

Laparoscopic approach for hospitalized women in reproductive period presenting with non-specific abdominal pain

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Abstract

Aim: The aim of this study is to evaluate nonspecific abdominal pain of hospitalized women in reproductive period and to make a contribution to the literature.

Material and Method: Medical records from 201 women in reproductive period presenting with nonspecific abdominal pain admitted to emergency department between 2010 and 2014 are evaluated retrospectively.

Results: Diagnostic laparoscopy was performed in 125 of 201 patients. The mean age of patients was 8.5 years, mean white blood cell (WBC) count:10.9 10³/uL, mean C-reactive protein (CRP) levels: 2.6 mg/dl, mean preoperative follow-up time 7.8 hours, mean operation time 32 min., mean postoperative follow-up duration time was 15 hours. In ultrasonography, 38% of patients had minimal liquid in Douglas's area. In Computerized Tomography (CT) with intravenous, oral-rectal contrast, 30% of patients had minimal liquid. In 89% of patients, who underwent laparoscopic exploration, cause of the abdominal pain was found. In 57 explorations, purulent fluid was detected and associated to pelvic inflammatory disease, in 42 patients sero-hemorrhagic fluid was detected and associated to hemorrhagic cyst rupture. 9 patients had acute appendicitis, 2 patients had Meckel's diverticulitis and one patient had a left lower quadrant brid.

Conclusion: Our results indicate that laparoscopy serves not only as diagnostic, but also as diagnostic tool for female patients in reproductive age with nonspecific abdominal pain.

Keywords: Nonspecific Abdominal Pain; Women; Reproductive Period; Laparoscopy.

INTRODUCTION

Acute nonspecific abdominal pain (NSAP) is an important problem in general surgery, and 40% of all urgent patients presenting with abdominal pain have NSAP (1). Severe or moderate abdominal pain lasting less than 7 days is defined as NSAP (2-4). The pain is usually localized in right iliac and hypo-gastric region. Fever, peritonitis or increased levels of inflammatory tests are not present. Physical and basic examinations and full abdominal ultrasonography fail to diagnose these patients.

Nonspecific abdominal pain can be hard to diagnose and treat. For differential diagnosis, pelvic inflammatory diseases and abscesses, hemoperitoneum, ovarian torsion, ectopic pregnancy and perforated appendicitis should be ruled out first, or diagnosing and treating NSAP can be late. Misdiagnosis is reported to cause increased unnecessary laparotomy and morbidity as %5-22 (5-10).

Laparoscopic exploration has more advantages than laparotomy (Figure-1). Also, laparoscopy allows clinicians to correct 40% of false preoperative diagnosis of women in reproductive period and treats the actual disease (11-14).

MATERIAL and METHODS

Retrospectively, medical records from 201 women in reproductive period presenting with nonspecific abdominal pain admitted to emergency department of Dr. Sadi Konuk Education and Research Hospital between 2010 and 2014 are evaluated. 125 of NSAP patients were treated with laparoscopic exploration, whereas 76 patients Clinical and laboratory follow-up applied for the other. Patients demographic characteristics, laboratory and screening results, consultations, follow-up durations, operation findings and durations, length of hospital stay, number of reapplications to the hospital and cost analysis have been assessed.

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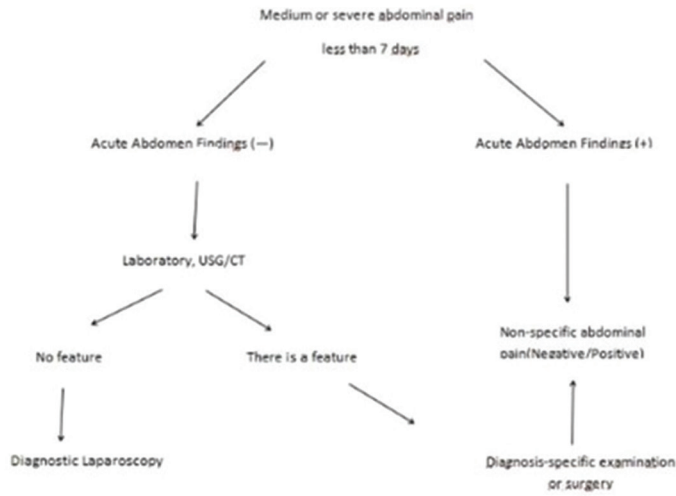


Figure 1. Non-specific abdominal pain treatment algorithm

Surgical Technique

After proper sterilization, 10 mm trocar was inserted into abdomen with open technique. 30 degree laparoscope camera was used to explore for erythema peritoneum, purulent exudate liquid and organs with inflammatory changes. Following this, 5 mm trocars enrolled from left iliac fossa and 5 mm trocar was enrolled from median suprapubic region. Appendix, uterus, ovaries, Douglas pouch and all of the small intestines were explored at 30 degree Trendelenburg position, and surgical treatment was then applied to the patients. In case of not identifying any pathology, 10 mm trocar was enrolled from median lateral of the right rectus muscle, and posterior of the stomach was examined by opening gastrocolic ligament. Small curtain of the stomach was then examined opening omentum minus. Transverse column posterior was analyzed and Kocher maneuver was performed to analyze posterior of the duodenum.

RESULTS

Diagnostic laparoscopy has performed for 125 patient. Patients median age was found 28,5 (18-43), WBC was 10,9 (6.7-16.6) 103/uL and CRP was 2,6 (0.6-6.7) mg/dl. Pre-operative follow up, median operation time and post-operative follow up duration was 7,8 hours, 32(25-70) minutes and 15(9-74) hours, respectively. All patients

were evaluated using abdominal ultrasound (USG) before the operation. 47 (38%) of the patients had minimal liquid in douglas pouch or edema at the terminal ileum level mesenter or ovarian cyst. 14 (30%) of the 47 patients, who were screened by computer tomography (CT), had minimal liquid in douglas pouch or edema at the terminal ileum level mesenter or ovarian cyst at CT. Patients were assessed by gynecologist and it has been found that 12(10%) of the patients had findings that explain abdominal pain. Mean cost of the operation was 832(755-980) TL.

Laparoscopic exploration was applied to the 125 patients and it has found that 111 (%89) of them had findings that explain abdominal pain. Median age was 28,4 (18-43) years, median WBC was 11,6 (8.8-16.6) and median CRP was 2.9 (0.69-6.7) mg/dl for these 111 patients. Their median pre-operative follow up duration, operation time and post-operative follow up duration were 7.7 (3-39) hours 30(25-40) minutes and 15;(6-48) hours, respectively. 44(40%) of those 111 patients had positive USG findings. 7 (7%) of the 111 patients had findings at gynecologic assessment before operation but gynecologists did not suggest any operation for them. Laparoscopy assessed by CT was performed for 40 of these 111 patients and results showed that 14 (%35) of them had findings at CT. 57 patients had 50-200 cc purulent liquid due to pelvic inflammatory disease, 42 patients had 50-400 cc sero-hemorrhagic liquid due to hemorrhagic cyst rupture, 9 patients had acute appendicitis, 2 patients had Meckel diverticulitis and 1 patient had brid at left lower quadrant. Mean cost was 780(755-830) TL. 14 (11%) patients, to whom laparoscopic exploration was performed, did not have any findings that explain the abdominal pain. Median age of those patients were 28.6(18-40) years, median WBC was 8.1(6.7-12.6)103/uL and median CRP was 1,56(0.47-2.9) mg/dl. Their median pre-operative follow up duration, operation time and post-operative follow up duration were 8.6 (3-26) hours, 40 (35-70) minutes and 18 (9-74) hours, respectively. 5 (55%) of those 14 patients had findings at gynecologic assessment before operation but gynecologists did not suggest any operation. 3 (21%) of those 14 patients had findings that assessed as inflammation. 7(50%) of those 14 patients had CT screening before operation and no significant finding was found. Mean cost was 846 (755-980) TL (Table-1).

Table 1. Data for surgical patients

Patients (n)	Age (year)	WBC (10 ³ /uL)	CRP (mg/dl)	Follow-up time (hour)	Operation time (min.)	Hospital stay (hour)	USG (+/-)	BT (+/-)	Cost (TL)	
n: 125	28,5 (18-43)	10,9 (6.7-16.6)	2,6 (0.6-6.7)	7,8	32 (25-70)	15 (9-74)	47/78	14/33	832 (755-980)	
n: 111	28,4 (18-43)	11,6 (8.7-16.6)	2,9 (0.69-6.7)	7,7 (3-39)	30 (25-40)	15 (6-48)	44/67	14/26	780 (755-830)	n:57 Purulent fluid(50-200 cc) n:42 Serohemorrhagic fluid (50- 400cc) n:9 Acute appendicitis n:2 Meckel diverticulitis n:1 Brid
n: 14	28,6 (18-40)	8,1 (6.7-12.6)	1,56 (0.47-2.9)	8,6 (3-26)	40 (35-70)	18 (9-74)	3/11	0/7	846 (755-980)	Negative Laparoscopy

Median age of 76 patients without laparoscopic exploration were 22,4 years (18-32), median WBC was 7,4 (6,2-12,8) 103/uL and median CRP was 1,4 (0.69-2,4) mg/dl. In addition, median emergency admission was 3,7 times (1-8). 48 of the 257 USG which are performed under emergency conditions had minimal liquid in Douglas pouch or edema

at the terminal ileum level mesenter or ovarian cyst, while 13 of the total 183 CT had minimal liquid in Douglas pouch or edema at the terminal ileum level mesenter or ovarian cyst. Mean cost for those 76 patients who were assessed 281 times under emergency conditions by gynecologist was 430 (290-640) TL (Table-2).

Table 2. Data for non-surgical patients

Patients (n)	Age (year)	WBC (103/uL)	CRP (mg/dl)	Total USG (+/-)	Total BT (+/-)	Gynecology consultation (+/-)	Number of Applications	Cost (TL)
n:76	22,4 (18-32)	7,4 (6.2-12.8)	1,4 (0.69-2.4)	257 (48/209)	183 (13/170)	281 (3-8)	281 (3-8)	430 (290-640)

DISCUSSION

Laparoscopy is performed since last four decades in surgery. In case of NASP, operation or non-operative follow-up decided by surgeons and radiologists 88% depending on their experiences, personal factors (15-19). USG findings involve 38% acute abdomen doubt, and 12 (10%) patients who were assessed by gynecologist had findings that explain abdominal pain. However, our results demonstrate that among most important diagnostic criterias are patient anamnesis and abdominal pain intensity. While the sensitivity of the USG, which is used often to assess abdominal pathologies, is %60-89, this ratio for nonspecific abdominal pain is %50. Despite CT is more accurate because of its sensitivity (84-98%), it is not always performed in emergency services (16-22). Because of that, CT was performed for 47 patients. Therefore, 14 (30%) patients had findings suspicious of acute abdomen.

The cause for abdominal pain in 89% of the patients was found in 30 minutes performing laparoscopic exploration, and the patients were treated. These results are similar to the results in the literature. Sugerbaker et al. reported that diagnostic laparoscopy which performed in patients with non-spesific abdominal pain allowed clinicians to explain the cause of the abdominal pain in more than 90% of the patients (23). Repeated physical examination, laboratory tests and imaging studies to make a definitive diagnosis for non-specific abdominal pain cause 4-6 days, which increase the average length of stay in hospital (16,17-24). Cost analysis results showed that the price of the performed operation for non-specific abdominal pain was higher than the price of the non-operative follow up. Our hospital's database was also reviewed, and it was realized that non-operative follow up, which was applied to 76 patients, was cost effective. However, increased workload in emergency service, repeated tests and imagings studies in different periods have caused increase in non-operative follow up cost. In addition, these patients might be also examined in other hospitals which rise the cost and workload even more.

Our diagnostic laparoscopic interventions ratio was more than literature. Despite of more cost at first admission, diagnostic laparoscopy allows solving the problem rapidly. Antibiotherapy can be started earlier in pelvic enflamatuar

diseases. Furthermore early treatment is important for fertility conservations. And transferring patients to the gynecology clinic may fast. Also diagnostic laparoscopy prevents patients from unnecessary appendectomy. Early laparoscopy provides better improvement in quality of life than classical observation.

Selection of incision which performed in laparotomy is another problem. Laparoscopic exploration can help clinicians to make optimal laparotomy incision. Different clinical scenarios must be considered for the patients that recourse to hospital with abdominal pain. Laparotomies that performed with true pre-operative diagnosis have 22% negative laparotomy incidence. This also increases the cost and length of stay in hospital. Therefore, it is possible that laparoscopy can be helpful for all of the patients with acute abdomen. Recently, laparoscopy is a gold standard for accurate diagnosis and treatment. Our findings suggest that laparoscopy provide early diagnosis and treatment, prevent morbidities caused by abdominal pathology and reduce workload.

CONCLUSION

It can be concluded that laparoscopy is not only used for treatments, it also can be used for diagnose women in reproductive period presenting with NSAP.

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