



Laparoscopic Evaluation of Nonspecific Abdominal Pain in Females

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Abstract

The aim was to determine the role of laparoscopy in the management of nonspecific abdominal pain (NSAP) in sexually active females. Fifty (50) patients with NSAP were included in the study which then underwent laparoscopy to make a definitive diagnosis. Peroperative laparoscopic findings were; Acute appendicitis in 17 patients (34%); Pelvic Inflammatory diseases (PID)/salpingitis in 9 patients (18%); Adhesions in pelvis and RIF in 5 patients (10%); Ovarian Cyst in 10 patients (20%); Endometriosis in 2 patients (4%); Peritoneal Tuberculosis in 3 patients (6%); No diagnosis in 4 patients (8%). The age wise incidence of various Laparoscopic findings in patients with NSAP were: Acute appendicitis was common in 13 to 20 year age group (10/17 patients) followed by 21 to 28 year age group (5/17 patients); PID was common in 21 to 28 year age group (6/9 patients); Endometriosis was found common in 29 to 36 year age group (2/2 patients); while as ovarian cysts were observed with increased frequency in 21 to 28 year age group (8/10 patients). The study revealed appendicitis to be more common in females in their early reproductive years of life. PID, was more frequently noticed in sexually active females. Endometriosis was observed only in two patients and both of them where in the middle of their reproductive age while as symptomatic ovarian cysts was a more common finding in unmarried females in 21-28 years of age group. This study concluded that laparoscopy has a diagnostic as well as a therapeutic implication in management of NSAP.

Keywords: Abdomen, laparoscopy, nonspecific abdominal pain, appendicitis

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Introduction

Abdominal pain is a most common presenting complaint in 5% of emergency hospital visits. Although most abdominal pain is benign, as many as 10% of patients in the emergency department settings and a lesser percentage in the outpatient setting have a severe or life threatening cause or require surgery [1]. Therefore, a thorough and logical approach to the diagnosis of abdominal pain is necessary.

Acute non-specific abdominal pain (NSAP), generally defined as acute abdominal pain of >6 hours and <7 days duration, is a common cause of emergency surgical hospitalization [2, 3]. Many of these patients have persistent symptoms and are difficult to discharge, undergo multiple, often costly investigations and have repeated admissions. Among young women for anatomic, physiologic and pregnancy motivation, NSAP can be an outward manifestation of a number of conditions including pelvic inflammatory disease, appendicitis, ectopic pregnancy, torsion of adnexa etc. [4]. Different strategies to assess these patients have been used, including observation, imaging methods and early laparoscopy (EL). In the presence of uncertainty, the watchful waiting option is also considered when the physician is able to balance the current expected benefits of immediate treatment against the risks [5]. On the other hand, diagnostic laparoscopy is recommended to prevent treatment delay and its potential complications and to avoid unnecessary laparotomy, which is associated with high morbidity rates of 5-22% [6]. Furthermore, in fertile women, diagnostic laparoscopy has been shown to reduce the number of unnecessary appendectomies [7] and other surgical interventions of similar sort. Advantages of laparoscopy are related to its complete and direct visualization of intra-peritoneal viscera, significant reduction of therapeutic errors, immediate possibility of surgical treatment, improvement in postoperative conditions and management of specific populations such as obese patients and pregnant women [8, 10]. The primary aim of laparoscopy in such settings is diagnostic as evidenced by high definitive diagnostic rates between 86-100% in unselected patients and also has important cost benefits, by reducing hospital stay and readmission rates [11,14]. To evaluate these potential benefits of diagnostic laparoscopy in cases of NSAP with uncertain diagnosis, this study was conducted on 50 sexually active female subjects, expecting that in the coming future, it might become routine procedure in establishing the final diagnosis in NSAP.

Materials and Methods

The study was a prospective hospital based study on patients admitted in the Postgraduate Department of Surgery, Government Medical College, Srinagar, from May 2012 to Oct 2014 with complaints of acute abdominal pain of less than 7 days duration with uncertain diagnosis after clinical examination and baseline investigation.

Selection Criteria

Women between 13-45 years with abdominal pain lasting more than 6 hrs and less than 7 days duration, after examination were subjected to baseline investigations. Baseline investigations included; CBC, Urine routine examination, Blood Urea / Serum Creatinine, Serum Electrolytes, Serum Amylase, Blood Sugar, Pregnancy test (whenever indicated), Chest X-Ray, Plain abdominal radiology, Abdominal Ultrasonography, CT scans and other investigation as indicated by medical condition and age of the patient.

Laparoscopy in these patients was performed under general anaesthesia and patient placed in the supine position with left side down (trendelenberg position) with right arm abducted and left arm by the side of patient. The surgeon stood on the patient's left side, assistant on left side of surgeon and monitor was placed on opposite side, towards foot end. Pneumoperitoneum was created either by direct trocar insertion through umbilical area or by veress needle insertion. Once 12-15 mmHg CO₂ pneumoperitoneum was created, a 300 laparoscope was introduced through the 10 mm umbilical port and the abdominal cavity was explored keenly in all patients with complete mobilization of entire small bowel. Rest of the trocars were placed as necessary, either in the midline above the symphysis pubis or in the RLQ or LLQ as required. An attempt to treat laparoscopically all surgical pathologies diagnosed at laparoscopy such as appendicitis, endometriosis, complicated ovarian cysts, Meckel's diverticulum, intestinal tuberculosis, adhesion and bands etc., was undertaken. The laparoscopic diagnosis of pelvic inflammatory disease was reached using Hager's criteria [15]. When no abnormality was identified at laparoscopy in patients with RIF pain, appendectomy was performed on the basis that symptomatic appendicitis is always not evident at macroscopic examination [16]. Whenever serous fluid was present in abdominal cavity it was aspirated and sent for microscopic testing.

Results

Fifty females of sexually active age group (13-45) were included in study irrespective of their demographic profile. Most were in the age group of 21-28 years (25) with a mean age of 26.42 ± 7.8 years (Range 13 - 45 years). The clinical presentation of these patients was pain in lower abdomen (RIF/LIF/hypogastrium) in 10 patients (20%), pain in RIF alone in 15 patients (30%), pain in periumbilical/central abdomen in 12 patients (24%), pain in hypogastrium in 5 patients (10%), pain in LIF in 3 patients (6%), pain in RIF and hypogastrium in 5 patients (10%).

In our study the preoperative findings were; Acute Appendicitis in 17 patients (34%); PID/salpingitis in 9 patients (18%); Adhesions in pelvis and RIF in 5 patients (10%); Ovarian Cyst in 10 patients (20%); Endometriosis in 2 patients (4%); Peritoneal Tuberculosis in 3 patients (6%); No Diagnosis in 4 patients (8%) [Table I]. Appendicitis was the commonest cause of NSAP in reproductive age females. Most of these patients presented to us had pain in right lower quadrant (30%) alone and with pain in hypogastrium and in right lower quadrant (20%). In around 8% of patients in our study (4 patients), there was no gross laparoscopic finding that would account for the persistent pain in abdomen in these patients, consequently no laparoscopic diagnosis could be made in these patients.

In our study, the age wise incidence of various laparoscopic findings in patients with NSAP were: Acute appendicitis was common in 13 to 20 year age group (10/17 patients) followed by 21 to 28 year age group (5/17 patients); PID was common in 21 to 28 year age group (6/9 patients); Endometriosis we found common in 29 to 36 year age group (2/2 patients); while as ovarian cysts were observed with increased frequency in 21 to 28 year age group (8/10 patients) [Table II]. Hence the appendicitis was more common in females in their early reproductive years of life. PID was more frequently noticed in sexually active females. Endometriosis we noted only in two patients and both of them were in the middle of their reproductive age, while as symptomatic ovarian cysts was a more common finding in unmarried females in 21-28 years of age group.

Table 1. Laparoscopic findings in our patients

LAPAROSCOPIC DIAGNOSIS	NO. OF PATIENTS	%AGE
ACUTE APPENDICITIS	17	34 %
PID / SALPINGITIS	9	18 %
ADHESIONS IN PELVIS AND RIF	5	10 %
OVARIAN CYST	10	20 %
ENDOMETRIOSIS	2	4 %
PERITONEAL TUBERCULOSIS	3	6 %
NO DIAGNOSIS	4	8 %
TOTAL	50	100 %

Table 2. Age wise incidence of laparoscopic findings in patients taken for diagnostic laparoscopy

AGE GROUP in years	ACUTE APPENDICITIS	PID	ADHESIONS	ENDO- METRI OSIS	PERITONEAL TUBERCULO SIS	OVARIAN CYSTS	NO DIAGNOSIS
13 - 20	10	0	0	0	0	0	0
21 - 28	5	6	2	0	0	8	4
29 - 36	1	2	1	2	2	2	0
37 - 45	1	1	2	0	1	0	0
TOTAL	17	9	5	2	3	10	4

In our study, laparoscopy established a diagnosis in 46 out of the total 50 patients giving laparoscopy a diagnostic accuracy of 92% in NSAP. Only 4 patients in our study were without a definite laparoscopic diagnosis that could account for their persistent abdominal pain. One patient was having a palpable fecolith inside appendix, other was having an unusually long appendix and the remaining two patients were having a grossly normal looking appendix on laparoscopy. All these 4 patients were subjected to appendectomy.

Discussion

Acute abdominal pain is one of the most frequent causes of admission to emergency rooms. According to their clinical picture and abdominal examination, patients with this condition may be approached by three strategies: surgery, discharge with outpatient-setting follow-up, or further investigations. In general population the estimated prevalence of NSAP varies from 42 to 69% [17,19]. In modern day practice a surgeon has got many investigative modalities at hand for the diagnosis of such conditions before embarking on to the treatment as compared to the old days, but still sometimes we are not be able to accurately diagnose some conditions preoperatively, especially some patients with acute and chronic abdominal pain and pelvic pain in a reproductive age group female patients. NSAP is a diagnostic dilemma, if we rely on available radiological investigations and some of the scoring systems alone there are chances that we end up in surgeries which are not yielding in terms of accuracy and hence negative laparotomies or in some cases we would face with surprises on laparotomies and have to face challenges for which we are not prepared for to deal with. Computer-aided diagnostic questionnaires [20], abdominal ultrasound (US), abdominal computed tomography (CT) scan [21], and early laparoscopy have all been described as potential methods for improving diagnosis.

In our study, the majority of patients were in the age group of 21 to 28 years with a mean age of 26.42 ± 7.8 years ranging from 13 to 45 years. Our results are at par with Raheja et al and Zameer Ulla [22,23], who reported a similar age distribution in their study with majority of their patients falling in 20-30. The distribution of laparoscopic findings; Acute Appendicitis 17 (34%); PID, salpingitis 9 (18%); Adhesions in pelvis and RIF 5 (10%); Ovarian Cyst 10 (20%); Endometriosis 2 (4%); Peritoneal Tuberculosis 3 (6%); No Diagnosis 4 (8%) remained same as that observed by Morino et al [24], who reported the same range of laparoscopic

diagnoses in their NSAP patients. The age wise incidence of various Laparoscopic findings in patients with NSAP were: Acute appendicitis was common in 13 to 20 year age group (10/17 patients) followed by 21 to 28 year age group (5/17 patients); PID was common in 21 to 28 year age group (6/9 patients); Endometriosis we found common in 29 to 36 year age group (2/2 patients); while as ovarian cysts were observed with increased frequency in 21 to 28 year age group (8/10 patients). Westrom L [25] in his study on the incidence and prevalence of PID found that in modern industrialized countries, the annual incidence of PID in women 15 to 39 years of age seems to be 10 to 13 per 1,000 women, with a peak incidence of about 20 per 1,000 women in the age group 20 to 24 years.

In our study, Laparoscopy established a diagnosis in 46 out of the total 50 patients, giving Laparoscopy a diagnostic accuracy of 92% in NSAP. Zameer Ulla [23] in his study was able to establish a diagnosis in 25 patients out of total 27 patients using laparoscopy in his study, with a diagnostic accuracy of 92.5%.

Conclusion

By the present study and comparing with the other international studies we can conclude that, diagnostic laparoscopy is an effective tool to the general surgeon in the diagnosis of abdominal disorders such as acute and chronic abdominal pain not diagnosed with conventional radiological investigations particularly in young females where there is a significant diagnostic dilemma.

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