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Threatening signals in acute abdomen

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ABSTRACT

Objective

To determine the most significant factors in clinical and laboratory investigations that can help in pointing presence or absence of serious surgical condition.

Methods

It's a retrospective analysis of 210 patients who were admitted to Prince Rashid Ben Al-Hassan hospital, Irbid, Jordan as a case of acute abdominal pain from January 2008 to January 2009.

Results

Out of 210 patients, 127 were female and 83 male. The ages ranged from 15 to 65 year. One hundred and four patients (49.5% of total) were diagnosed to have acute surgical pathology. Of these, 49 (47.1%) had acute appendicitis where appendectomy done. Seventy one (33.8% of total) were labeled to have acute non specific abdominal pain. Nausea and vomiting presented in 72.1% of patients who have acute surgical pathology followed by localized tenderness or guarding in (70.2%), leukocytosis (62.5%) and tachycardia in 54.8% of patients.

Conclusion

Nausea and vomiting, localized tenderness or guarding, leukocytosis, and tachycardia were associated with significant pathology. Patients without these variables were unlikely to have significant pathology requiring further active medical or surgical intervention. (Rawal Med J 2010;35:).

Key words

Acute abdomin, nausea, vomiting, abdominal pain.

INTRODUCTION

Acute abdominal pain is a common presentation to the emergency room leading to hospital admission.[1] Right iliac fossa pain accounts for one third to half of all such admissions, with appendicitis being the most common cause.[2] However, the signs and

symptoms can mimic any other acute abdominal condition.[3] Decision making in patients with abdominal pain on the basis of clinical and laboratory evaluation alone can result in unnecessary interventions or in delayed treatment of urgent conditions. Several forms of imaging, of which ultrasonography and computed tomography (CT) are the most often used, can assist in clinical decision making.[4] Imaging has been shown to have a positive effect on the accuracy of the clinical diagnosis.[5] Despite the advance in diagnostic modalities; the diagnosis is still doubtful in 30%-40% of cases.[6,7]

Acute non specific abdominal pain, generally defined as acute abdominal pain of under seven days duration and for which there is no diagnosis after examination and baseline investigations, is a common cause of emergency admissions, many of these patients have persistence symptoms and are difficult to discharge, undergo multiple, often costly investigations and have repeated admissions.[8] Hospitalization followed by active clinical observation, traditionally defined as "wait and see," has been the most widely used method of clinical management of patients with nontypical clinical signs. The predictive value of clinical diagnosis reached with this method, which varies with the underlying cause, has been estimated between 68% and 92%.[9] Acute abdominal pain includes many diseases that range from self limited condition to serous, even fatal conditions.[10] Surgeons frequently face challenging acute abdominal pain, although it is cost effective and beneficial to identify patients with non specific abdominal pain, but it is more vital not to miss serous surgical condition. In this study, we try to identify most significant factors in clinical and laboratory investigations that can help us in pointing presence or absence of serious surgical condition.

PATIENTS AND METHODS

Two hundred and ten patients who were admitted to Prince Rashed Al-Hassan hospital as a case of acute abdominal pain from January 2008 to January 2009 were included in this study. They were admitted by surgical specialist or senior surgical resident either from emergency room or from surgical clinic. All had acute abdominal pain of less than seven days. Patients who underwent appendectomy or previous major surgeries, pregnant patients and patients known to have chronic abdominal pain and malignancy were excluded from the study.

History, physical examination, base line laboratory test including complete blood count (CBC), electrolytes, kidney function test (KFT) and urine analysis were

performed. Further investigations and imaging test were done according to the patient condition. Our variables in this study were presence of nausea and vomiting, urinary symptoms, changes in bowel habits, fever, tachycardia, localized tenderness or guarding and leukocytosis. Patients were discharged after diagnosis and management, or labeled as non specific abdominal pain and discharged when pain subsided and the presences of serious surgical condition had been excluded.

RESULTS

Out of 210 patients, 127 were female and 83 male. There ages ranged from 15 to 65 year (median 32 year). One hundred and four patients (49.5% of total) were diagnosed to have acute surgical pathology either on admission or after further investigations. Of these, 49 were diagnosed to have acute appendicitis where appendectomy was done same day of diagnosis; two patient were unfortunately discharged soon after admission then returned back within 48 hours, all cases of appendicitis were confirmed by histopathological reports. Other causes of acute surgical abdomen summarized in table 1.

Table 1, Causes of acute serious surgical abdominal pain.

Pathology	Number of cases	Male	Female
Acute appendicitis	49	19	30
Acute cholecystitis	18	6	12
Acute panceritits	12	4	8
Acute intestinal obstruction	9	5	4
Perforated peptic ulcer	7	6	1
Perforated bowel tumor	3	1	2
Pyonephrosis	3	2	1
Rupture ectopic pregnancy	3	0	3
Total	104	43 (41.3%)	61 (58.7%)

Final diagnosis could not be reached in 71 (33.8% of total) and they were labeled to have acute non specific abdominal pain. In these, pain subsided in 35 patients who were discharged within 48 hours without further management, while in 21 patients further investigations were done including abdominal and pelvic CT scan in 14 patients, upper endoscopy in 6 patients and colonoscopy in one patients, all these

investigations were normal and they were discharged with a mean of 4 days of hospitalization.

Table 2. Causes of acute non serious abdominal pain.

Pathology	Number of cases	Male	Female
Non specific abdominal pain	71	26	45
Renal colic	16	9	7
Urinary tract infection	5	1	4
Gastroenteritis	3	3	0
Rupture simple ovarian cyst	11	0	11
Total	106	39 (36.8%)	67 (63.2%)

Another 15 patients underwent surgery to exclude serious surgical pathology; 5 appendectomies, 8 diagnostic laparoscopy and 2 midline lapartomies, all with negative findings and they were discharged with a mean of 5 days of hospitalization.

Table 3a. **Manifestations of acute serious surgical abdominal pain.**

Pathology	Nausea and vomiting	Urinary symptoms	Bowel habits
Acute appendicitis (49 patients)	38 patients (77.5%)	16 patients (32.6%)	12 patients (24.5%)
Acute cholecystitis (18 patients)	11 patients (61.1%)	2 patients (11.1%)	3 patients (16.7%)
Acute pancreatitis (12 patients)	7 patients (58.3%)	4 patients (33.3%)	6 patients (50%)
Acute intestinal obstruction (9 patients)	7 patients (77.8%)	2 patients (22.2%)	8 patients (88.9%)
Perforated peptic ulcer (7 patients)	6 patients (85.7%)	One patient (14.3%)	3 patients (42.8%)
Perforated bowel tumor (3 patients)	2 patients (66.7%)	Non	3 patients (100%)
Pyonephrosis (3 patients)	2 patients (66.7%)	3 patients (100%)	One patient (33.3%)
Rupture ectopic pregnancy (3 patients)	2 patients (66.7%)	2 patients (66.7%)	One patient (33.3%)
Total=104 patients	75 patients (72.1%)	30 patients (28.8%)	37 patients (35.6%)

Table 2 summarized other causes of acute non serious surgical pathology abdominal pain.

Table 3b. **Manifestations of acute serious surgical abdominal pain.**

Pathology	Fever	Tachycardia	Localized tenderness or guarding	Leukocytosis
Acute appendicitis (49 patients)	12 patients (24.5%)	26 patients (53%)	40 patients (81.6%)	31 patients (63.3%)
Acute cholecystitis (18 patients)	8 patients (44.4%)	7 patients (38.9%)	13 patients (72.2%)	11 patients (61.1%)
Acute pancreatitis (12 patients)	7 patients (58.3%)	7 patients (58.3%)	5 patients (41.7%)	8 patients (66.7%)
Acute intestinal obstruction (9 patients)	One patient (11.1%)	3 patients (33.3%)	5 patients (55.6%)	4 patients (44.4%)
Perforated peptic ulcer (7 patients)	6 patients (85.7%)	7 patients (100%)	6 patients (85.7%)	6 patients (85.7%)
Perforated bowel tumor (3 patients)	2 patients (66.7%)	2 patients (66.7%)	One patient (33.3%)	One patient (33.3%)
Pyonephrosis (3 patients)	3 patients (100%)	2 patients (66.7%)	One patient (33.3%)	2 patients (66.7%)
Rupture ectopic pregnancy (3 patients)	One patient (33.3%)	3 patients (100%)	2 patients (66.7%)	2 patients (66.7%)
Total= 104 patients	40 patients (38.5%)	57 patients (54.8%)	73 patients (70.2%)	65 patients (62.5%)

Nausea and vomiting presented in 72.1% patients who have acute surgical pathology followed by localized tenderness or guarding in 70.2%, leukocytosis in 62.5% and tachycardia in 54.8% of patients (Table 3 a and b).

Table 4a. **Manifestations of acute non-serious surgical abdominal pain.**

Pathology		**Nausea & vomiting**	**Urinary symptoms**	**Bowel habits**
Non specific abdominal pain	Early discharge (35 patients)	9 patients (25.7%)	3 patients (8.6%)	6 patients (17.1%)
	Further investigations (21 patients)	7 patients (33.3%)	4 patients (19%)	3 patients (14.3%)
	Underwent surgery (15 patients)	9 patients (60%)	2 patients (13.3%)	2 patients (13.3%)
Renal colic (16 patients)		7 patients (43.7%)	11 patients (68.7%)	One patient (6.2%)
Urinary tract infection (5 pt's)		2 patients (40%)	4 patients (80%)	Non
Gastroenteritis (3 pt's)		3 patients (100%)	Non	2 patients (66.7%)
Rupture simple ovarian cyst (11 pt's)		5 patients (45.4%)	One patient (9%)	One patient (9%)
Total= 106 patients		42patients (39.6%)	25patients (23.6%)	15 patients (14.1%)

Table 4 a and b show these and other variables in patients who have acute non serious acute surgical pathology.

DISCUSSION

Non specific abdominal pain (NSAP) is a significant problem in general surgery and accounts for an estimated 13% to 40% of emergency surgical admissions for acute abdominal pain. The mean hospital stay for patients admitted with NSAP ranges between 4 and 6 days, using the traditional “wait and see” management.[11] For improving diagnostic rates in acute abdominal pain, many researchers have suggested ultrasonography,[12] thermography, peritoneal cytology, CT, and more recently spiral CT.[13] Despite all these, routine diagnosis in acute appendicitis still poses a challenging problem.[14] Major areas of concern are perforations (rate of up to 20%), negative appendectomies (rate of up to 30%), delayed operations, complications after operation, and late discharge,[15]

Diagnostic laparoscopy (DL) may be a key to solving the diagnostic dilemma of nonspecific acute abdomen. Furthermore, it allows not only direct inspection of the abdominal cavity but also surgical intervention, if needed.[16] The procedure allows rapid and thorough inspection of the paracolic gutters and pelvic cavity that is not

possible with the open approach. The emergency laparoscopic approach for patients with acute abdomen improves the diagnostic accuracy and is therefore is recommended and accepted worldwide.[17]

Table 4b. **Manifestations of acute non-serious surgical abdominal pain.**

Pathology		**Fever**	**Tachycardia**	**Localized tenderness or guarding**	**Leukocytosis**
Non specific abdominal pain	Early discharge (35 patients)	2 patients (5.7%)	15 patients (42.9%)	4 patients (11.4%)	11 patients (31.4%)
	Further investigations (21 patients)	3 patients (14.3%)	8 patients (38.1%)	5 patients (23.8%)	7 patient (33.3%)
	Underwent surgery (15 patients)	5 patients (33.3%)	8 patients (53.3%)	11 patients (73.3%)	9 patients (60%)
Renal colic (16 patients)		One patient (6.2%)	8 patients (50%)	One patient (6.2%)	6 patients (37.5%)
Urinary tract infection (5 patients)		One patient (20%)	Non	One patient (20%)	One patient (20%)
Gastroenteritis (3 patients)		One patient (33.3%)	One patient (33.3%)	non	One patient (33.3%)
Rupture simple ovarian cyst (11 patients)		One patient (9%)	4 patients (36.4%)	4 patients (36.4%)	3 patients (27.3%)
Total= 106 patients		14 patients (13.2%)	44 patients (41.5%)	26 patients (24.5%)	38 patients (35.8%)

In the present study, nausea and vomiting was found to be the more presenting symptoms (72.1%) in patients diagnosed to have acute surgical abdominal pain, which reflect it is role in predicting the seriousness of the abdominal pain. In other words, it seem to have relatively a high sensitivity, but on the same time it was present in (39.6%) of patients who did not have serious acute surgical abdominal pain reflecting its low specificity; in spite of this, nausea and vomiting should be considered a reliable symptom.[18] Localized tenderness or guarding came next to nausea and vomiting as presenting findings (70.2%) in patients with serious acute surgical abdominal pain, and seem to have a relatively good specificity as it occurred in only (24.5%) of patients with acute non serious surgical abdominal pain.[19]

Leukocytosis and tachycardia both have a relative good sensitivity; they were found in (62.5% and 54.8% respectively) patients with serious surgical abdominal pain. On the other hand, both were present in (35.8% and 41.5% respectively) of patients with acute non serious surgical abdominal pain which reflect their low specificity.[20] Leukocytosis is a non-specific reaction induced by many different causes like physical stress, acute or chronic inflammation and several other conditions.[21] Although fever was present in only 38.5% of patient with acute serious surgical abdominal pain, it should be taken into account that it presence may indicate a complication of the disease. Other variables in our study seems to play minor or less significant role in predicting the seriousness of the abdominal pain ,but they play vital role in helping us with narrowing of the differential diagnosis of abdominal pain .

CONCLUSION

All patients admitted to emergency department with abdominal pain should be referred for surgical opinion and the diagnosis of non specific abdominal pain should only be made after thorough assessment after exclusion of definite pathology. The most variables causing alarming signals in acute abdominal pain and associated with significant pathology were nausea and vomiting, localized tenderness or guarding, leukocytosis, and tachycardia. Patients without these variables are unlikely to have significant pathology requiring further active intervention.

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