

Evaluation Of The Role Of Diagnostic Laparoscopy In Non Specific Abdominal Pain & Its Correlation With Clinical & Radiographic Findings

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Abstract

BACKGROUND: Non specific abdominal pain is a diagnostic challenge; such patients frequently seen by many physician & undergoing vast diagnostic workup without making definitive diagnosis at the end & got unsatisfactory discharge, render the patient for readmission with the similar complaints later on with additional psychological embarrassment. Incorporation of laparoscopy earlier (within 24 hrs.) not only make definitive diagnosis but mostly at same time therapeutic too & avoiding unnecessary laparotomies; saves time, cost, avoiding unnecessary investigations, reducing hospital stay, readmission rates, mental /psychological satisfaction to patient & allow the surgeon to discharge patients. **OBJECTIVE:** Our aim is to evaluate the role & efficacy of laparoscopy in diagnosis as well as management of abdominal pain in this study. **MATERIALS & METHODS:** We performed a prospective study of 220 patients who underwent diagnostic laparoscopy for non specific abdominal pain from July 2016 to December 2017 at Surgical as well as gynaecological ward, M.G.M. MEDICAL COLLEGE AND MYH Indore. The Pain in all these patients was either of unclear etiology or not responding to treatment given after clinical assessment. It include acute (<7 days duration) as well as chronic abdominal pain (>7 days duration). Patients less than 12 years excluded from the study. Most patients are subjected to diagnostic laparoscopy and procedure with few kept under observation. The laparoscopy is categorized under two headings. 1. Within 24 hours of admission 2. Greater than 24 hours of admission. **RESULTS:** Out of 220 patients studied for diagnostic laparoscopy with diagnostic accuracy of (64%); 160 patients (73%) are females with most commonly presenting between 20-30 yrs of age with mostly abdominal pain last between 3 month to 6 month duration (18.2%). max patient 171 (78%) having pain localized to right iliac fossa & periumbilical region. Most common 76 (34%) patients suffered from gynaecological pathology. 2nd most common 62 (28%) found inflammation of appendix. definitive clinical diagnosis of appendicitis is exempted from the study. 7 patients shown negative laparoscopy & 5 patients are needed to converted to open procedure. **CONCLUSION:** Gynaecological pathology, incidentally found appendicitis, & post operative adhesions form a majority of cause for causing non specific abdominal pain. Diagnostic laparoscopy is a safe and effective modality for the diagnostic as well as at the same time therapeutic management too for such patients. Due to improvement in instrumentation & greater experience in laparoscopy, the procedure no longer limited to visualization.

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I. Introduction

Over the past decades tremendous growth has occurred in the use of minimally invasive techniques. Almost all general surgical procedures can be performed using minimally invasive techniques. Minimal access surgery is now widely accepted method in all operation. For many operations laparoscopy has become gold standard with no controversy, doubts or diagnostic dilemma.

Acute abdominal pain is a very common presenting symptom in casualty departments but an international prospective multicenter trial has shown that 43% of such patients admitted to the hospital are discharged without a diagnosis.⁽¹⁾ A study from Oxford reported that undiagnosed abdominal pain to be the sixth common cause of hospital admissions in females.⁽²⁾

Laparoscopy has a significant diagnostic and therapeutic role in patients with non specific abdominal pain. Incorporation of a laparoscopy may improve the management of emergency admission & may also have cost benefit by rendering hospital stay & readmission rates.^(3,4,5,6)

Laparoscopy allows surgeons to see and treat many abdominal changes that could not be diagnosed otherwise. It usually is performed after other noninvasive options. When these tests cannot provide enough data for diagnosis, a laparoscopy is used to find more details. The procedure also can be used to take a biopsy. Hence diagnostic laparoscopy should be considered for patients suffering from non specific abdominal pain, as it is minimally invasive, safe, efficacious and effective diagnostic modality and can be performed rapidly, safely with minimal sequel.

The mean hospital stay for patients admitted with NSAP ranges from 4.1 and 6 days using the traditional wait and watch management⁽⁶⁾. This includes repeated clinical examination radiological investigations⁽⁷⁾ and a gynecological opinion. If a definite diagnosis of NSAP could be made earlier and patients discharged this could reduce the cost⁽⁸⁾.

II. Methods & Materials

220 consecutive patients admitted between July 2016 to December 2017 with abdominal pain to the surgical ward & obs&gynae ward, M.G.M. Medical college & M. Y. Hospital, Indore who underwent laparoscopy are studied. All patients were examined and patients with a definitive clinical diagnosis of acute appendicitis were eliminated from the study.

A detailed history along with clinical examination findings & the recorded data include particulars of the patients, Age, sex, area of tenderness, previous diagnosis, previous surgery if any, associated complaints, type of anesthesia, past history of admission with similar abdominal pain, past history of complications must be recorded.

Baseline investigations included a complete blood count, measurement of urea, electrolytes and serum amylase, urine culture, a pregnancy test in women of reproductive age, and a chest or abdominal radiograph, ultrasound studies, Barium studies, upper gastrointestinal and lower gastrointestinal endoscopies CT/ MRI are done when indicated. subsequently the intraoperative findings, therapeutic/ Diagnostic intervention done, correlation of the intraoperative findings with the histopathology report, complications during intra & postop period & the relief from the pain is recorded & analyzed with subsequent follow up at 1 and 6 months.

All patients in our study (laparoscopy findings) is categorized into following 8 categories:-

1. Essentially normal / NSAP. (Diagnostic and therapeutic)
2. Appendicitis w / wo perforation / gangrene. (Diagnostic and therapeutic)
3. Post - op adhesion (Diagnostic and therapeutic).
4. Mesenteric Lymphadenopathy (Diagnostic).
5. Small bowel/ cecal / colonic pathology excluding appendicitis.
6. Metastatic deposits. (Diagnostic and therapeutic)
7. Gynaecological :-
 - a. Ovarian cysts (Diagnostic and therapeutic)
 - b. Pelvic inflammatory diseases (Diagnostic and therapeutic)
 - c. Acute salpingitis (Diagnostic)
 - d. Ectopic pregnancy (Diagnostic and therapeutic)
 - e. Endometriosis (Diagnostic and therapeutic)
 - f. Perforated uterus due to criminal abortion (Diagnostic and therapeutic)
 - g. Salpingitis (Diagnostic)
8. Others (which cannot be fitted into the previous 7 categories).

Acute abdominal pain was defined as of less than 7 days for which the patient sought medical advice. Some of the patients had either peritoneal findings or an increased WBC count, indicating a peritoneal process. Rest of the patients had acute abdominal pain but an inflammatory process was not evident on physical examination or from laboratory data.

Chronic abdominal pain was defined as being present for greater than 1 week but not necessarily continuously. The majority of the chronic pain group had symptoms for many years and had undergone multiple non-invasive tests over that time. Some of the patients with chronic abdominal pain had previous surgery of the abdomen often multiple.

An early definitive diagnosis made by laparoscopy was often valuable: laparotomy was often avoided. patients were reassured and appropriate treatment was started. Emergency laparoscopy was particularly useful in young women of child bearing age who have a wider differential diagnosis for intraperitoneal inflammation^(6,9,10,11). Without laparoscopy the overall rate of unnecessary appendectomy in women is reported to be approximately 39% compared with 15% in men⁽⁶⁾.

Early laparoscopy also has the benefit that a number of therapeutic options are available⁽¹²⁾. B.Decadt,L.Sussman et al⁽¹³⁾ found diagnostic laparoscopy became therapeutic in 59% cases randomized to early laparoscopy.

The surgical procedure carried out were depending on the intraoperative findings and as per indications which ranged from biopsy from suspicious lesions to adhesiolysis to appendicectomy. All the ports were closed using absorbable/ non absorbable suture materials at the end of the procedure.

III. Result

Table 1 : Sex Wise Distribution

Sex	No. of cases	%
Male	60	27.3%
Female	160	72.7%
Total	220	

Table 2 : Age Wise Distribution

Age Group (Years)	No. Of Cases	%
12-20	37	16.8%
20-30	103	46.8%
30-40	47	21.4%
40-50	18	8.2%
50-60	5	2.2%
60-70	9	4.1%
71 – 80	1	0.5%
Total	220	

Table 3 :-Duration Of Pain

Duration Of Pain	No. Of Cases	%
1-7 days	36	16.4%
7days – 12 wks	36	16.4%
12 wks – 3 month	23	10.4%
3 month – 6 month	40	18.2%
6 month – 1 yr	29	13.2%
1 Yr – 2 Yr	33	15%
2 Yr – 3 Yr	10	4.5%
3 Yr – 4 Yr	12	5.4%
4 Yr – 5Yrs.	1	0.5%
Total	220	

Table 4 : Location Of Pain

Location Of Pain	No Of Cases	%
Upper Abdomen	32	14.6%
Lower Abdomen	171	77.7%
Diffuse	17	7.7%

Table5:Previous History Of Abdominal Operations

History Of Operations	No. Of Cases	%
Present	18	8%
Absent	202	92%

Table : 6: Diagnosis

Diagnosis	No. Of Cases	%
NSAP	16	7.3%
Appendicitis	62	28.2%
P/o Adhesions	18	8.2%
Mesenteric Lymphadenopathy	13	5.9%
Small /Large bowel Pathology	5	2.3%
Gynaecological	76	34.5%
Metastatic deposits	7	3.2%
Others	23	10.4%

Table7:DiagnosticLaparoscopy For Abdominal Pain

Group	No. Of Cases	%
Early laparoscopy(<24 hrs.)	42	19.1%
Late laparoscopy (>24 yrs.)	168	76.4%
Observation	10	4.5%

Table 8: Laparoscopy Change The Diagnosis

Laparoscopy	No. Of Cases	%
Altered the diagnosis	32	15.2%
NAD	50	24%
Proved Diagnostic & Therapeutic Or Both	128	60.8%

Table 9 : Laparoscopic Procedure In Abdominal Pain

Laparoscopy	No. of Cases	%
Diagnostic & Therapeutic	90	42.9%
Therapeutic	77	36.6%
Diagnostic	43	20.5%

Table 10 : Changes brought by diagnostic laparoscopy in patient management by obviating need of laparotomy

Laparoscopic procedure/Finding	No. of Cases	%
Biopsy	55	26.2%
Adhesiolysis	28	13.3%
No abnormality detected	4	1.9%
Total	87	41.4%

Table 11 : Effect Of Laparoscopic Intervention On Abdominal Pain

Outcome	No. of Cases	%
Resolution Of Pain	189	95.5%
No change in pain	6	3%
Recurrence of pain	3	1.5%

IV. Discussion

Non specific abdominal pain is a significant problem in general surgery and accounts for an estimated 13-40 % of all emergency surgical admissions⁽¹³⁾.

In most of our cases there is no post operative complications except 2 patients; first 61yr female patient of CRF with liver cirrhosis in which laparoscopically biopsy & ascitic fluid drained out died 1 month after the procedure. Second 35/f patient of hydatid cyst liver & right hemithorax died 15 days after & 10 patients left group.

most common 160 (72.7%) patients out of 220 are females & 60 cases(27.53%) are of males presenting with abdominal pain & most patients 76(34.5%) out of 220 patientssuffered from gynaecological pathology.

The second common finding 62 patients (28.2%) had inflammation of the appendix. Patients with a definitive clinical diagnosis of acute appendicitis eliminated from the study. Then 18 out of 220patients (8.2%) had adhesions as the cause of the abdominal pain while 16 patients (7.3%) are of NSAP group where the laparoscopy failed to show a definitive cause of the abdominal pain.

13 cases (5.9%) found mesenteric lymphadenopathy, 7 patients(3.2%) metastatic deposits, 5 cases(2.3%) small/large bowel pathology. Rest 23 cases included in group others in which 12 patients undergoing lap hydatid cyst excision; 2 patients pseudopancreatic cyst excision; 1 achalasia cardia; 1 bilateral inguinal orchidectomy; 1 Left seminal cyst excision; 1 Chronic Renal Failure with liver cirrhosis; 1 gastric outlet obstruction;1 Carcinoma Gall Bladder; (inoperable); 1 stump appendicitis; 1 ileocaecal Junction mass;1 found cholelithiasis with left ovarian cyst undergoing lap cholecystectomy.

Of the patients enrolled in the study 60 were male and 160 female (M/F ration 0.37:1). These patients have varying degree of pain with patients age group ranging from 13 to 75 yrs. Majority of patient (103) fall in age group of 21-30 years (46.8%). Then 30-40 yrs- 47 cases(21.4%); 12-20yrs-37 (16.8%); 40-50 yrs-18 (8.2%); 50-60 yrs- 5(2.2%); 60-70yrs -9(4.1%); 71-80 yrs-1 (0.5%).

Maximum patients are with duration of pain between three to six months⁽¹³⁾ i.e. 18.2% then pain duration between 1-7 days & 7days to 12 weeks both constitute 36 cases (16.4%) respectively; between 1-2yrs-33(15%); 6month -1yr-29(13.2%); 12weeks to 3 months- 23(10.4%);3yrs-4yrs-12cases(5.4%); 2yrs-3yrs-10cases(4.5%);4yrs-5yrs.- 1case (0.5%)&

Maximum having lower abdominal pain specially in RIF &perumbilical region region171 cases(77.7%). 32patients (14.6%) having upper abdominal pain & 17 cases(7.7%) diffuse abdominal pain.

In 18 cases (8%) previous history of abdominal operations present.

In a Study by Fayed et al⁽¹⁴⁾, records of non specific abdominal pain undergoing appendicectomy were reviewed 92% of patients appendices had abnormal histological findings and 95% of patients appendices had resolution of pain.

Raymond et al⁽⁹⁾ ,reported improvement of pain in 74% of patients with chronic lower abdominal pain.

De Dombal et al⁽¹⁵⁾ have reported that 10% of patients aged over 50 years who presented with NSAP later developed gastrointestinal malignancy. 10 patients who were diagnosed with metastatic deposits on laparoscopy were above 50 years of age. Only 1 patient who presented with NSAP had abdominal Burkitts lymphoma was 14 years old.

42 patients (19.1%) underwent diagnostic laparoscopy within the first 24 hours of admission support a policy of early laparoscopy in preference to multiple and expensive investigations before recourse to this examination –the decision based solely on the clinical judgment.

The outcome of 2 groups is summarized:-

Early Laparoscopy Group:-

42 patients (19.1%) underwent diagnostic laparoscopy for nonspecific abdominal pain. A positive diagnosis is reached in 40 patients (18%) of them. In one patient pain reappears & 4 patients don't come for follow up. None of patient need to be converted to laparotomy.

Late Laparoscopy Group:-

168 patients (76.4%) underwent diagnostic laparoscopy - a positive diagnosis is established in 163 (74.1%). 5 patients there is negative laparoscopy; 4 patients left group; 2 patients don't come for follow up; in 2 patients pain reappears; 5 patients needed to be converted to laparotomy.

The conversion to laparotomy is based on laparoscopy findings along with clinical judgment and worsening patient condition (+/- peritonitis).

10 patients of abdominal pain are kept under close observation in which in 1 patient pain reappears; 2 pts left group; & 2 pts doesn't come for follow up.

NSAP In Literature:-

Author	Journal	Patient	Positive laparoscopy
Bogstein et al ⁽⁹⁾	Surg. Endoscopy'97	161	78%
Salke et al ⁽¹²⁾	Surg. Endoscopy'98	386	82%
Leonius et al ⁽¹⁶⁾	Surg. Laparoscopy'99	46	68%
Decadt et al ⁽¹³⁾	British J Surgery'99	48	81%
Udwadia T.E. ⁽¹⁷⁾	Surg. Endoscopy'2004	3200	84%

Laparoscopy within the first 24 hours produced an overall final diagnosis rate of approx 64% of cases in our study.

The mean hospital stay in early laparoscopy group is ranging from 3 to 13 days with avg. 6.2 days. The mean hospital stay in late laparoscopy group is ranging from 4 to 46 days with avg. of 12.9 days. P.J.Borrgstein, R.V. Gordijn et al(9) showed the mean length of hospital stay was 1.7 days when diagnostic laparoscopy was the only procedure.

In the present series firm diagnosis was achieved in 95.4% cases. These results compare favourably with those reported by others. Among 42.9% (92 cases) of these it is therapeutic too at the same sitting. In 77 cases (36.6%) it is therapeutic.

In 32 (15.2%) cases laparoscopy altered the diagnosis; 50 cases (24%) no abnormality detected; 128 (60.8%)- proved diagnostic & therapeutic or both. 87 cases (41.4%) laparoscopy obviates the need of laparotomy by taking biopsy 55 (26.2%), Adhesiolysis 28 (13.3%), Negative laparoscopy 4 (1.9%).

189 patients (95.5) get complete resolution of pain; 6 cases (3%) no change & recurrence is seen in 3 cases (2%).

V. Conclusion

Studies confirm that achievement of a high proportion of specific diagnosis in patients with acute Non Specific Abdominal Pain is often difficult. Management of acute Non Specific Abdominal Pain needs to be periodically adjusted to get the best outcomes at the lowest costs and with the most appropriate diagnostic and therapeutic tools.

Early laparoscopy is valuable as a diagnostic tool in the management of Non Specific Abdominal Pain. It provides a significantly higher diagnostic accuracy and a better improvement in quality of life than the more traditional approach of active observation. Laparoscopy, however, must not be used as an alternative to good clinical judgment. One should keep the delicate balance between aggressive pursuit of the diagnosis and the avoidance of unnecessary surgery.

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