

# The Role of Diagnostic Laparoscopy in Patients with Chronic Abdominal Pain – A Prospective Study.

Sunesh Kumar<sup>1</sup>

<sup>1</sup>Associate Professor, Department of Surgery, Teerthankar Mahaveer Medical College & Research Centre, Bagarpur, Moradabad (U.P.).

Received: November 2016

Accepted: December 2016

**Copyright:** © the author(s), publisher. It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** Laparoscopy is defined as the technique in which abdomino-pelvic cavity is visualized through small openings in the wall of abdomen through instruments. In patients with chronic abdominal pain, only diagnostic laparoscopy can be considered as the gold standard and provide correct diagnosis and concurrently may prove to be therapeutic. **Methods:** This is an observational study which was conducted in Department of Surgery for the period of one year in which clinical diagnosis in the patients was made and then it was confirmed after doing diagnostic laparoscopy. The results were compared statistically. **Results:** The age group in which chronic abdomen pain occurred predominantly was 30 - 60 years in about 64% of cases. Males (60%) were predominantly involved with the male: female ratio of 3:2. The most common cause of chronic abdominal pain in developing country like India was found to be abdominal tuberculosis (30%) followed by chronic obstructive small bowel disease (22%). Statistically significant difference (<0.001) in comparison of the aetiology of the chronic abdominal pain which was diagnosed both clinically and then by laparoscopy was found in making the diagnosis of tuberculosis, obstructive disease and cholecystitis. **Conclusion:** Laparoscopy has proven to be admirable modality for diagnosing chronic abdominal pain where other appropriate investigations cannot accurately establish the diagnosis.

**Keywords:** Abdominal pain, Chronic, Diagnostic laparoscopy.

## INTRODUCTION

Laparoscopy is defined as the technique in which abdomino-pelvic cavity is visualized through small openings in the wall of abdomen through instruments. Laparoscopic surgery, also called minimally invasive surgery (MIS), bandaid surgery, or keyhole surgery, is a modern surgical technique in which operations are performed far from their location through small incisions (usually 0.5–1.5 cm) elsewhere in the body. Laparoscopy is considered as an important tool in the diagnosis of different pathologies by the gynaecologist. But now in the modern era, researchers believe that it can also play an important role in finding the pathology behind generalized chronic abdominal pain.<sup>[1,2]</sup>

### Name & Address of Corresponding Author

Dr Sunesh Kumar  
Associate Professor, Department of Surgery,  
Teerthankar Mahaveer Medical College & Research Centre,  
Bagarpur, Moradabad (U.P.).

Two types of laparoscopes are used: (1) a telescopic rod lens system, that is usually connected to a video camera (single chip or three chip), or (2) a digital laparoscope where the charge-coupled device is placed at the end of the laparoscope.<sup>[3]</sup>

The most important advantage behind diagnostic laparoscopy is that it is done under direct vision with equipment which is simple. With advances in optics, laparoscopy allows faultless visual examination of the peritoneal cavity. Besides this it also helps in making histological diagnosis of target biopsy under vision.<sup>[4]</sup>

The disadvantage behind the diagnostic laparoscopy is that it is an operative procedure and requires trained surgeon and well equipped operation theatres. To accomplish a high rate of affirmative diagnosis from laparoscopy needs much more than correct technique; it requires a trained surgery team, good clinical knowledge and awareness of abdominal pathology. In developing countries like India, the investigation methods which are simple, cheaper and easily assessable are preferred.<sup>[5]</sup>

The acute or chronic abdominal pain is the most common symptom with medical and surgical reasons both. Ultrasonography is considered as the gold standard for knowing the reason behind abdominal pain.<sup>[6]</sup> But, when symptoms are atypical, then radiological and biochemical studies prove to be indecisive. In such cases only diagnostic laparoscopy can be considered as the gold standard and provide correct diagnosis and concurrently may prove to be therapeutic. The recovery from this procedure is rapid and the patient returns to regular activity

rapidly that follow laparoscopic surgery. This is an extra incentive for the surgeon to adapt more laparoscopic techniques.<sup>[7,8]</sup>

Although laparoscopy was planned basically for diagnosis of disease, sometimes it also helps in treating the aetiology in the same session, thus is called as therapeutic laparoscopy. In the modern era, simultaneous laparoscopy therapeutic intervention is performed whenever required. The laparoscope allows doctors to perform both minor and complex surgeries with a few small incisions in the abdomen. There are a number of advantages to the patient with laparoscopic surgery versus an open procedure. These include reduced pain due to smaller incisions and haemorrhage, and shorter recovery time.<sup>[9,10]</sup>

The aim of the present study is to know the efficacy of diagnostic laparoscopy in identifying the aetiology of undiagnosed chronic abdominal pain and to reduce the incidence of unnecessary laparotomy for chronic abdominal pain.

### MATERIALS AND METHODS

This is an observational study which was conducted in Department of Surgery for the period of one year. The patients with symptom of abdominal pain for more than 2 months were included in this study, but those with acute abdomens were excluded from this study. The patients were admitted in the ward and detail history was taken. Clinical examination was done and routine investigations necessary for laparoscopy were done. This study includes 50 patients out of which 30 were males and 20 females. During surgery thorough assessment of peritoneal cavity was done and wherever essential biopsy was taken. Afterwards a precise diagnosis was made and wherever possible a therapeutic technique was also implemented by laparoscopy. The operative time was calculated as the total time in minutes from attachment of the verres needle to the skin closure. Hospital stay was calculated as from the time of admission to the time of discharge. Both intra operative and post-operative complications were noted if present. Mortality if any was recorded. The patients were followed up in the OPD after discharge to know complications and regarding effectiveness of surgical treatment.

### RESULTS

The demographic data of the patients like age and sex were recorded and analysed statistically to find the incidence of the disease.

The age group in which chronic abdomen pain occurred predominantly was 30 - 60 years in about 64% of cases [Table 1].

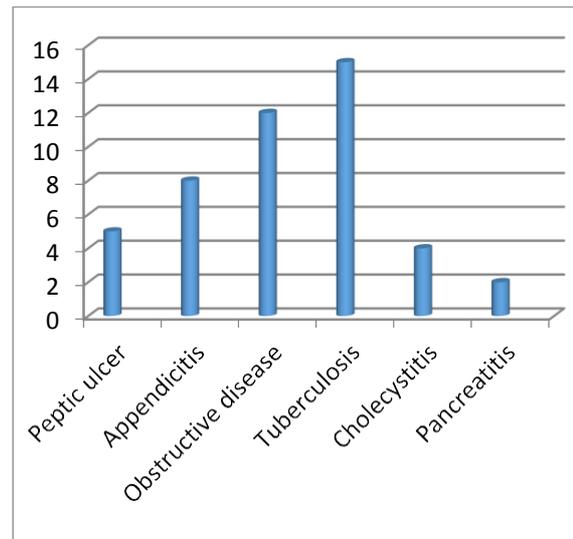
Males (60%) were predominantly involved with the male: female ratio of 3:2. The percentage of females was only 40% [Table 2].

**Table 1: Demographic age distribution of the patients.**

Age group (years)	No. of patients	Percentage
< 30	5	10
30 – 60	32	64
> 60	13	26

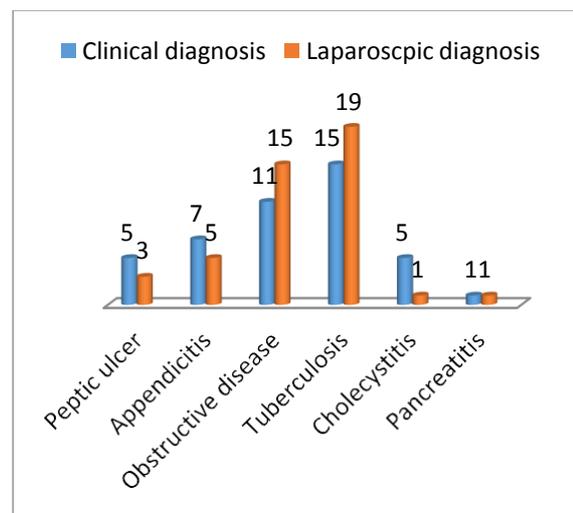
**Table 2: Demographic sex distribution of the patients.**

Sex	No. of patients	Percentage
Males	30	60
Females	20	40



**Figure 1: Bar graph depicting the comparison of aetiology of chronic abdominal pain clinically.**

Clinically, the most common cause of chronic abdominal pain in developing country like India was found to be abdominal tuberculosis (30%) followed by chronic obstructive small bowel disease (22%). In only one patient malignancy was the cause of the symptom [Figure 1].



**Figure 2: Comparison of aetiology of chronic abdominal pain clinically and later by laparoscopy.**

The figure 2 depicts the comparison of the aetiology of the chronic abdominal pain which was diagnosed both clinically and then by laparoscopy. Statistically significant difference ( $<0.001$ ) was found in making the diagnosis of tuberculosis, obstructive disease and cholecystitis.

**Table 3: Complications in patients undergoing laparoscopy.**

Complications	No. of patients	Percentage
Infection	3	6
Persistent abdominal pain	1	2
Shoulder pain	1	2

Intra-operative and post-operative complications were seen only in 5 out of 50 patients. The most common complication which was recorded in 6% of patients was infection at surgical site [Table 3].

The operative time of all the patients ranged from 20 minutes to 90 minutes. The hospital stay was short which ranged from 1 to 3 days. The hospital stay was high in patients with intra-operative complications.

## DISCUSSION

The study was conducted on 50 patients with Male: Female ratio of 3:1. The age group in the study ranged from 14 years to 75 years. Average age in the study is 41 years.

Klingensmith et al<sup>[3]</sup> reported in a study involving 34 patients an average age is 39 year with the range 21 to 75 years, majority of were women 85%. Velanovich et al<sup>[4]</sup> in their study involving 100 patients represented average age is 27 years. Thanaponsathron et al<sup>[5]</sup> in their study involving 30 patients of chronic right lower quadrant pain represented average age is 27.5 years. Raymond P et al<sup>[6]</sup> in a study involving 70 patients represented average age is 42 years.

In present study majority of cases diagnosed laparoscopically are tuberculosis (19%). Tuberculosis was clinically diagnosed in 15 cases. But actually 19 cases were diagnosed as abdominal tuberculosis laparoscopically. Clinically 11 cases were diagnosed as obstructive disease but after laparoscopic examination 15 cases of small bowel obstructive disease were recorded. Difference in both the readings were found to be statistically significant ( $p<0.001$ ). Lavonius M et al<sup>[7]</sup> reported post-operative adhesions in 63% of cases. Tubercular peritoneum was diagnosed laparoscopically in 5 cases (10%), all those 5 cases were clinically suspected as abdominal TB.

Similarly, 5 patients with chronic abdominal pain were diagnosed as suffering from cholecystitis clinically out of which only 1 patient diagnosed as cholecystitis laparoscopically. In a similar study<sup>[11]</sup>, Metastasis in liver was diagnosed laparoscopically in

4 cases (8%), out of which 2 cases was diagnosed clinically as chronic cholecystitis and another 2 cases was diagnosed clinically as carcinoma head of pancreases. 1 case (2%) was diagnosed laparoscopically as retroduodenal mass and was diagnosed as chronic pancreatitis.

In present study, efficacy of diagnostic laparoscopy was 85% and accuracy of diagnostic laparoscopy was 70%. Salky B et al<sup>[8]</sup> reported, the diagnostic accuracy of laparoscopy for chronic abdominal pain is 70%. Vander Velpen et al<sup>[9]</sup> reported, the diagnostic efficacy of laparoscopy is 41% for chronic abdominal pain. Klingensmith et al<sup>[3]</sup> reported chronic abdominal pain as a positive finding was made in 65% of patients. Salky BA et al<sup>[10]</sup> reported in their study in a chronic abdominal pain group, the aetiology was established laparoscopically in 76%.

Another advantage of diagnostic laparoscopy was that in majority of the cases a simultaneous laparoscopy therapeutic intervention was done whenever mandatory. Besides this, during laparoscopy biopsy from different sites were taken which helped in confirmation of diagnosis as well as in excluding the possibility of malignancy.

## CONCLUSION

Laparoscopy has proven to be admirable modality for diagnosing chronic abdominal pain where other appropriate investigations cannot accurately establish the diagnosis. During laparoscopy visualization of almost all the intra-abdominal organs can be done, which helps in pin pointing the basis of the abdominal pain. Besides this, laparoscopy is very safe, rapid and effective as a chief diagnostic tool in inexplicable chronic abdominal pain. The biggest advantage of diagnostic laparoscopy is that it can be followed up with a simultaneous therapeutic laparoscopic procedure in majority of the cases when required and this prevents laparotomy.

## REFERENCES

1. Spirtos NM, A diagnostic aid in cases of suspected appendicitis; Am J of OBG, 1987; 156:90-4.
2. Tehemton E Udwardia eds. Diagnostic Laparoscopy, a textbook of Laparoscopic surgery in developing countries, Jaypee Brothers 1st ed. 1997, p.15-43.
3. Klingensmith ME, D.I.Soybel, D.C.Brooks: Laparoscopy for chronic abdominal pain 1996 Nov; 10 (11) :1085-1087.
4. Velanovich. When it's not appendicitis. American Surgeon 1998 Jan; 64 (1):7-11.
5. Thanaponsathron W, Kanjanabut B, Vaniyapong T, Thawornchaoen S. Chronic right lower quadrant abdominal pain: Laparoscopic approach. J Med Assoc Thai. 2005 Jun; 88 suppl 1: S 42-47.
6. Raymond P. Onders MD and Elizabeth A, Mittendorf MD, Cleveland OH. Utility of laparoscopy in Chronic abdominal pain. Surgery 2003 oct; 134 (4): 549-552.

7. Lavonius M, Gullichsen R, Laine S, Ovaska J. Laparoscopy for chronic abdominal pain. *Surg. Laparosc Endosc.* 1999 Jan; 9 (1): 42-44.
8. Salky B. Diagnostic laparoscopy. *Surg laparoscopy Endoscopy*, April 1993;3 (2):132-134.
9. Vander Velpen GC, Shimi SM, Cuschieri A. Diagnostic yield and management benefit of laparoscopy. A prespective audit. *GUT.* Nov 1994; 35 (11): 1617-1621.
10. Salky BA, Edey MB – Role of laparoscopy in diagnosis and treatment of abdominal pain syndromes. *Surg endosc* 1998 July; 12 (7): 911-914.
11. Conner T J, Garcia IS et al. Diagnostic laparoscopy for suspected appendicitis. *Am J Surg.* 1995; 61: 187.
12. Chao K, Farrell S, Kerdemelidis P, Tulloh B. Diagnostic laparoscopy for chronic right iliac fossa pain: a pilot study. *Aust N Z J Surg.* 1997 Nov; 67 (11): 789-791.

**How to cite this article:** Kumar S. The Role of Diagnostic Laparoscopy in Patients with Chronic Abdominal Pain – A Prospective Study. *Ann. Int. Med. Den. Res.* 2017; 3(1):SG31-SG34.

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