ORIGINAL ARTICLE

Common intra-abdominal pathologies on diagnostic laparoscopy among patients with non-acute abdominal pain

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Abstract:

Background: Abdominal pain is the most common symptom which may be acute or chronic but in diagnosis in many cases the radiological investigations are elusive. Diagnostic laparoscopy, though invasive but in this modern era laparoscopy has major diagnostic as well as therapeutic role in non-specific abdominal pain. The objective of this study was to determine the frequency of common intra-peritoneal pathologies on diagnostic laparoscopy among patients with non-acute abdominal pain having normal baseline investigations.

Material and Methods: This descriptive cross sectional study was conducted at Surgical Department of Postgraduate Medical Institute, Lady Reading Hospital, Peshawar from January 2013 to December 2014. All patients were worked up with history, examination and baseline investigations and consecutive non-probability sampling technique was used. All patients meeting the inclusion and exclusion criteria, informed consent was taken for the procedure of diagnostic laparoscopy and data collected on a set proforma. The data was analyzed using the statistical package for the social sciences version19.

Results: A total of 137 patients were included in the study and mean age was 30 years with SD±1.26. 52% patients were male while 48% patients were female. Frequency of common pathologies was analyzed as 25% patients had appendicitis, 40% patients had abdominal tuberculosis, 15% patients had ovarian cyst, 12% patients had pelvic inflammatory disease, 8% patients had fibroid uterus.

Conclusion: Diagnostic laparoscopy is a significant examination which increase our understanding of many underlying abdominal disorders. However it should be undertaken only after a complete diagnostic evaluation has been carried out. It permits the effective surgical treatment of many conditions encountered at time of diagnostic laparoscopy.

Keywords: Intra-abdominal pathologies, non acute abdominal pain, diagnostic laparoscopy, abdominal tuberculosis, ovarian cyst, pelvic inflammatory disease

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Introduction:

Diagnostic laparoscopy, first described in 1950 by Raoul Palmer, a Swedish-born French gynecologist is a minimally invasive operation done on abdomen and pelvis through small incisions with an aid of a camera for diagnostic purposes.[1]

Abdominal pain is the most common symptom a general surgeon would come across in his life. It may be acute or chronic depending on the duration of pain and associated treatment taken by the patient. Abdomen is divided, for purpose of study into 9 quadrants.[2] In this modern era laparoscopy has major diagnostic as well as therapeutic role in non-specific abdominal pain. Diagnostic laparoscopy, though invasive, can be both diagnostic and therapeutic.[3]

The use of diagnostic laparoscopy decreases the burden of open laparotomy with no positive findings. Diagnostic laparoscopy yielded positive findings in 44(90%) of the patients in whom the cause of abdominal pain was not elucidated by other means of investigations, the main causes being abdominal tuberculosis, appendicitis and gynecological conditions.[4]

In cases of chronic abdominal pain, it yielded positive findings in 64% of the cases in patients who had all the initial investigations normal and had no positive findings on colonoscopy. In these patients, 30% had gut adhesions while other common causes found were appendicitis, ovarian cyst, tubal mass and ceacal perforations5. The commonest cause found on diagnostic laparoscopy was appendicitis i.e. 75.7%.[6] Among these patients 25.6% had concomitant pelvic pathologies. Other common causes were fibroid(15%), ovarian cysts(60%) and pelvic inflammatory disease(13.3%).[3]

The rationale of this study is to establish an early diagnosis in cases of non acute abdominal pain of whom many a times a late diagnosis, for a cure able disease, increase the mortality, to reduce multiple visits of patients to different out patient departments of various hospitals and to know about various pathologies which cannot be diagnosed by any non invasive investigations.

Material and Methods:

This descriptive prospective cross sectional study was conducted in the Department of Surgery, Lady Reading Hospital, Peshawar over a period of two years from January 2013 to December 2014. Sample size was 137, using 15% proportion of fibroid, 95% confidence level and 6% margin of error under WHO software for sample size determination. Consecutive non-probability sampling technique was used and age group above 16 years and below 60 years and of either gender with chronic abdominal pain presented to either emergency surgical department or surgical out patient department and with normal baseline investigations including both the blood & radiological investigations were included.

Post-operative referral cases to casualty surgical unit or surgical out patient department of Lady Reading Hospital and patients with confounding factors like previous extensive abdominal surgeries, unable to tolerate pneumoperitoneum, uncorrectble bleeding disorders, chronic obstructive lung diseases or with extensive abdominal wall infection (e.g., cellulitis, soft tissue infection, open wounds) were excluded.

The above mentioned conditions act as confounders and if included was introduce bias in the study results.

The study was conducted after approval from hospitals ethical and research committee. All patients meeting the inclusion criteria admitted either via out patient department or emergency department and operated in elective operation theatre was included in the study. An informed written consent was obtained from the patient after explaining the pros and cons of the study.

Patients' demographic data was recorded on approved proforma. Necessary workup was done regarding complete physical examination and collecting data regarding confounding factors. All base-line including both the necessary blood and radiological investigations was done and recorded. All diagnostic laparoscopy was done by single experienced general surgeon having minimum of 5 years of experience. After surgery, all patients was assessed for 05 days post-operatively.

All record regarding obscure diagnosis of abdominal pain, necessary investigations and demography was recorded on the approved proforma. Exclusion criteria had followed strictly to control confounders and bias in the study results.

The required data was collected and analyzed in SSPS 19. Mean+SD was calculated for numerical variables like age and duration of surgery. Percentage and frequencies was analyzed for categorical variables like gender and common pathology (Appendicitis, abdominal tuberculosis, ovarian cyst, pelvic inflammatory disease, fibroid uterus). Common pathology was stratified among age and gender to see the effect modifications. All results were presented in the form of table and graphs.

Results:

A total of 137 patients were observed to find the frequency of early diagnosis of common intra-

Table-1: Age distribution

Age	Frequency	Percentage
< 20 years	27	20%
21-30 years	41	30%
31-40 years	48	35%
41-50 years	14	10%
>50 years	7	5%
Total	137	100%

Table-2: Common pathologies

Common Pathologies	Frequency	Percentage
Appendicitis	34	25%
Abdominal tuberculosis	55	40%
Ovarian cyst	21	15%
Pelvic inflammatory disease	16	12%
Fibroid uterus	11	8%
Total	137	100%

Table-3: Stratification of common pathologies with age

Common Pathologies	< 20 years	21-30 years	31-40 years	41-50 years	>50 years	Total
Appendicitis	27	7	-	-	-	34
Abdominal tuberculosis	-	34	21	-	-	55
Ovarian cyst	-	-	21	-	-	21
Pelvic inflammatory disease	-	-	6	10	-	16
Fibroid uterus	-	-	-	4	7	11
Total	27	41	48	14	7	137

Table-4: Stratification of common pathologies with gender

Common Pathologies	Male	Female	Total
Appendicitis	26	8	34
Abdominal tuberculosis	45	10	55
Ovarian cyst	-	21	21
Pelvic inflammatory disease	-	16	16
Fibroid uterus	-	11	11
Total	71	66	137

abdominal pathologies in chronic abdominal pain on diagnostic laparoscopy and the result were analyzed as, age distribution among 137 patients was analyzed as mean age was 30 years with SD±1.26 is shown in table-1. 71(52%) patients were male while 66(48%) patients were female. Common pathologies were analyzed and shown in table-2. Stratification of common pathologies with age distribution was analyzed and shown in table-3. Stratification of common pathologies with gender distribution was analyzed and shown in table 4.

Discussion:

Chronic abdominal pain, defined as pain reported for a minimum period of 6 months and is affecting the daily life activities of the patients. Diagnosis and treatment plane in patients with chronic abdominal pain is usually difficult and frustrating. It is one of the most common surgical symptoms, and among the most challenging problems facing the physician.[7]

We studied 248 patients suffering from chronic abdominal pain. They were examined and investigated carefully to detect the cause of their pain. Among the examined patients, 56 with no obvious cause or uncertain diagnosis (unexplained) were evaluated laparoscopically, to determine the underlying cause of pain. Laparoscopic examination revealed normal abdominal anatomy with no pathologic lesion in 12 patients (21.4%) whereas in 44 patients (78.6%) some pelvic pathology was found. This figure coincides with the laparoscopic study of Marana and his co-workers[8] and Gowri and Krolikowski,[9] who detect pelvic pathology in 80% of their patients with chronic abdominal pain and failed to detect any abnormalities in 20% of them. The most frequent abdominal pathology detected in our study were abdominal adhesions in 26.8%. Tiwari and Peters[10] and Di lorenzo and colleagues,[11] reported an incidence of 31.5% and 18.6% respectively. It has been found that pain is located in the area of adhesions in 90% of cases, although there is no correlation between the severity of pain and extent of adhesions.[12] Adhesions will cause chronic abdominal pain if it restrict the mobility or distensibility of abdominal organs especially the bowel.[13]

Laparoscopic adhesiolysis was carried out in our study for all cases of abdominal adhesions. Follow up of patients for 6 months after operation revealed complete relief of pain in 9 out of 15 patients (60%), reduction of pain in 4 patients (26.7%) and persistence of pain in 2 patients(13.3%). These results coincide with the results reported by Di Lorenzo and colleagues[11] whom reported, complete relief of pain in

60.2%, pain reduction in 23.1% and persistent pain in 16.7%. Laparoscopic adhesiolysis carried out by Swank and coworkers[13] lead to complete pain relief in 74% of patients, persistent pain in (22%) and increased pain in(4%). A retrospective study of 65 patients underwent laparoscopic adhesiolysis revealed that, pain completely disappeared in 84% of the patients and reduced in 4.7%.[14]

Endo-metriosis was present in 8 patients (14.2%) in our study. This result coincides with Bojahr and his colleagues,[15] who diagnose endometriosis in 15.8%. Kresh and coworkers[16] reported an incidence of 32%, Redeche and his colleagues,[17] reported 25.6% and Marana and coworkers[8] reported 29% incidence in their study. Endometriosis can produce pelvic pain by several mechanisms, including peritoneal inflammation, infiltration and tissue damage, release of chemical mediators of pain, adhesions and scar formation. However, there is no relation between the stage of endometriosis and the severity of pain.[18]

Laparoscopic excision or ablation of endometriosis, drainage and cautery of endometriotic cyst together with removal of associated adhesions were done for 7 patients (12.5%) and GnRh analogue was prescribed for one patient (1.8%) in whom there was a dense pelvic adhesions. After 6 months follow up there was complete resolution of pain in 3 patients(37.5%), reduction of pain in 4 patients(50%) and persistence of pain in one patient(12.5%). Several studies evaluated laparoscopic surgery for endometriosis reported complete resolution of pain in 37 to 100% and reduction of pain in 18 to 80%.[18,19]

In our study chronic appendicitis was the cause of chronic abdominal pain in 7 patients (12.5%), all were managed by laparoscopic appendectomy, complete relief of pain was observed in 5 patients and pain reduction in 2 patients. Raymond and his colleagues[20] reported 15.7% chronic appendicitis out of 70 patients underwent diagnostic laparoscopy only for the evaluation and treatment of chronic abdominal pain, with improvement of pain in 90% of the patients. While Majeski[21] reported that, the incidence of chronic appendicitis was 2.7% of the patients presented with chronic abdominal pain and complete resolution of pain observed in all patients after laparoscopic appendectomy. Fayez and his coworkers[22] reported 95% improvement in chronic lower abdominal pain after laparoscopic appendectomy. Pelvic varicosity was a less frequent laparoscopic finding in our study (8.9%). Pieri and his coworkers[23] detected pelvic varicosities in 5.3% of laparoscopically examined patients with chronic abdominal pain. However Papathanasiou and colleagues[24] reported that the pelvic congestion was a common finding in women with chronic pelvic pain especially in multigravida (14.5%). Porpora and Gomel, reported that the frequency of pelvic varicosities is 2.8% in females. Internal ring of clinically undiagnosed oblique inguinal hernias was detected laparoscopically in 3 obese patients (5.4%) of our study. While the incidence reported by Raymond and his colleague[20] was 18.6% in patients presented with chronic abdominal pain.

In our study the incidence of laparoscopically detected chronic tubal ectopic pregnancy was 3.6% (two patients). Fimbrial histopathologic examination, at a distant site from ectopic implantation showed chronic salpingitis. B-HCG in urine was negative in both patients. The two patients became pain free 6 months post-operatively. Kontoravidis and coworkers[25] reported complete relief of pain in all patients with tubal ectopic after laparoscopic salpingostomy and removal of ectopic remnants.

Laparoscopic findings of abdomeno-pelvic tuberculosis were rare events reported in one patient (1.8%). Porpora and Gomel[10] detected pelvic tuberculosis in one patient with chronic pelvic pain. Histopathological confirmation in abdominal tuberculosis is difficult due to suboptimal non-invasive access to the involved area so, laparoscopy provide semi-invasive access to the peritoneum. Laparoscopy was safe and helpful in the diagnosis of peritoneal tuberculosis in 87% of clinically un-diagnosed patients.[26] In the present study 12 of laparoscopically examined patients with chronic abdominal pain (21.4%),

had no pelvic pathology or organic lesion. In a study of 70 patients with chronic abdominal pain by Raymond and coworkers[20] reported negative laparoscopic findings in 14.3% of the patients. Kontoravidis and coworkers[25] in 1999 examined 180 patients and found no pelvic abnormalities in 60% of cases. If no structural or biochemical abnormality can be identified upon utilising the necessary diagnostic measures including laparoscopy, a functional or psychosomatic disorder as the cause of pain is assumed and treatment is tagered towards relief of symptoms only.[27] Psychiatric disorders among patients with chronic abdominal pain is present, especially those with prior psycho sexual trauma.[28]

Conclusion:

Diagnostic laparoscopy in un-diagnosed chronic abdominal pain is a significant investigations which increases our understanding of many underlying abdominal disorders. However it should be undertaken only after a complete diagnostic evaluation has been carried out. It permits the effective surgical treatment of many conditions encountered at time of diagnostic laparoscopy.

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Role and contribution of authors:

Dr. Sheikh Muhammad Ibqar Azeem, conception and acquisition of data.

Dr Munir Ahmad, drafting the manuscript.

Dr. Ambareen Samad, literature search

Dr. Muddasar Shahzad, analysis of data.

Dr Muzafar uddin Sadiq, supervision, critical revision and final approval.

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