Role of Diagnostic Laparoscopy - In doubtful Abdominal and Pelvic pathologies

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ABSTRACT

Introduction: Acute abdomen refers to severe abdominal pain that occurs in less than 24 hours. Its management requires multimodality approach. Diagnosis is a key aspect in acute abdomen. There are some non specific conditions where diagnostic laparoscopy (DL) can be done in order to diagnose the cause of acute abdomen. Moreover DL can be used for surgical intervention as well if needed.

Aims & Objective: This study is intended to determine the various clinical presentations of acute abdomen, investigations and indications for DL and its outcome.

Materials & Methods: This is a prospective descriptive study that was conducted among 80 patients admitted to surgery ward in Prathima Institute of Medical Sciences, Karimnagar. Patients underwent DL for acute abdominal and pelvic pathologies and results were analyzed on the basis of age and gender distribution, indications, diagnosis, procedure and management.

Results: Among 80 patients, 40 percent of them were in 11 to 30 years of age; 47.5% were male while 52.5% were females. 80% patients had pain abdomen as indication for DL and in 5% patients, it was ascites for evaluation. 15% patients underwent staging laparoscopy for diagnosed GI malignancy. Most common diagnosis was Koch's Abdomen (22.5%) followed by GI malignancy (20%) and adhesions (15%). Among more than half of patients, sample was taken for tissue biopsy. 30 cases had definitive procedure performed laparoscopically, whereas, 10 cases underwent open procedure.

Conclusion: DL is helpful in confirming a doubtful diagnosis and it reduces chances of unnecessary laparotomies. It is superior to imaging modalities and makes definitive diagnosis. It is safe, less time consuming, cosmetic with lesser complications and lesser morbidity and mortality.

Keywords: Diagnostic Laparoscopy, Acute Abdomen, Koch's Abdomen, Adhesiolysis.

INTRODUCTION

Acute abdomen refers to severe abdominal pain that occurs in less than 24 hours. Its management requires multimodality approach. Diagnosis is a key aspect in acute abdomen. There are some non specific conditions where diagnostic laparoscopy (DL) can be done in order to diagnose the cause of acute abdomen. Moreover DL can be used for surgical intervention as well if needed.

DL is a minimal invasive surgical procedure. There is a need of emergency diagnostic laparoscopy in order to detect the pathology in early phase and then plan the treatment accordingly. It has an advantage over open laparotomy as with this procedure, thorough inspection of paracolic gutter and pelvic cavity can be done.

MATERIALS AND METHODS

It is a Prospective descriptive study among 80 patients with acute pain abdomen cause of which not diagnosed by routine investigations, chronic pain abdomen of uncertain etiology and ascites of unknown etiology were admitted to the surgery ward of Prathima Institute of Medical Sciences, Karimnagar.

Exclusion criteria included inability to tolerate pneumoperitoneum or general anesthesia, multiple adhesions/ 3 or more prior abdominal operations, uncorrected coagulopathy, generalized peritonitis, haemodynamic instability and mechanical or paralytic ileus.

All patients aged 15 years and above who underwent diagnostic laparoscopy for abdominal causes were included in this study. Pre-anesthetic check up was done in each case. Under General Anaesthesia and Supine position, port placement was open technique with Hasson cannula and two ports technique was used routinely employing 10 mm sub-umbilical port for telescope and 5mm port for probing, diathermy and biopsy in the relevant abdominal quadrant, an additional 5mm port was inserted only if necessary. Pneumoperitoneum was created using CO2. Pressures set at 12 mmHg -14 mmHg. A 30-degree telescope is employed in

most instances, as this facilitates easier inspection of peritoneal cavity and abdominal organs. The secondary ports are inserted under laparoscopic vision. The selected site on the abdominal wall is identified by finger identification of parietal peritoneum.

A systemic examination of the abdomen was then performed as in laparotomy. We begin at the left lobe of the liver but any scheme can be used as long as it is consistent. Next, check around the falciform ligament to the right lobe of liver, gallbladder and hiatus. After checking the stomach, move on the caecum and appendix and check the terminal ileum, follow the colon round the sigmoid colon, and then check the pelvis. Biopsy of pathologic lesions like tubercles, peritoneum, liver, lymph nodes done according to need. If a pathologic finding needed surgical intervention then it was done laparoscopically. If laparoscopic management was not possible due to any reason, it was converted to laparotomy. Planned laparotomy and definitive surgery abandoned in case of staging laparoscopy for GI malignancy depending on findings.

Biopsy reports were followed up. Patients requiring medical line of treatment, like Koch' abdomen, were started on treatment. The impact of the procedure was considered positive if the laparoscopy revealed a pathology which may be responsible for the patient's symptoms, or when the suspected pathology was excluded.

RESULTS

In the present study we had patients of all age groups starting from 16 years to 71 years (Table 1). In our series, 64 (80%) patients had pain abdomen as indication for DL and in 4 (5%) patients, it was ascites for evaluation. 12 (15%) patients underwent staging laparoscopy for diagnosed GI malignancy. (Table 2)

Out of the 80 patients who underwent DL, 18 (22.5%) patients were diagnosed with Koch's abdomen, 16 (20%) with GI malignancy, 12 (15%) with adhesions, 8 (10%) with acute appendicitis, 6 (7.5%) with chronic appendicitis, 4 (5%) each with PID and appendicular mass, one each with chocolate cyst of ovary, cirrhosis + PUH, & appendicular mass with PUH. In 6 (7.5%) patients we could not obtain any definitive diagnosis.(Table 3)

Laparoscopic biopsy were performed in 42 patients. 12 patients underwent laparoscopic appendicectomy and 10 patients laparoscopic adhesiolysis. One patient had feeding jejunostomy performed along with peritoneal biopsy, another had appendicectomy performed after adhesiolysis. In 8 cases no intervention was done.

30 cases had definitive procedure performed laparoscopically, whereas, 10 cases underwent open procedure. In 2 case alternate procedure was performed laparoscopically - lap assisted feeding jejunostomy for metastatic carcinoma stomach and in 12 cases major procedure was abandoned. Remaining 26 cases were managed conservatively.

DL confirmed pre-operative diagnosis in 10 cases whereas in 30 cases the diagnosis had changed. 34 cases were diagnosed after DL for whom no pre-operative diagnosis was made. In 6 cases DL was normal and no diagnosis could be made.

Table1: Age Distribution

Age (Years)	Number of patients	Percentage
1-10	0	0
11-20	16	20
21-30	16	20
31-40	12	15
41-50	10	12.5
51-60	12	15
>60	14	17.5
TOTAL	80	100

Table 2: Indication for Diagnostic Laparoscopy

Laparoscopy Indications for DL	Number of patients	Percentage
Pain abdomen for evaluation	64	80
Ascites for evaluation	04	05
Staging Laparoscopy	12	15
Total	80	100

Table 3: Diagnosis made after DL (Diagnostic Laparoscopy)

Diagnosis	Number of patients	Percentage
Koch's abdomen	18	22.5
Chronic appendicitis	6	7.5
Acute Appendicitis	8	10
Adhesions	12	15
PID	4	5.0
Malignancy	16	20
No Definitive Diagnosis	6	7.5
Chocolate Cyst of Ovary	2	2.5
Cirrhosis + PUH	2	2.5
Appendicular Mass	4	5.0
Appendicular mass + PUH	2	2.5

DISCUSSION

We included patients of all age groups starting from 16 years to 71 years. We had 38 (47.5%) male and 42 (52.5%) female patients.

In one patient with pain abdomen for evaluation we found metastasis to peritoneum with gross ascites and it turned out to be a metastatic adenocarinoma on biopsy. The primary was not found even after evaluation. Another case suspected to have liver abscess? ruptured, diagnosed as liver secondaries on diagnostic laparoscopy; primary of which also could not be found. Thus suspected benign pathology turned out to be malignancy on diagnostic laparoscopy and management changed.

In one female patient of reproductive age group with pain in right iliac fossa, acute appendicitis was suspected but on laparoscopy found to have ruptured chocolate cyst of right ovary. Thus DL avoided an unnecessary appendicectomy. In another lady suspected of acute appendicitis laparoscopy revealed Pelvic Inflammatory Disease, who was subsequently managed by antibiotics thus avoiding the prolonged suffering of patient. Another lady with pain abdomen was found to have PID. Thus DL permits earlier definitive diagnosis and prompt initiation of appropriate therapy for disease of the female reproductive tract that simulates appendicitis.

In all 80 patients of our study, we performed diagnostic laparoscopy and reached to a final definitive diagnosis in 74 (92.5%) patients, which was just confirmation of diagnosis by conventional methods in 10 (12.5%) patients, changed diagnosis in 30 (37.5%) patients and in 34 (42.5%) patients new definitive diagnosis was made.

Only 4 (5%) patients had post-operative complications, out of which 2 cases had hemorrhage and 2 cases had wound infection. The wound infection patient had underwent mini laparotomy and adhesiolysis. 2 out of 10 open patients and 2 out of 70 (2.8%) laparoscopic group had complications. By reducing operative time, exposure to environment and incision length, DL significantly reduces post-operative complication rate.

Out of 34 patients in whom we tried to operate laparoscopically, 10 underwent open procedure. Two patients underwent mini laparotomy for staging the disease itself because of extensive adhesions, two patients underwent mini laparotomy for adhesiolysis of extensive adhesions, 4 patients underwent open para-umbilical hernia repair and 2 patients open Feeding Jejunostomy for advanced carcinoma stomach (Linitus Plastica).

We analyzed the histopathological reports of all specimens sent for examination. 2 cases were not supported by histopathology where clinical diagnosis of panniculitis with doubtful lymphoma was made. In 2 cases blind biopsies were taken from peritoneum showed normal tissue and in another 2 cases showed reactive hyperplasia.

Compared to series of Mohammed Hamad Al-Akeely et a1[1] who had 6% conversion rate, our series had 12.5%. With the growing availability of experienced operators, the morbidity of laparoscopy is much less of an issue and with improved skills conversion rates will be lower.

Our series had a diagnostic accuracy of 92.5% and failed to make diagnosis in 7.5%.

In a study by S Rai et al[2] on the role of diagnostic laparoscopy on abdominal TB 36 patients were included in which 24(66.6%) patients were male and 12(33.4%) female. Mean age was 43 years. Average age in our series was 38 years. All patients were managed conservatively with anti-tubercular treatment.

In a study by Ates M et al.[3], done in Malatya State Hospital, Malyata, Turkey on routine use of laparoscopy in patients with clinically doubtful diagnosis of appendicitis 74 patients were included. 35 patients diagnosed as appendicitis only 6 underwent open appendectomy and rest by laparoscopy. In 10 cases no diagnosis was made and remaining 29 patients PID, mesenteric lymphadenopathy, ruptured hemorrhagic and simple ovarian cysts were found.

In another study conducted at department of Obstetrics and Gynecology, University of Louisville School of Medicine, Kentuky by Whitworth et al.[4] , on value of diagnostic laparoscopy in young women with possible appendicitis 31 patients underwent DL. Appendicitis was diagnosed in 5 patients, PID in 8, ruptured ovarian cyst in 6, ileitis in one and no definitive diagnosis in 6 patients was made. 5 patients had normal appendix removed.

The limitations of present study is that the diagnostic laparoscopy is performed by different surgeons to different patients. The accuracy, yield and conversion rate depends on the experience of the surgeon. The duration of stay in the hospital is not emphasized as most the patients stayed for long time in the hospital in medicine wards for evaluation and then transferred to us for diagnostic laparoscopy to find out abdominal pathology.

CONCLUSION

DL reduces chances of unnecessary laparotomies and useful in metastasis evaluation and diagnosis of peritoneal seedlings. It is superior to imaging modalities like CT abdomen for staging of GI malignancies. It reduces patient suffering by establishing definitive diagnosis and thus early initiation of definitive treatment. It is aslo therapeutic in some of the cases like adhesiolysis. DL is safe, less time consuming, cosmetic with lesser complications and lesser morbidity and mortality. It is also specifically important in females of reproductive age group with doubtful appendicitis of tubo-ovarian pathologies. DL is also very helpful in post laparotomy abdominal pain cases.

REFERENCES

1. Mohammed Hamad Al-Akeely. The impact of elective diagnostic laparoscopy in chronic abdominal disorders. The Saudi Journal of Gastroenterology 2006;12(1): 27-30.
2. Rai, S. Thomas W.M. Diagnosis of abdominal tuberculosis-the importance of laparoscopy. J R Soc Med 2003; 96 : 586-588.
3. Mustafa Ates, Sedat Sevil, Mahmut Bulbul. Routine use of laparoscopy in patients with clinically doubtful diagnosis of appendicitis. J Laparoendosc & Adv Surg Tech. April 1, 2008, 18(2): 189-193.
4. Whitworth CM, Whitworth PW, Sanfillipo J, Polk HC Jr. Value of diagnostic laparoscopy in young women with possible appendicitis. Surg Gynecol Obstet.1998 Sep ; 167(3): 187-190.

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