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ORIGINAL ARTICLE

Outcome of diagnostic laparoscopy in young patients presenting with acute nonspecific abdominal pain.

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ABSTRACT… Objective: To assess the role of diagnostic laparoscopy in young patients with Non-specific abdominal pain. **Study Design:** Prospective study. **Setting:** General Surgery Department, Hayatabad Medical Complex Peshawar. **Period:** January 2021 to December 2021. **Material & Methods:** A total of 140 young patients between the ages of 15 and 30 who had diagnostic laparoscopy for non-specific abdominal pain and met the inclusion criteria were included. Dates of admission, dates of operation, demographic and clinical information about patients were recorded. **Results:** 140 patients in all were enrolled. The mean age was 22.5 years, with a range of 15 to 30 years. There were 50(35.7%) females and 90(64.3%) males, of the total. Diagnoses and therapeutic treatment were feasible in 95 cases (67.8%), no pathology was found in 29 cases (20.7%), the preoperative picture was uncertain in 11 cases (7.8%), and no diagnosis was obtained following laparoscopy in 5 cases (3.6%), respectively. **Conclusion:** Early diagnostic laparoscopy in young patients is a safe and effective procedure. As a result, it is a useful investigative technique for acute abdominal pain that has not been properly identified.

Key words: Acute Appendicitis, Diagnostic Laparoscopy, Non-specific Abdominal Pain.

INTRODUCTION

In our surgical practice, we frequently see patients with lower abdominal pain who, despite normal examinations at regular intervals and all significant tests, remain undiagnosed. Many people have appendectomies, some (particularly in our country) are given anti-tubercular medication, and most women end up taking anti-androgens.[1] In conclusion, patients with nonspecific abdominal pain continue to be a source of patient frustration and provide a challenge to the general surgeon's capacity to diagnose.[2]

Since Kelling's innovative introduction of laparoscopy for diagnostic use in 1902, the procedure has advanced significantly.[3] A minimally invasive surgical approach known as diagnostic laparoscopy enables the visual inspection and recording of intra-abdominal organs in order to identify any disease. Use of the operation for persistent intra-abdominal diseases is referred to as elective diagnostic laparoscopy.[4] Patients who appear with an acute abdomen are treated with diagnostic laparoscopy in emergency.[5]

As laparoscopy has become more widely used, the diagnostic accuracy in non-specific abdominal pain has significantly increased because it enables direct vision of the peritoneal cavity without the necessity for an outdated open exploratory laparotomy.[6] It is especially helpful for patients with ambiguous symptoms and stable hemodynamics who do not require immediate surgical intervention.[7]

Laparoscopy's rapidly rising popularity can be attributed to a number of things, including its suitability for both emergency and elective settings, high diagnostic yield, ability to treat most coexisting conditions in the same setting (when on-table diagnosis is possible), low patient morbidity, shorter hospital stays, and lower costs.[8]

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Many acute abdominal conditions can be treated using diagnostic laparoscopy, including acute appendicitis, acute intestinal obstruction, acute salpingitis, acute pelvic inflammatory disease, acute gut perforation and penetrating/blunt injuries to the abdomen.[9] Additionally, it plays a critical role in establishing the histopathologic diagnosis of chronic causes of abdominal pain particularly in instances of abdominal TB, endometriosis, adhesions brought on by inflammation and/or surgery.[10,11]

Our research aims to define the significance of laparoscopy as a diagnostic tool by evaluating how effectively it works for acute abdominal pain.

MATERIAL & METHODS

After approval from Hospital Ethical and Review board (reference # 1199-1), From January to December 2021 this prospective study was carried out in General Surgery Department of Hayatabad Medical Complex Peshawar. Inclusion criteria for the study included patients with abdominal pain lasting less than six days, with no conclusive diagnosis following a thorough clinical examination (including a gynaecological examination) and pertinent investigations. Patients with a precise diagnosis determined through evaluation and investigations, with clinical evidence of peritonitis and/or hemodynamic instability needing immediate surgical intervention, paediatric and elderly patients for whom a surgical and/or anaesthetic intervention outweighed the theoretical benefits of a diagnostic laparoscopy, patients with local signs of peritonitis, patients who have had major abdominal surgery in the past, patients who have been previously diagnosed with cancer or another chronic disease, and patients who are at risk for certain medical conditions, any contraindication to pneumoperitoneum, accidents/trauma patients, uncorrectable coagulopathy, patients undergoing any elective abdominal/pelvic surgical procedure & those who did not give consent were excluded from the study.

Acute nonspecific abdominal pain was described as having no known aetiology after a comprehensive clinical evaluation and investigation and lasting fewer than six days. Diagnostic yield of laparoscopy in the context of non-specific abdominal pain served as the series' primary outcome indicator. Symptom control at follow-up, readmissions, and the interval between presentation and the diagnostic laparoscopy were additional outcomes.

After completing all necessary examinations, patients with nonspecific abdominal pain who met the inclusion criteria underwent diagnostic laparoscopy within 24 hours positively. Under general anaesthesia, a laparoscopy was performed, which involved a comprehensive examination of the viscera of the pelvis as well as every abdominal quadrant.

All surgical pathologies identified during laparoscopy were attempted to be treated without switching to open surgery. Appendicectomy was performed in situations when there was no definite pathology seen postoperatively but there was clinical suspicion of appendicitis since symptomatic appendicitis is not always obvious macroscopically. Suspicious nodules were biopsied and any aspirated free peritoneal fluid was also collected. For histopathological, cytological, biochemical, and microbiological examination, all specimens were sent.

Patients were followed up for two months following surgery.

RESULTS

140 patients in all were enrolled. The mean age was 22.5 years, with a range of 15 to 30 years. There were 50(35.7%) females and 90(64.3%) males, of the total. Diagnoses and therapeutic treatment were feasible in 95 cases (67.8%), no pathology was found in 29 cases (20.7%), the preoperative picture was uncertain in 11 cases (7.8%), and no diagnosis was obtained following laparoscopy in 5 cases (3.6%), respectively. Figure-1

38 (40%) of the 95 positive on-table diagnoses demonstrated a macroscopic involvement of the appendix, necessitating an appendectomy. Only 1 (2.6%) of these appendix specimens yielded reports of a normal appendix, whereas 37

(97.4%) of them underwent further histology that supported the diagnosis of acute appendicitis. Acute cholecystitis, which was the second-most common disease in our sample 20(21%), was followed by mesenterial thrombosis 14(14.7%), duodenal perforation 7(8.1%), acute diverticulitis with perforation 5(5.3%), and ovarian cyst, 4(4.2%). (Table-I)

No pathology could be found in 29 (20.7%) patients, leading to appendectomy. On the basis of histology, 22 (75.9%) of the 29 appendix specimens had inflammatory changes. When the post-operative image in 11 (7.8%) of the patients was ambiguous, suspicious nodules were biopsied or aspirated and referred for further examination.

Thus, in 135 (96.4 %) of the cases, a diagnosis was attainable, either on the table or through histology. After diagnostic laparoscopy, there was no diagnosis in 5 (3.6%) cases (appendix specimens were also negative). Figure-2

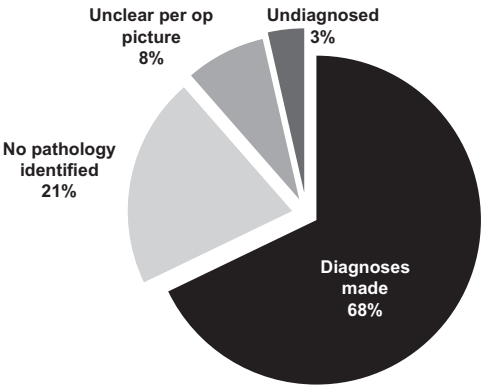

Figure-1. Diagnostic laparoscopy prediction rate

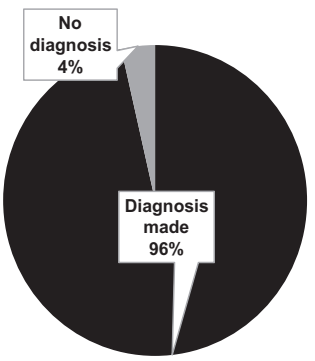

Figure-2. Efficacy of diagnostic laparoscopy

Diagnostic Pathology	Frequency (%)
Acute appendicitis	38 (40%)
Acute cholecystitis	20 (21%)
Ovarian cyst	14 (14.7%)
Duodenal perforation	7 (8.1%)
Perforated acute diverticulitis	5 (5.3%)
Mesenterial thrombosis	4 (4.2%)
Multiple liver metastases	4 (4.2%)
Omental cysts	3 (3.1%)

Table-I. Pathology identified through laparoscopy

DISCUSSION

Non-specific abdominal pain, which causes between 13 to 40 % of emergency surgical admissions for stomach pain, is a major issue in general surgery. However, studies have doubted the efficacy of extensive investigations, the effectiveness of diagnostic laparoscopy in the assessment and treatment of these patients has been documented by many authors.[12,13] In their analysis of 203 appendectomy procedures, Saverio D et al came to the conclusion that adjuvant testing was ineffective and that early surgical intervention resulted in better results.[14] Additionally, this method simply helps to raise costs and delay treatment in a developing nation like ours where modern radiological examinations are outside the reach of basic medical practice (sometimes not widely available and expensive). Therefore, diagnostic laparoscopy should be regarded as step II of the management.

In 135 out of 140 cases, we were able to identify a pathology. Since previous studies have shown comparable high conclusive diagnosis rates, our study's diagnostic output of 96.4% is consistent with those results (between 86 and 100%) for early diagnostic laparoscopy.[15]

In his study, Navez B et al was able in detecting pathology in 69 of 70 patients.[16] Kucuk G et al. reported a 20-minute turnaround time and a diagnosis accuracy of 96% for diagnostic laparoscopy.[17] Accordingly, acute appendicitis (40%), acute cholecystitis (21%) and ovarian cyst (14.7%) were the three main pathologies identified in our study. However, in a study by Arya PK et al, abdominal and pelvic TB were the primary pathologic findings, followed by

acute appendicitis & gynaecological pathology.[18] Chen CB et al. also reported this, with a diagnosis accuracy of 92% in 15 cases, with the most frequent diagnoses being abdominal TB and gynaecological pathology.[19] This just contributes to reinforce the subcontinent's rising TB incidence. Although adhesiolysis was performed concurrently, Morino M et al reported a high incidence (47 %) of postoperative adhesions.[20] Due to the thorough preoperative exclusion of cases with a history of abdominal surgery, no case of adhesions was recorded in our study.

For the diagnosis of appendicitis, laparoscopy is particularly sensitive, it not only finds appendicitis but also prevents unfavourable appendectomies. An early diagnostic laparoscopy in cases of suspected acute appendicitis enhances diagnostic accuracy, lowers the incidence of negative laparotomies, and lowers the risk of appendiceal perforation. In morbidly obese patients, when large incisions are necessary to remove the appendix and the risk of wound infection is significant, it is particularly helpful.[21]

In our investigation, 58/66 appendix specimens had inflammatory changes according to histology (87.9%), even though 8 of them were found to be macroscopically normal. A lot of authors support the idea that a healthy appendix should be left in place. In our study, 22 out of 29 seemingly normal appendix specimens had inflammatory changes on histology (75.9%), demonstrating the benefit of performing an appendectomy in the event of a negative laparoscopy. Acute cholecystitis was the second most frequent finding in our study.

In our study, ovarian cysts were also found to be a common finding 14.7%. According to literature studies, laparoscopic surgery can be used to treat any ovarian cysts that are identified during laparoscopy.[22] In situations of ovarian torsion, laparoscopic surgery may even be preferable to open surgery and safe to use while pregnant. Additionally, dueodenal perforation were found and successfully treated. However, because deuodenal perforation may have a broad range of appearances, identifying it during a laparoscopy can be challenging and depending on the surgeon's degree of expertise.[23]

A shift in the care of such patients is made possible by the safe provision of sufficient tissue for a thorough histologic assessment by diagnostic laparoscopy. Trauma patients were not included in our study because performing an immediate diagnostic laparoscopy is typically challenging since technical competence is not always available, but diagnostic laparoscopy may still be used in trauma patients as long as they are hemodynamically stable. Two randomised trials have supported it. However this is an evolving field.

LIMITATION

There are certain limitations to this study. Our study was limited because it was a single-center study, which prohibits the broad generalization of our results. Secondly, the study was limited by its relatively small sample size. A multicenter study with a larger sample is required to support our findings further.

CONCLUSION

Diagnostic laparoscopy is a safe, minimally invasive diagnostic and therapeutic treatment that has a very high success rate for diagnosing and treating acute abdominal complications. It reduces morbidity, frequently allows for simultaneous diagnosis and treatment, shortens hospital stays, lowers the price of investigations, and lowers the overall cost of therapy.

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