well-appreciated, and it cannot be underestimated. 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. Diagnostic laparoscopy also solves the problem of dissatisfaction of both the surgeon and the patient, which is one of the main issues in the management of these patients.

REFERENCES

1. Camilleri M. Management of patients with chronic abdominal pain in clinical practice. *Neurogastroenterol Motil* 2006;18:499-506.
2. Townsend CO, Sletten CD, Bruce BK, Rome JD, Luedtke CA, Hodgson JE. Physical and emotional functioning of adult patients with chronic abdominal pain: Comparison with patients with chronic back pain. *J Pain* 2005;6:75-83.
3. McGarrity TJ, Peters DJ, Thompson C, McGarrity SJ. Outcome of patients with chronic abdominal pain referred to chronic pain clinic. *Am J Gastroenterol* 2000;95:1812-6.
4. Paajanen H, Julkunen K, Waris H. Laparoscopy in chronic abdominal pain: A prospective nonrandomized long-term follow-up study. *J Clin Gastroenterol* 2005;39:110-4.
5. Ferrell BR. The impact of pain on quality of life. A decade of research. *Nurs Clin North Am* 1995;30:609-24.
6. Magni G, Rossi MR, Rigatti-Luchini S, Merskey H. Chronic abdominal pain and depression. Epidemiologic findings in the United States. *Hispanic health and nutrition examination survey. Pain* 1992;49:77-85.
7. Peters AA, Van den Tillaart SA. The difficult patient in gastroenterology: Chronic pelvic pain, adhesions, and sub occlusive episodes. *Best Pract Res Clin Gastroenterol* 2007;21:445-63.
8. van Goor H. Consequences and complications of peritoneal adhesions. *Colorectal Dis* 2007;9:25-34.
9. Arya PK, Gaur KJ. Laparoscopy: A tool in the diagnosis of lower abdominal pain. *Indian J Surg* 2004;66:216-20.
10. Lindsetmo RO, Stulberg J. Chronic abdominal wall pain – A diagnostic challenge for the surgeon. *Am J Surg* 2009;198:129-34.
11. Costanza CD, Longstreth GF, Liu AL. Chronic abdominal wall pain: Clinical features, health care costs, and long-term outcome. *Clin Gastroenterol Hepatol* 2004;2:395-9.
12. Galili O, Shaoul R, Mogilner J. Treatment of chronic recurrent abdominal pain: Laparoscopy or hypnosis? *J Laparoendosc Adv Surg Tech A* 2009;19:93-6.
13. Salky BA, Edey MB. The role of laparoscopy in the diagnosis and treatment of abdominal pain syndromes. *Surg Endosc* 1998;12:911-4.
14. Klingensmith ME, Soybel DI, Brooks DC. Laparoscopy for chronic abdominal pain. *Surg Endosc* 1996;10:1085-7.

Table 3: Showing pain response after diagnostic laparoscopy

Pain response (follow-up after 3 months)	No. of patients	Percentage
Relief	41	80.4
Reduced	6	11.8
Persistent	4	7.8
Total	51	100.0

Table 4: Showing comparison of diagnostic efficacy of laparoscopy in various studies

Study	Efficacy (%)	No. of cases	Year of study	Outcome (pain response) (%)
Miller <i>et al.</i> ²³	89.8	59	1996	89.3
Salky and Edey ¹³	76	265	1998	-
Raymond <i>et al.</i> ¹⁶	85.7	70	2003	71.4
Moussa and Mahfouz ²⁴	78.6	56	2004	80.2
El-Labban and Hokkam ²⁵	83.3	30	2010	80
Tulaskar <i>et al.</i> ²²	82.8	35	2013	81.8
Present study	89.1	55	2014	92.2

15. Mueller MD, Tschudi J, Herrmann U, Klaiber C. An evaluation of laparoscopic adhesiolysis in patients with chronic abdominal pain. *Surg Endosc* 1995;9:802-4.
16. Onders RP, Mittendorf EA. Utility of laparoscopy in chronic abdominal pain. *Surgery* 2003;134:549-52.
17. Ikard RW. There is no current indication for laparoscopic adhesiolysis to treat abdominal pain. *South Med J* 1992;85:939-40.
18. Swank DJ, Swank-Bordewijk SC, Hop WC, van Erp WF, Janssen IM, Bonjer HJ, *et al.* Laparoscopic adhesiolysis in patients with chronic abdominal pain: A blinded randomised controlled multi-centre trial. *Lancet* 2003;361:1247-51.
19. Yousaf M, Hosuy MA. Small bowel obstruction after laparoscopic inguinal hernia repair. *J Coll Physicians Surg Pak* 2001;11:721-2.
20. Graham A, Henley C, Mobley J. Laparoscopic evaluation of acute abdominal pain. *J Laparoendosc Surg* 1991;1:165-8.
21. Von Korff M, Dworkin SF, Le Resche L, Kruger A. An epidemiologic comparison of pain complaints. *Pain* 1988;32:173-83.
22. Tulaskar N, Nichkode P, Dasgupta S, Choudhary A, Zamad R, Panchbhai K, *et al.* Evaluation of role of laparoscopy in chronic abdominal pain. *Int J Bio Med Res* 2013;4:3230-3.
23. Miller K, Mayer E, Moritz E. The role of laparoscopy in chronic and recurrent abdominal pain. *Am J Surg* 1996;172:353-6.
24. Moussa GI, Mahfouz AE. Role of laparoscopy in the management of unexplained chronic abdominal pain. *Egypt J Surg* 2004;23:22.
25. El-Labban GM, Hokkam EN. The efficacy of laparoscopy in the diagnosis and management of chronic abdominal pain. *J Minim Access Surg* 2010;6:95-9.

How to cite this article: Sayed ZK, Verma RA, Madhukar KP, Vaishampayan AR, Kowli MS, Vaja C. Role of Diagnostic Laparoscopy in Chronic Abdominal Pain. *Int J Sci Stud* 2015;3(4):31-35.

Source of Support: Nil, **Conflict of Interest:** None declared.