

Efficacy of Diagnostic Laparoscopy in Undiagnosed Chronic Abdominal Pain

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Abstract

Patients with chronic abdominal pain are the most difficult to diagnose and treat. Potentially it can be unrewarding for both patients and treating physician. 1. Thereby affecting patients both physically and mentally. Chronic abdominal pain is associated with poor quality of life 2 and onset of depressive symptoms. 3 Most patients in this group have already undergone numerous diagnostic procedures, including upper and lower gastrointestinal endoscopies, Ct scans, screening for undetected carcinomas, apart from routine blood investigations. This is the time when surgeon is approached, when all other non-invasive investigations have failed to reach a satisfying conclusion. Clearly diagnostic laparoscopy is an important intermediate option between refusing to explore a patient's abdomen and performing laparotomy 4. Diagnostic Laparoscopy with advances in optics gives perfect visual of whole abdomen and further gives therapeutic advantages as well, which includes target biopsies, staging of cancers, various gynaecological pathologies. Laparoscopy is as much a surgical procedure as an exploratory laparotomy, often just as informative, and to a skilled laparoscopic surgeon afford a better view of entire peritoneal cavity than usual exploratory laparotomy. To achieve a high rate of positive diagnosis from laparoscopy requires much more than trained hands, it requires thorough background of surgery, sound clinical knowledge and perception of

abdominal pathologies. Most importantly it avoids unnecessary negative laparotomy in many cases. Moreover early recovery and ambulation of patients helps them get back to daily chores and is source of delight for treating doctor.

Keywords: Diagnostic Laparoscopy; Chronic Abdominal Pain

Introduction

Patients with chronic abdominal pain are the most difficult to diagnose and treat. Potentially it can be unrewarding for both patients and treating physician [1]. Thereby affecting patients both physically and mentally. Chronic abdominal pain is associated with poor quality of life [2] and onset of depressive symptoms [3].

Most patients in this group have already undergone numerous diagnostic procedures, including upper and lower gastrointestinal endoscopies, Ct scans, screening for undetected carcinomas, apart from routine blood investigations.

This is the time when surgeon is approached, when all other non-invasive investigations have failed to reach a satisfying conclusion. Clearly diagnostic laparoscopy is an important intermediate option between refusing to explore a patient's abdomen and performing laparotomy [4]. Diagnostic Laparoscopy with advances in optics gives perfect visual of whole abdomen and further gives therapeutic advantages as well, which includes target biopsies, staging of cancers, various gynaecological pathologies. Laparoscopy is as much a surgical procedure as an exploratory laparotomy, often just as informative, and to a skilled laparoscopic surgeon afford a better view

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of entire peritoneal cavity than usual exploratory laparotomy. To achieve a high rate of positive diagnosis from laparoscopy requires much more than trained hands, it requires thorough background of surgery, sound clinical knowledge and perception of abdominal pathologies. Most importantly it avoids unnecessary negative laparotomy in many cases. Moreover early recovery and ambulation of patients helps them get back to daily chores and is source of delight for treating doctor.

Aims of the Study

To evaluate the efficacy of Diagnostic Laparoscopy in recognising the aetiology of undiagnosed chronic abdominal pain.

Objectives of the Study

- To establish that laparoscopy can also be used as an effective therapeutic modality for patients with chronic abdominal pain.
- To study various causes for chronic abdominal pain using laparoscopy.

Methodology

Materials and Methods

The material for this study was obtained from patients admitted to general surgical wards of Adichunchanagiri institute of Medical Sciences. Study group comprises of 50 patients of undiagnosed chronic abdominal pain for duration of 3 months or more between period of July 2015- October 2016. Detailed clinical history, standard clinical evaluation followed by routine blood investigations was done. A proforma for the same was prepared which included any previous h/o abdominal surgery, therapeutic intervention done, association of intra-op findings with histopathology report, complications, post-op pain relief period. Consent for the various procedures and imaging modalities was taken initially.

Inclusion Criteria

- All the cases of undiagnosed (by conventional methods and investigations i.e. history, clinical examination, blood/urine routine, USG, plain x-ray abdomen) chronic abdominal pain >3 months duration of both sex.
- All cases of undiagnosed chronic abdominal pain in patients >14 years of age

- Cases of clinically diagnosed cases of chronic abdominal pain of >3 months duration not responding to treatment.
- All the cases with history of previous abdominal surgery.

Exclusion Criteria

- All the cases of undiagnosed chronic abdominal pain <3 months duration of both sex.
- All cases of undiagnosed chronic abdominal pain in patients <14 years of age.

All the surgeries were conducted under general anaesthesia. Ryles tube was inserted, along with bladder being catheterised for all the patients prior to anaesthesia.

Pneumoperitoneum was created by Hassan's technique. A 10 mm umbilical camera port was inserted and 2 lateral 5mm ports depending on the area to be visualised and suspected pathology and depending upon presence of any previous abdominal surgery scars. Surgical procedures/ interventions (biopsy of suspicious lesions, adhesiolysis, appendectomy) were done on basis of intra operative findings and indications. All the ports were closed with absorbable suture materials at the end of procedure.

Observations

Age Distribution

Our study of 50 patients with chronic pain abdomen showed peak incidence of chronic pain abdomen in 3rd decade. The youngest patient in our study was 15 years old and oldest being 69 years old. The mean age of presentation was 35 years.

Sex Distribution

Our study of 50 patients shows female preponderance (66%) with chronic abdominal pain.

51% of patients in our study gave history of pain abdomen of duration between 18-36 months.

About 37.14% of patients presented with pain in the periumbilical region followed by diffuse pain abdomen reported in 34.8% patients.

Around 31 patients (62.85%) in our study had undergone a previous surgery compared to 19 (37.14%) of them without any history of abdominal surgeries. Most of the patients had previous history of tubectomy with subsequent adhesions.

In our study of 50 patients the most common finding was post operative adhesions, in 36% patients. Most of the patients of this group were females and had a past history of abdominal surgery, tubectomy. Adhesiolysis was done in all these patients.

The next most common finding in our study was Normal study (17.14%). These patients were just observed and followed up.

Recurrent appendicitis was our per operative diagnosis in 14.28% of our patients. The appendices felt firm to palpate per operatively. Appendectomy was done in such patients. Subsequent histopathological examination confirmed our diagnosis in most of the cases. We did laproscopic cholecystectomy for of our patients which was confirmed on HPE. 2 patients were diagnosed with carcinoma per operatively. One of them being carcinoma pancreas and other had peritoneal

deposits whose biopsy turned out to be adenocarcinoma. Mesenteric lymph node biopsy was done in 1 patient.

Diagnosis of tubercular stricture was made in 1 patient. This patient underwent resection and anastomosis of long segment stricture and stricturoplasty for another short segment by open method. Post operatively ATT was started and patient was followed up. HPE confirmed tuberculosis. In 4(8.01%) of patients peritoneal and omental nodules (<5mm) were found which came out to be tuberculous nodules on HPE.

Around 10% of cases i.e 5 patients in the current study were diagnosed with gynaecological diseases including corpus luteal cysts, Pcod, Endometriosis, chronic ectopics. Gynaecological opinion was taken in all these cases.

Table 1: Age distribution of patients presenting with chronic pain abdomen

Age (in years)	No. of Patients	Percentage (%)
15-30	23	45.71
31-40	10	20
41-50	13	25.71
51-60	3	5.71
61-70	1	2.85
Total	50	100

Table 2: Sex distribution of patients with chronic abdomen pain

Sex	No. of Cases	Percentage (%)
Male	17	34.28
Female	33	65.71

Table 3: Duration of pain before Laproscopy

Duration of pain (months)	No. of Cases	Percentage (%)
3-12	17	34.28
12-18	04	8.57
18-36	26	51.42
>36	03	5.71

Table 4: Location of pain

Region of the pain	No. of Cases	Percentage (%)
Upper Abdomen	09	17.14
Peri Umbilical	19	37.14
Lower Abdomen	05	11.42
Diffuse Abdomen	17	34.28

Table 5: History of previous abdominal surgeries

H/O surgery	No. of Cases	Percentage (%)
Present	31	62.85
Absent	19	37.14

Table 6: Findings at laparoscopy and interventions done

Diagnosis	Procedure	No. of Patient	Percentage
Post operative adhesions	Adhesiolysis	18	36.00
Normal study	No intervention	09	17.41
Recurrent appendicitis	Appendicectomy	07	14.28
Chronic cholecystitis	Cholecystectomy	03	5.71
Carcinoma	Biopsy	02	4.00
Mesenteric- Lymphadenopathy	Biopsy	01	2.85
Tuberculosis (peritoneum,omentum)	Biopsy+Cat1+ATT	04	8.00
Tuberculosis (strictures)	Resection& Anastomosis+ CAT 1+ ATT	01	2.85
Gynaecological etiology	No intervention	05	10.00

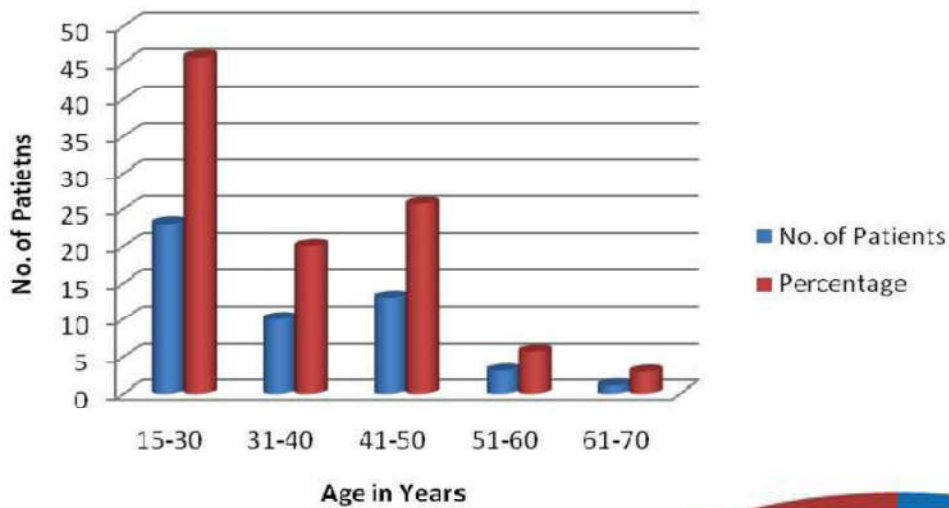
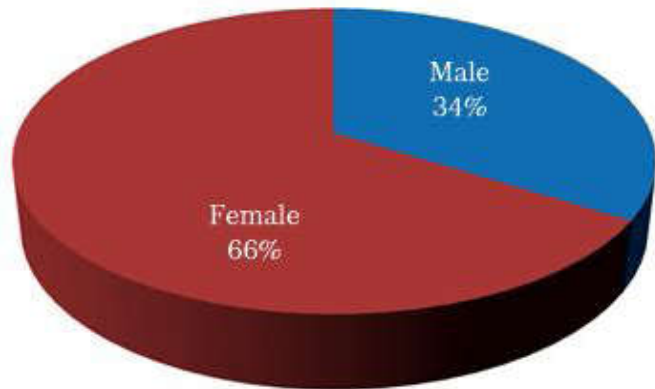


Fig. 1:

Fig. 2:



Duration of pain before laproscopy

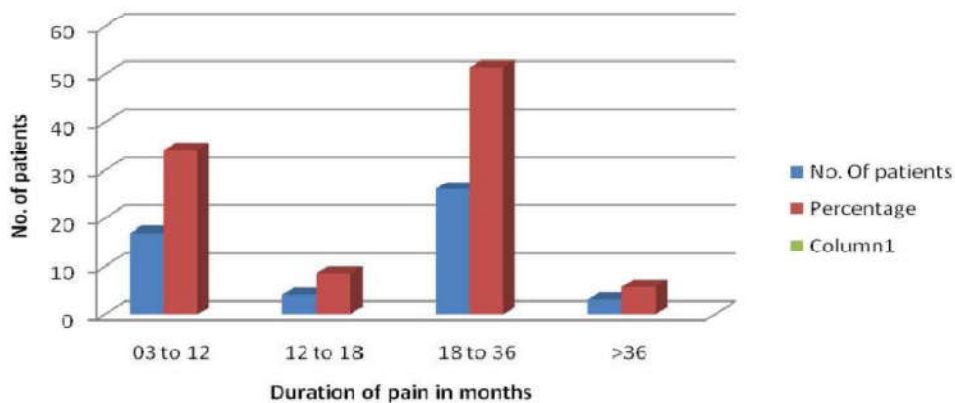


Fig. 3:

Fig. 4:

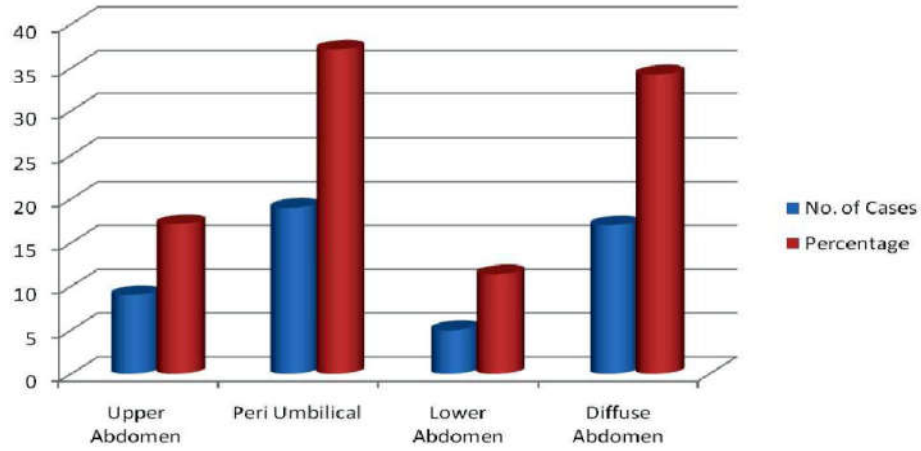
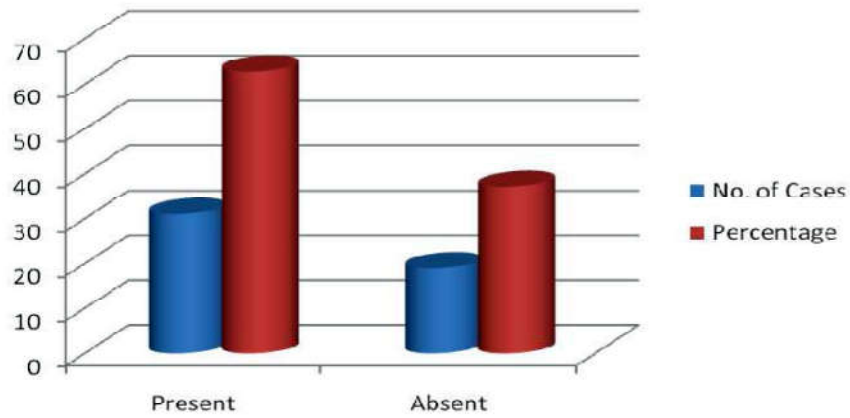


Fig. 5:



Pre op Diagnosis

Fig. 6:

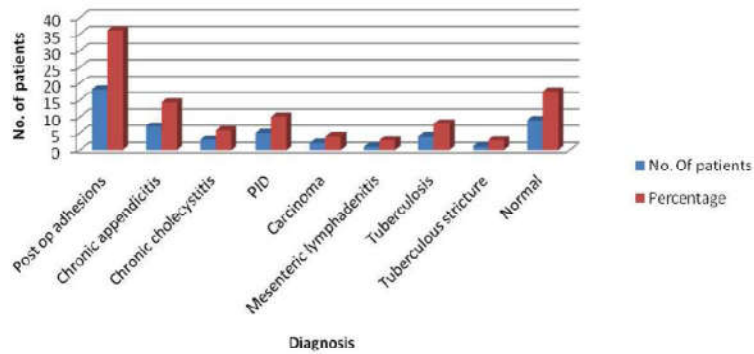
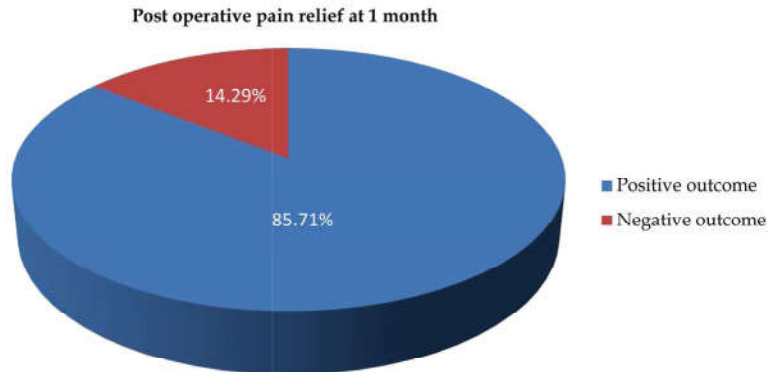


Fig. 7:



Morbidity

In most of our the cases there was no post operative complications except in three patients who developed surgical site infections which was managed conservatively with antibiotics and alternate day wound dressings. No mortality was encountered in our study.

Duration of Hospital Stay

Post operative hospital stay ranged from 4-11 days with a mean duration of stay of 5.5 days.

Duration of Procedure

The average time taken foe operative procedure

was 67.14 minutes and one patient required conversion to open procedure (due to technical difficulties).

Follow Up

During the follow up period, all the patients were re evaluated for pain.

Review was done at one month and three months post operatively. Subjective assessment of pain was done, positive outcome (pain reduced/ disappeared) and negative outcomes (persistence of pain/ worsened) were noted. 5 patients could not be followed up.

Table 7:

Duration	Positive outcome (%)	Negative outcome (%)
At 1 month	85.71	14.29
At 3 months	70	30

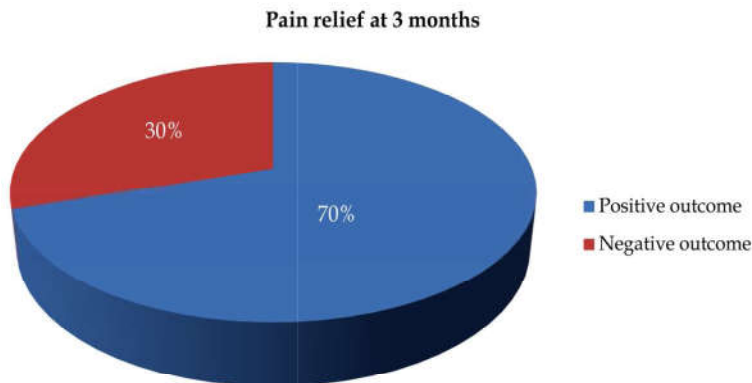


Fig. 8:



Fig. 1:

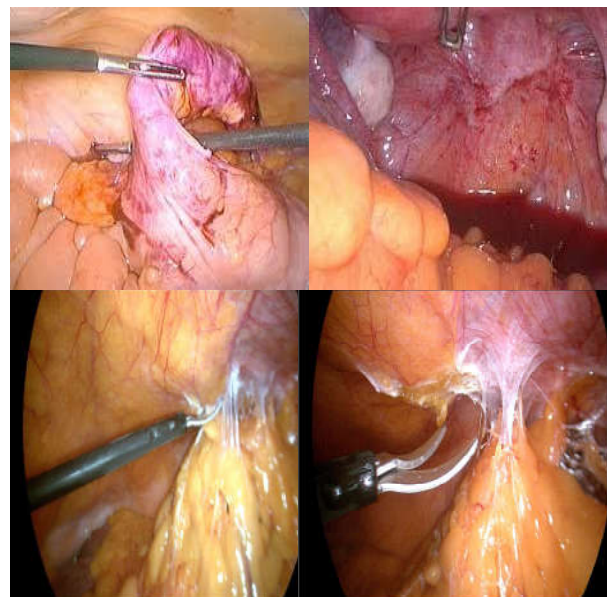


Fig. 2:

Table 8: Comparison of average ice incidence

Study	Average
Klingensmith et al ⁵	39
Thanaponsathron et al ¹²	27.5
Raymond et al ⁸	42
Gouda M El- Labban and Emad N Hokkam ¹³	36
Present study	35

Table 9: Comparison of past history of abdominal surgeries

Study	No. of patients with prior surgery(%)
Gouda M El-Labban and Emad N Hokkam ¹³	56.6
Kinnaresh Ashwin Kumar Baria ¹⁴	22
Present study	62.28

Table 10: Comparison of patients with adhesions

Study	No. of patients with adhesions (%)
Lavonius M et al ⁷	63
KlingensmithM et al ⁵	56
Present study	36

Table 11: Comparison of patients with normal study at laparoscopy

Study	Normal study (%)
Salky B et al ⁶	24
Kinnaresh Ashwin Kumar Baria ¹⁴	10
Vander Van et al ¹⁵	23
Klingensmith et al ⁵	26
Onders RP and Mittendorf EA ⁸	14.2
Present study	17.14

Table 12:

Study	No. of patients	Percentage (%)
Raymond P et al ⁸	70	85.7
Karl Miller et al ¹⁰	59	89.8
Klingensmith et al ⁵	34	65
Schrenk P et al ¹⁷	92	87
Kinnaresh Ashwin Kumar Baria ¹⁴	50	90
Andeallo B et al ¹⁸	168	86.3
Salky B et al ⁶	265	76
Gouda M El Labban & EMad N ¹³	30	83.3
Present study	30	82.85

Table 13: Therapeutic efficacy of diagnostic laparoscopy

Study	No. of patients	Efficacy (%)
Klingensmith et al ⁵	34	73
Vafa Shayani et al ¹⁹	18	77.8
Miller K et al ¹⁰	59	89.3
Kinnaresh Ashwin Kumar Baria ¹⁴	50	94
Chao K et al ²⁰		
Onders P et al ⁸	41	78
Paajnen et al ¹¹	70	70
Present study	35	>70
	50	70

Discussion

The aim of our study was to study efficacy of diagnostic laparoscopy as an investigative, therapeutic modality in diagnosis and management of patients with chronic abdominal pain, for which prospective study of 50 patients with duration of pain more than 3 months who were admitted in surgical wards of our hospital Adichunchanagiri institute of medical sciences was done.

Age and Sex Incidence

There were 17 males and 33 female patients in the study. The age group of patients in this study ranged from 15-69 years with mean age being 35 years. Male:Female ratio was 1:1.9.

In study involving 34 patients by Klingensmith et al [5] the majority were females (85%). The average age in this study was 39 years.

In study Thanaponsathron et al [12], of 30 patients with chronic right lower quadrant pain, the average age was 27.5 years.

In study Raymond et al [8] for utility laparoscopy in chronic abdominal pain involving 70 patients, average age 42 years.

In study by Gouda M El- Labban and Emad N Hokkam [13] involving 30 patients, average age of presentation was 36 years.

All the above studies show that female sex was commonly afflicted by chronic pain abdomen and average age of presentation was similar.

Pain Duration

In our study duration of pain ranged from 3 months to 3 years. In study of Raymond et al [8,9] of 70 patients, duration of pain ranged from 3 months to 5 years. In study by Gouda M El-Labban and Emad N Hokkam [13] involving 30 patients, the duration of pain ranged from 3 months to 15 months.

Prior Study

In our study of 50 patients, 31 patients had previous history of abdominal surgery.

In study of Klingensmith et al [5] involving 34 patients, most of the patients had previous history of abdominal surgery.

In study by Gouda M El-Labban and Emad N Hokkam [13] involving 30 patients, 17 had previous history of abdominal surgery.

In a study by Kinnareash Ashwin Kumar Baria [14] involving 50 patients, 11 of them had a previous history of abdominal surgery.

Laparoscopic Diagnosis

In our study laparoscopy identified pathology in 41 patients (82.85%). No abnormality was found in remaining 09 patients (17.14%) who were just observed without any intervention.

Post Operative Adhesions

36% of patients in our study were found to have intestinal adhesions secondary to prior surgery, mostly tubectomy (in 8 patients). Some patients had history of appendectomy (in 10), cholecystectomy (in 3), hysterectomy (in 5), and one patient history of laparotomy for hollow viscous perforation. Adhesiolysis was done as a therapeutic procedure.

Lavonius M et al [7] in their study of 46 patients reported post operative adhesions in 63% cases.

Study by Klingensmith M et al [5] of 34 patients, 56% had post operative adhesions.

Normal Study

17.14% patients in our study did not have any pathology detected per operatively. In a study by Salky B A et al [6] involving 256 patients, normal laparoscopic findings were recorded in 24% cases.

In a study by Kinnareash Ashwin Kumar Baria [14] involving 50 patients, 10% of them had no identifiable cause detected after laparoscopic examination.

In study by Vander Van et al [15] a 23% patients had uncertain diagnosis at the end of study.

In study by Klingensmith et al [5] involving 34 patients, 26% had abnormal findings.

In a study by Onders RP and Mittendorf EA [8] involving 70 patients, 14.2% needed no surgical intervention.

Chronic Appendicitis

07 (14.28) of patients in our study were diagnosed to have recurrent appendicitis. HPE confirmed diagnosis in 6 of them, 1 was reported as normal. Laparoscopy is a useful technique for diagnosis and treatment of abdominal pain even if the appendix is normal on inspection [16].

In a study by Onders RP and Mittendorf EA [8] involving 70 patients, appendiceal pathology was

noted in 7.14% cases.

The present study findings correlate with other published studies.

Therapeutic Efficacy of Diagnostic Laparoscopy

Therapeutic efficacy of diagnostic laparoscopy of the present study matches with other previous studies.

Conclusion

Laparoscopy has an effective diagnostic accuracy and therapeutic efficacy in management of patients who presented with chronic pain abdomen, especially in whom conventional methods of investigations have failed to give an explanation.

Laparoscopy is safe, quick, effective modality of investigation for chronic abdominal pain. Diagnostic laparoscopy has a high diagnostic and therapeutic efficacy. Ability to find a cause for abdominal pain or exclude a more major cause, not only avoids any further investigations but also plays a significant role in satisfaction for the patient and relatives.

Laparoscopy has an added benefit of diagnostic and therapeutic intervention, which can be carried out in same sitting, thereby avoiding the need for another hospitalization or another exploration of abdomen.

With the help of diagnostic laparoscopy, all the unnecessary laparotomies can be avoided in patients with normal findings, who don't need any surgical interventions.

Hence, Diagnostic laparoscopy had an authoritative role in management of patients with chronic abdominal pain.

Summary

This study was done to assess the efficacy of diagnostic laparoscopy as an investigative modality in patients presenting with abdominal pain of duration more than 3 months.

All 50 patients had undergone routine investigations including ultrasonography, CT scan without yielding any cause for the pain.

50 patients in the age group of 15-69 years were involved in the study with average age of presentation being 35 years. 66% of study population were females. 51% of patients had duration of pain between

18-36 months and 37% of them being in the periumbilical region. 63% of patients had previous history of abdominal surgery.

The most common finding at laparoscopy in our study was post operative adhesions (36%). It was followed by patients who had normal abdominal findings at laparoscopy (17.14%) and recurrent appendicitis in 14.28%. 1 case required conversion to laparotomy. Average duration of surgery was 67.14 minutes.

The average duration of hospital stay being 5.5 days. There was no mortality in this study. Laparoscopy established the diagnosis in 82.85% of our patients.

Therapeutic intervention had positive outcome in 70% of patients in this study at the end of 3 months.

References

1. American Academy of paediatrics subcommittee on chronic abdominal pain. Chronic Abdominal in children, paediatrics 2005;115:812-5.
2. Ferrell BR. The impact of pain on quality of life: A decade of research Nurs Clin North Am. 1995;30: 609-24.
3. 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.
4. C. Palanivelu, Art of laparoscopy surgery, Textbook and atlas, Chapter 12-Diagnostic laparoscopy-Indications, Tuberculosis and adhesiolysis, Jaypee Publishers, 2005;1(1):152-177.
5. Klingensmith ME, Soybel DI, Brooks DC: Laparoscopy for chronic abdominal Pain. Surg Endosc: 1996;10(11):1085-7.
6. Salky BA, Edge MB: The roles of laparoscopy in diagnosis and treatment of abdominal pain syndromes; Surg Endosc: 1998;12(7):911-4.
7. Lavonius M, et al: Laparoscopy for chronic abdominal Pain. Surg Laparosc & endosc: 1999;9:42-4.
8. Raymond P, Onders MD, Elizabeth A, Mittendorf MD: Utility of laparoscopy in chronic abdominal Pain. Surg : 2003;134(4):549-54.
9. Tehemton E Udwadia, Laparoscopy surgeries in developing countries.
10. Karl Miller MD, Edith Mayer MD, Erich Moritz HD: The role of laparoscopy in chronic & recurrent abdominal pain. Am J. Surg: 1996;172:353-7.
11. Paajanen, Hannu, Julkunen, Kristina, Waris, Heidi, Laparoscopy in Chronic abdominal pain: A

- prospective nonrandomised Long term Follow-up study, *Journal of Clinical Gastroenterology*, 2005 Feb; 39(2):110-114.
12. Thanapongsathron W, Kanjanabut B, Vaniyapong T, Thaworncharoen S. Chronic right lower quadrant abdominal pain: laparoscopy approach. *J Med Assoc Thai*. 2005 Jun;88 Suppl 1:S42-7.
 13. Gouda M EL-labban and Emad N Hokkam, The efficacy of laparoscopy in diagnosis and management of chronic abdominal pain. *J minim Access Surg* 2010 Oct- Dec;6(4):95-99.
 14. Kinnareash ashwin kumar baria, role of laparoscopy in diagnosis and management of chronic Abdominal pain *Indian j.sci.res*. 2013;4(1):65-68.
 15. G C Vander Velpen, S M Shimi, A Cuschieri, Diagnostic yield and management benefit of laparoscopy: a prospective audit, *Gut* 1994;35: 1617-1621.
 16. Connor TJ, Garcha IS, Ramshaw BJ, Mitchell CW, Wilson JP, Mason EM et al. Diagnostic laparoscopy for suspected appendicitis, *Am Surg*. 1995 Feb;61(2):187-9.
 17. Schrenk P, Woisetschlager R, Wayand WU, Rieger R, Sulzbacher H. Diagnostic laparoscopy: a survey of 92 patients. *Am J Surg*. 1994 Oct;168(4):348-51.
 18. Andreollo NA, Coelho Neto Jde S, Lopes LR, Brandalise NA, Leonardi LS. Laparoscopy in diagnosis of intra-abdominal diseases. Analysis of 168 cases. *Rev Assoc Med Bras*. 1999 Jan-Mar;45(1):34-8.
 19. Vafa Shayani, Claudine Siegert, and Philip Favia. The role of Laparoscopic Adhesiolysis in Treatment of patients with Chronic Abdominal pain or recurrent Bowel Obstruction, *JSLs*; 2002: Apr-Jun;6(2): 111-114.
 20. Chao K, Farrell S, Kerdelmidis P, Tulloh B. Diagnostic laparoscopy for chronic right iliac fossa pain: a pilot study. *Aust N Z J Surg*. 1997 Nov;67(11):789-91.
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